



UCMERCED

**ADDENDUM TO THE 2020 LONG RANGE  
DEVELOPMENT PLAN SUBSEQUENT  
ENVIRONMENTAL IMPACT REPORT**

**EXPERIMENTAL SMART FARM PROJECT**

**UNIVERSITY OF CALIFORNIA MERCED, MERCED COUNTY, CALIFORNIA**

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## 1.0 PROJECT INFORMATION

Project Title:	Experimental Smart Farm Project
Project Location:	University of California, Merced, Merced County
Lead Agency's Name and Address:	The Regents of the University of California 1111 Franklin Street Oakland, CA 94607
Contact Person:	Phillip Woods, AICP Campus Architect and Director of Physical & Environmental Planning 209.349.2561
Project Sponsor's name and address:	University of California, Merced Campus 5200 North Lake Road Merced, California 95343
Previously Certified 2020 LRDP Programmatic SEIR:	<p>This addendum documents that none of the conditions described in Section 15162 of the California Environmental Quality Act (CEQA) Guidelines have occurred, and the project will not have significant effects that were not already evaluated and disclosed in the Subsequent Environmental Impact Report (SEIR) for the University of California, Merced (UC Merced) 2020 Long Range Development Plan (2020 LRDP) (State Clearinghouse No. 2018041010) and the 2009 LRDP Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) (State Clearinghouse No. 2008041009). The 2020 LRDP is a comprehensive land use plan that guides physical development on the UC Merced campus to accommodate projected campus population growth and expanded and new program initiatives. The 2020 LRDP and its SEIR, and the 2009 LRDP EIS/EIR are available for review at the following locations:</p> <ul style="list-style-type: none"><li>• UC Merced Physical Operations, Planning and Development at 5200 North Lake Road on the UC Merced campus</li><li>• Kolligian Library at 5200 North Lake Road on the UC Merced Campus</li><li>• UC Merced Downtown Campus Center at 655 W 18th Street in Merced, California</li><li>• Online at: <a href="https://planning.ucmerced.edu/2020LRDP">https://planning.ucmerced.edu/2020LRDP</a></li></ul>

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## 2.0 INTRODUCTION

### 2.1 PURPOSE OF THIS ADDENDUM

After certification of the Subsequent Environmental Impact Report (SEIR)<sup>1</sup> and adoption of the Long Range Development Plan (LRDP)<sup>2</sup> for the University of California, Merced (UC Merced) campus in 2020, the University has proposed the Experimental Smart Farm Project (the “project”). Although this project was not specifically described in the 2020 LRDP or the SEIR, this project is generally consistent with and within the scope of development contemplated in the 2020 LRDP. However, the proposed land use under this project would not be consistent with the land use designation of a portion of the project site, and therefore this project would require a LRDP amendment in order to be implemented. This addendum describes the project, which would involve a LRDP amendment and the establishment of an experimental farm on the campus, and evaluates whether the proposed modification to the 2020 LRDP is covered by the 2020 LRDP SEIR.

As the project would be undertaken by the University of California (UC or University), as the lead agency, the University must evaluate the potential environmental impacts of the project in compliance with the California Environmental Quality Act (CEQA). The University has completed an evaluation of the project pursuant to Section 15168(c)(2) of the State CEQA Guidelines to determine if the project is within the scope of UC Merced’s 2020 LRDP Program SEIR that was certified by the University in March 2020 and the 2009 UC Merced and University Community Project joint Environmental Impact Statement (EIS) and Environmental Impact Report (EIR)<sup>3</sup> (2009 LRDP EIS/EIR) that was certified in 2009. The CEQA Guidelines state that if the lead agency can find that, pursuant to Section 15162, no new impacts could occur and no new mitigation measures are required, then the project is within the scope of the previous program EIR, and no further evaluation is required. The University has determined that the project is within the scope of the development that was analyzed in the 2020 LRDP SEIR and the 2009 LRDP EIS/EIR; this EIR addendum serves to provide substantial evidence that the impacts of the proposed project are adequately analyzed and mitigated by the mitigation measures set forth in the 2020 LRDP SEIR and the 2009 LRDP EIS/EIR, that no new impacts would occur and no new mitigation measures are required. No subsequent CEQA document is necessary for the project.

#### 2.1.1 2020 Long Range Development Plan Subsequent Environmental Impact Report

In 2009, the University certified the UC Merced and University Community Project joint EIS/EIR (State Clearinghouse No. 2008041009) that analyzed the environmental impacts from the implementation of the UC Merced 2009 LRDP. That program EIR analyzed and disclosed the environmental impacts from developing an 815-acre campus site with facilities to serve an enrollment projection of 25,000 students by 2030. In 2020, UC Merced prepared an updated LRDP that encompassed a larger 1,026-acre campus site and a lower enrollment projection and prepared

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<sup>1</sup> University of California, Merced. 2020. *UC Merced 2020 Long-Range Development Plan Final Subsequent Environmental Impact Report*, March 2020.

<sup>2</sup> University of California, Merced. 2020. *UC Merced 2020 Long-Range Development Plan*, March 2020.

<sup>3</sup> University of California, Merced. 2009. *UC Merced and University Community Project Environmental Impact Statement/Environmental Impact Report*. March 2009.

a SEIR that analyzed and disclosed the environmental impacts from developing the 1,026-acre campus site with facilities to serve an enrollment projection of 15,000 students by 2030. The 2020 LRDP is a comprehensive land use plan that guides physical development on the UC Merced campus to accommodate projected population growth increases and expanded and new program initiatives. The UC Merced 2020 LRDP SEIR (State Clearinghouse No. 2018041010) was prepared in accordance with Section 15168 of the State CEQA Guidelines and Public Resources Code Section 21094 and provides a programmatic analysis of the likely environmental impacts that could result from the implementation of the 2020 LRDP. The 2020 LRDP SEIR (Volume 1) analyzes full implementation of land uses and physical development anticipated under the 2020 LRDP and identifies measures to mitigate the significant adverse program-level and cumulative impacts associated with that growth and development. Both the 2020 LRDP SEIR and 2009 LRDP EIS/EIR (specific sections only along with related addenda) serve as Tier 1 program documents that the Campus can use in its environmental review of subsequent projects, such as the Experimental Smart Farm Project, under the provisions of CEQA. Thus, this document is an addendum to the 2020 LRDP SEIR.

The Experimental Smart Farm Project (the “project”) is generally consistent with the land uses and intensities of development identified in the 2020 LRDP and the project is within the scope of activities covered in the environmental impact evaluation in the 2020 LRDP SEIR and the 2009 EIS/EIR. However, because this project was not specifically identified in the 2020 LRDP and the 2020 LRDP SEIR, this addendum to the 2020 LRDP SEIR has been prepared, pursuant to Section 15168(c) of the State CEQA Guidelines, which states, “subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared.” Pursuant to Section 15168(c)(4), an agency should use “...a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the program EIR.” This addendum uses a checklist based on Appendix G of the CEQA Guidelines to evaluate whether the project’s impacts are adequately addressed by the previous analysis.

### 2.1.2 CEQA Guidelines Regarding an Addendum

If, after certification of an EIR, minor technical changes or additions are necessary or none of the conditions described in CEQA Guidelines Sections 15162 and 15163 calling for the preparation of a subsequent/supplemental EIR have occurred, an addendum to the EIR may be prepared.

Public Resources Code (PRC) Section 21166 and Sections 15162(through 15163) of the State CEQA Guidelines describe the conditions under which a subsequent document would be prepared. In summary, when an EIR has been certified or a mitigated negative declaration (MND) adopted for a project, no subsequent document shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in light of the whole record, one or more of the following:

- Substantial changes are proposed in the project that will require major revisions of the previous EIR or MND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

- Substantial changes occur with respect to the circumstances under which the project is undertaken that will require major revisions of the previous EIR or MND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR or MND was certified as complete was adopted, shows any of the following:
  - The project will have one or more significant effects not discussed in the previous EIR or MND;
  - Significant effects previously examined will be substantially more severe than shown in the previous EIR or MND;
  - Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
  - Mitigation measures or alternatives that are considerably different from those analyzed in the previous EIR or MND would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Section 15164 of the CEQA Guidelines provides that a lead agency may prepare an addendum to a previously adopted EIR if some changes or additions are necessary, but none of the conditions described above for Section 15162 calling for preparation of a subsequent document have occurred. CEQA allows lead agencies to restrict review of modifications to a previously approved project to the incremental effects associated with the proposed modifications, compared against the anticipated effects of the previously approved project at build-out.

Changes to the approved 2020 LRDP in connection with the project and any altered conditions since certification of the SEIR in March 2020 would:

- Not result in any new significant environmental effects, and
- Not substantially increase the severity of previously identified significant effects.

In addition, no new information of substantial importance has arisen that shows that:

- The project would have new significant effects,
- The project would have substantially more severe effects,
- Mitigation measures or alternatives previously found to be infeasible would in fact be feasible, or

- Mitigation measures or alternatives that are considerably different from those analyzed in the EIR would substantially reduce one or more significant effects on the environment.

As described in **Section 4.0**, Coverage Under the 2020 LRDP, and **Section 5.0**, Consistency with the 2020 LRDP SEIR and 2009 LRDP EIS/EIR, none of the conditions described above calling for preparation of a subsequent document have occurred. Therefore, the differences between the approved 2020 LRDP, as described in the certified SEIR, and the project modifications now being considered constitute changes consistent with CEQA Guidelines Section 15164 that may be addressed in an addendum to the SEIR.

## 2.2 ORGANIZATION OF THE ADDENDUM

This addendum is organized into the following sections:

**Section 1.0 – Project Information:** provides a summary of information about the project, including project location, lead agency, and contact information.

**Section 2.0 – Introduction:** summarizes the purpose of the addendum, the 2020 LRDP SEIR, and this document's organization.

**Section 3.0 – Project Description:** includes a description of the elements of the project triggering the addendum.

**Section 4.0 – Coverage under the 2020 LRDP:** describes the consistency of the project with the 2020 LRDP.

**Section 5.0 – Consistency with the 2020 LRDP SEIR and 2009 LRDP EIS/EIR:** analyzes the potential effects on the existing physical environment from implementation of the proposed modifications, as compared to the approved 2020 LRDP SEIR and 2009 EIS/EIR, based on an environmental checklist for each resource topic. This analysis has been prepared to determine whether any of the conditions described above that would require preparation of a subsequent or supplemental EIR would occur as a result of the project modification.

**Section 6.0 – Applicable 2020 LRDP SEIR Mitigation Measures:** includes measures from the 2020 LRDP SEIR that are applicable to the project.

**Section 7.0 – List of Preparers:** lists individuals, consultants, and agencies involved in the preparation of this document.

**Section 8.0 – References:** lists references used in the preparation of this document.



## 3.0 PROJECT DESCRIPTION

### 3.1 PROJECT SETTING AND CONTEXT

#### 3.1.1 Regional Setting

The 1,026-acre UC Merced campus is located on Lake Road, near its intersection with Bellevue Road, in Merced County in the San Joaquin Valley. The campus is located approximately 2 miles northeast of the limits of the City of Merced (**Figure 1**). State Route 99 provides regional access to the campus. The campus is bordered primarily by grasslands and grazing land, with some low density rural residential land use to the west. To the south it is bordered by agricultural lands planned for future development. Campus views across the expansive open space provide visual links to the area's agricultural heritage and the Sierra Nevada Mountains in the distance.

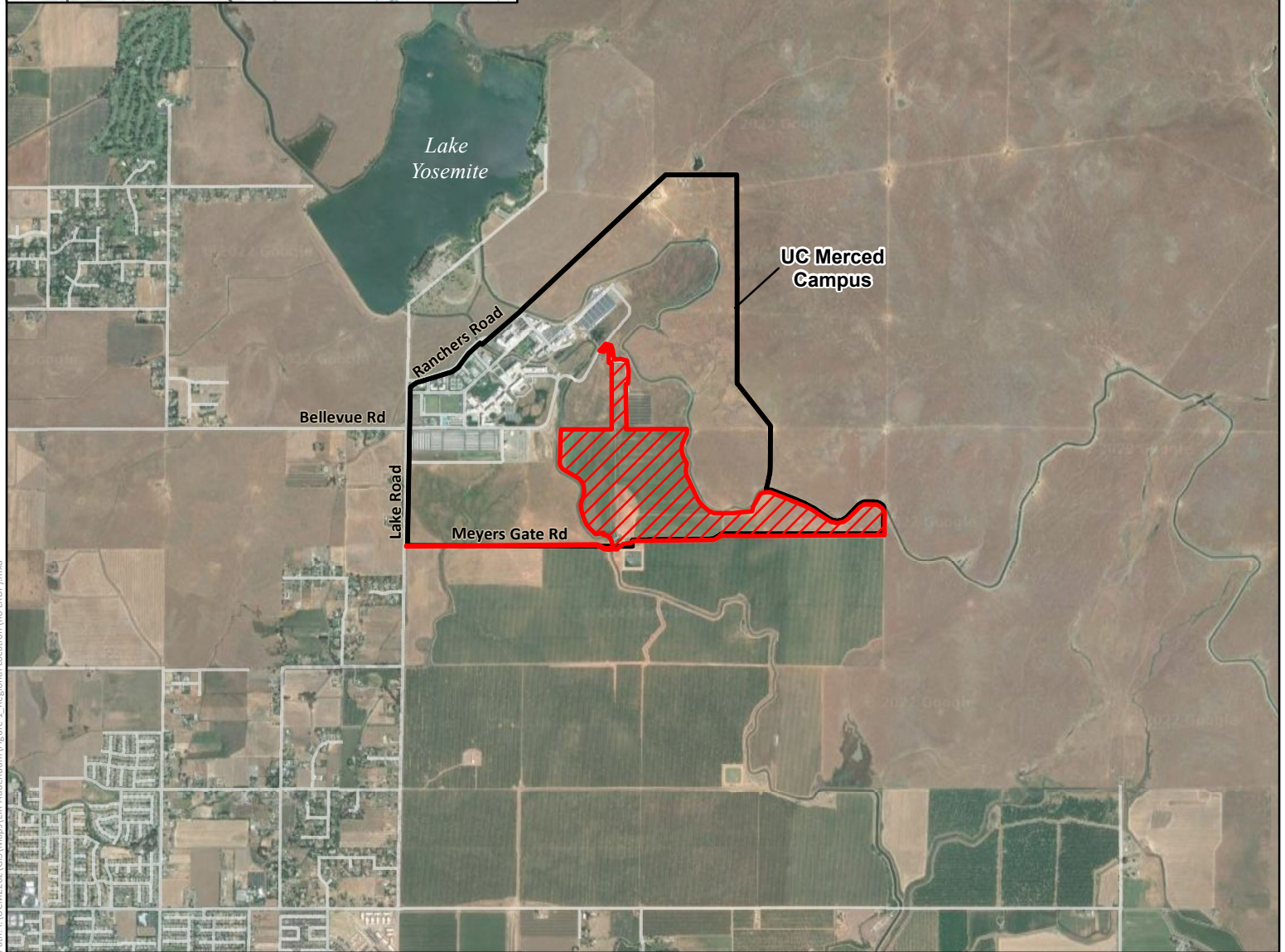
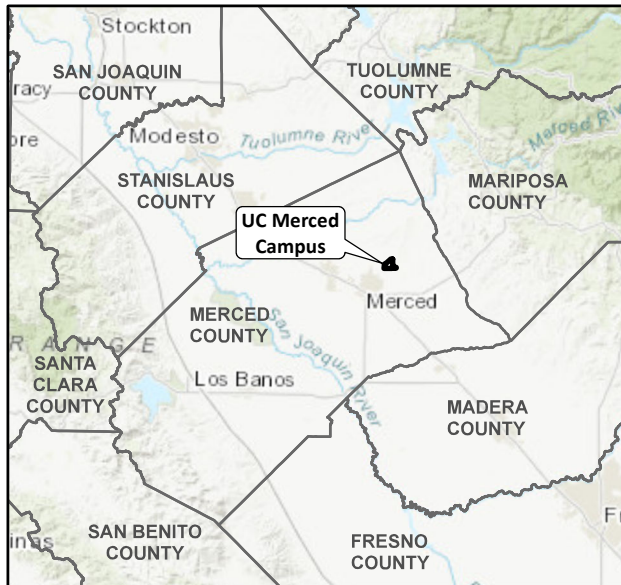
The campus is situated southeast of the Lake Yosemite Regional Park, which includes a water reservoir owned and operated by the Merced Irrigation District (MID). Lake Yosemite Regional Park is managed by Merced County under an agreement with MID. Water is conveyed from the lake to agricultural areas south of the campus via two 50-foot-wide canals, the Le Grand and Fairfield canals, both owned and operated by MID. The two canals transect the campus, generally following the topography of the land.

The land immediately south of the campus is owned by the Virginia Smith Trust (VST) and is currently planted in almond trees. This land has been planned for development since the County's adoption of the University Community Plan (UCP). The UCP contemplates a commercial and residential mixed-use development, with substantial open space. The UCP is currently undergoing an update, and VST is preparing a Specific Plan in accordance with the updated UCP for development of the first phase of the UCP and annexation into the City of Merced.

With the exception of some rural residences immediately adjacent to Bellevue Road, the lands to the west of the campus along Bellevue Road are undeveloped. However, a number of residential and mixed-use projects are proposed for these lands.

The University owns the adjoining approximately 6,560-acre Merced Vernal Pools and Grassland Natural Reserve (MVPGR) to the east and northeast of the campus. The MVPGR comprises the 5,030-acre VST Preserve, the 1,339-acre Campus Natural Reserve (CNR), and the 97-acre Myers Easterly property. The MVPGR lands were preserved as environmental mitigation lands associated with the development of the campus (i.e., "Tier 1(a) Conservation Lands" or "Conservation Lands") and are protected from development in perpetuity under conservation easements. The MVPGR contains one of the highest concentrations of vernal pools in the Central Valley and protects hundreds of ephemeral pool and swale wetlands which provide wetland habitat for migratory waterfowl and wading birds, and are home to many rare, endemic, and endangered species. Seasonal cattle grazing helps maintain the viability of the vernal pools by controlling the spread of non-native plant species.

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LEGEND

- UC Merced Campus
- Experimental Smart Farm



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Basemap Source: Google Maps Imagery (2021).

Date: 4/11/2022

FIGURE 1

Regional Location

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### 3.1.2 Project Location and Existing Conditions

The project site spans approximately 215 acres and is located in the southeastern portion of the UC Merced campus (**Figure 2**). The majority of the irregular shaped project site is bound on the west by the Fairfield Canal and on the east by Le Grand Canal. Beyond Le Grand Canal, the Tier 1(a) Conservation Lands are located more than 0.25 mile east of most of the project site. The easternmost portion of the project site (i.e., the “Southeast Pasture” as shown in **Figure 2**) is located south of Le Grand Canal, approximately 125 feet south of the Conservation Lands. To the south, the project site is bound by the VST property. A small portion of the project site extends to the north, adjacent to a campus solar array, along a dirt access road (Solar Array Road) connecting to Cottonwood Loop Road and the northern portion of the campus.

The site is accessible via two roadways. Solar Array Road is a native-surfaced road located north of the pasture areas, and Meyers Gate Road is a gravel-surfaced road linking Lake Road to the project site along what is currently the MID access road. There are two unlocked chained gates on Solar Array Road and two gates with combination locks on Meyers Gate Road.

The project site is relatively flat with elevations ranging between approximately 195 and 260 feet above mean seal level. There are approximately 10 acres of existing wetlands within the project site, primarily located in the central and easternmost portions of the project site. Historic and existing land uses at the project site consists primarily of agriculture and irrigated/non-irrigated pasture for grazing, respectively. There are four existing pasture areas, three of which are irrigated, ranging in size from approximately 42 to 64 acres (**Figure 2**). Existing improvements on-site include native-surfaced and gravel-surfaced access roads, berms to facilitate water distribution, fencing, a cattle corral, a sump pond, and irrigation canals. In the past, these pasture areas have been tilled, graded, and seeded.

The current 2020 LRDP land use designations of the lands within the project site are Campus Building Reserve/Support Land (CBR/SL) and Passive Open Space (POS) (**Figure 3**).

## 3.2 PROJECT OBJECTIVES AND PROGRAM

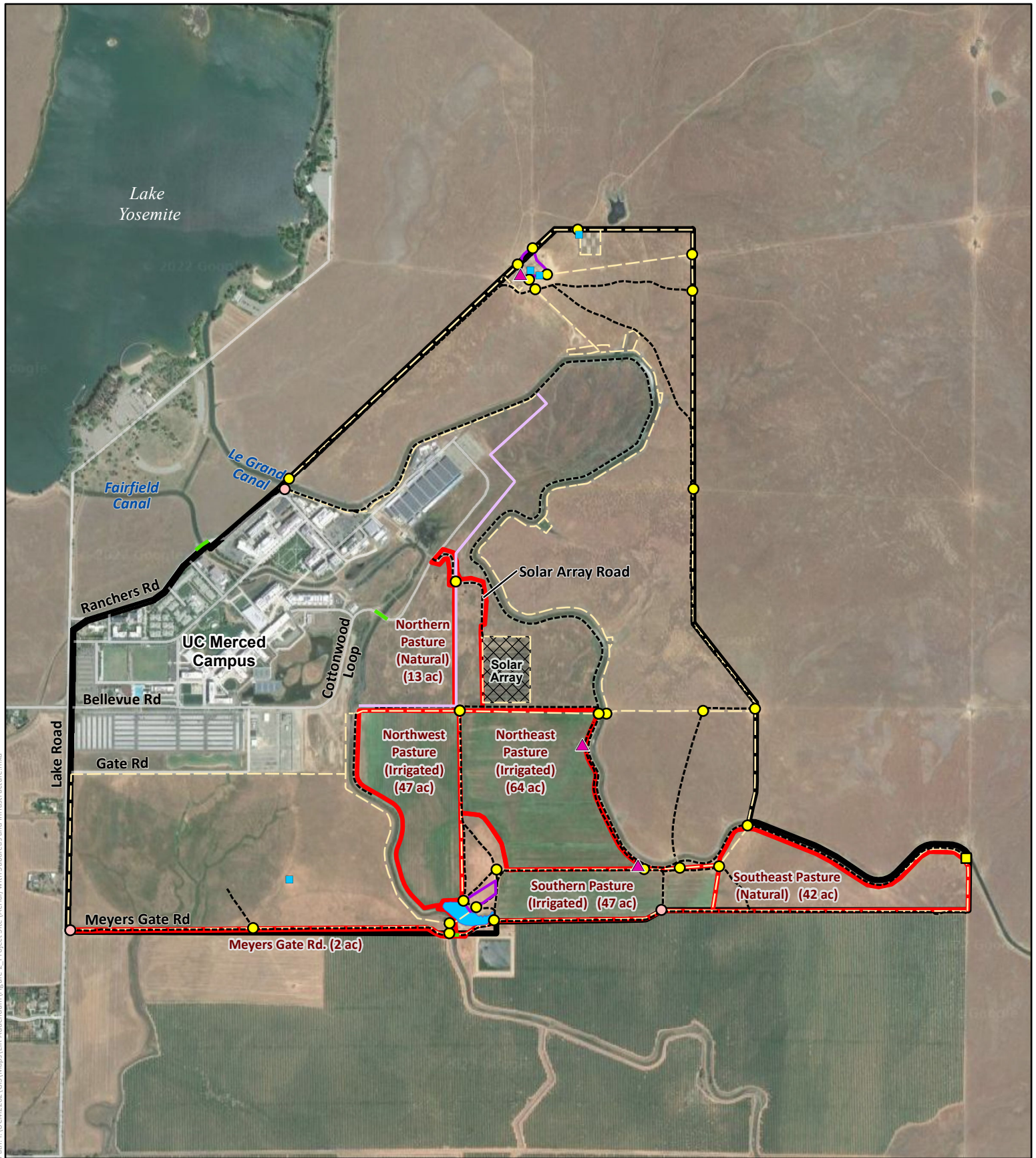
### 3.2.1 Project Objectives

The proposed Experimental Smart Farm Project would serve as the operational center for research and educational programs in sustainable agriculture at UC Merced. The primary objective of the farm is to provide facilities and infrastructure to support research on sustainable land management, regenerative agriculture, precision agriculture, automation/robotics, machine learning/artificial intelligence (AI), and the exploration of the future of farm work. In addition, the farm would also provide community engagement opportunities, including a seasonal farmer’s market and potential food truck, outreach events, and learning opportunities for all ages.

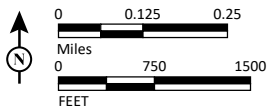
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Path: I:\UCM2022\GIS Maps\EIR Addendum\Figure 2, Project Site (Aerial) with Subareas and Infrastructure.mxd



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Basemap Source: Esri World Imagery (2021)

**LEGEND**

- UC Merced Campus
- Experimental Smart Farm

Solar Array

Pond

Trough

Water Well

Unpaved Road

Bridge

Fence

Wildlife Exclusion Fence

Corral (may be relocated)

Locked Gate

Unlocked

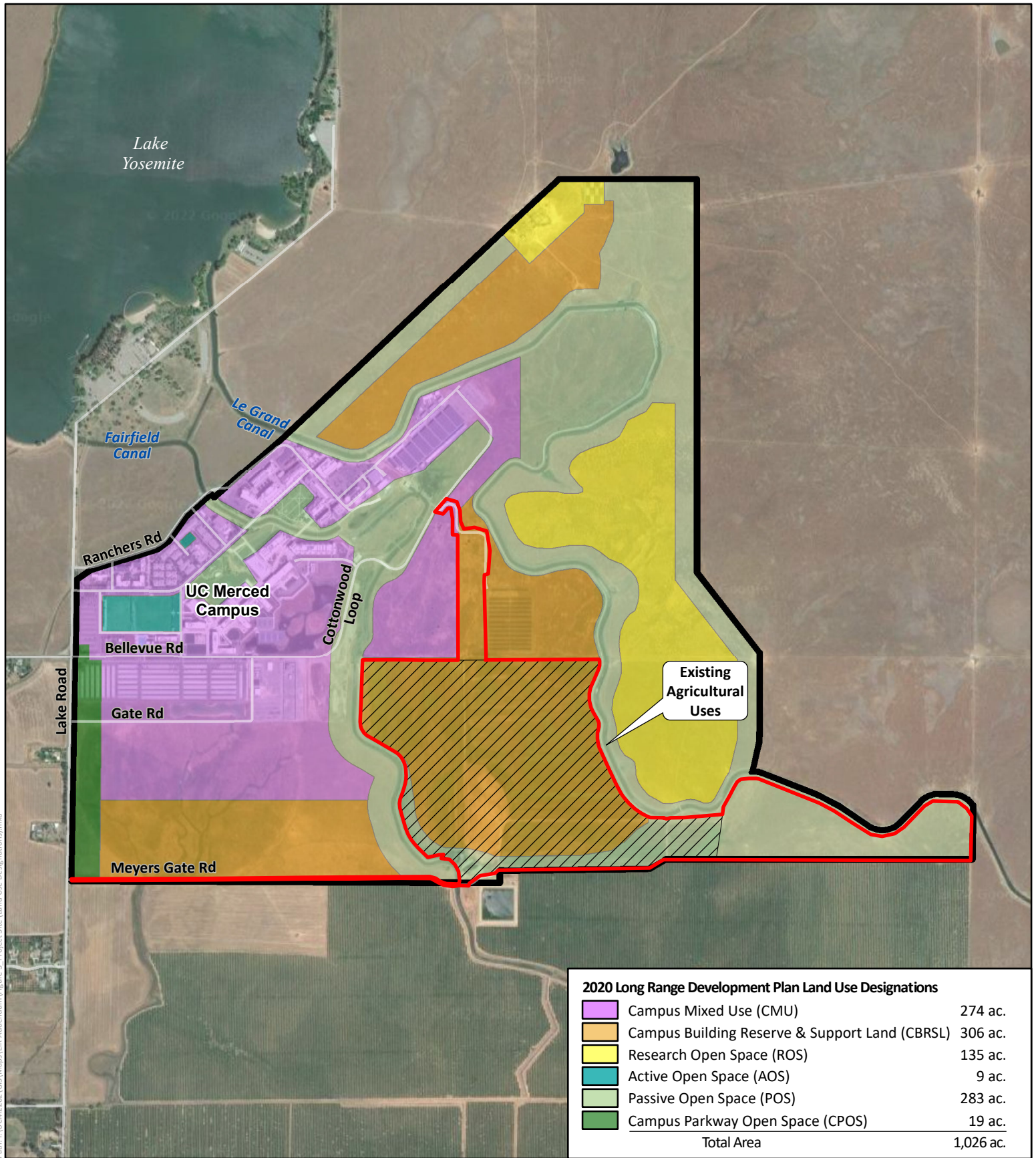
Cattle Guard

**FIGURE 2**

**Project Site**

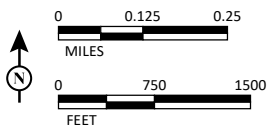
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LEGEND

- UC Merced Campus
- Experimental Smart Farm
- Existing Agricultural Uses

FIGURE 3

Campus Land Use Designations

Basemap Source: Esri World Imagery (2021)

Date: 10/6/2022

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The proposed project would be implemented in multiple phases. Phase 1 of the project would establish basic services, including irrigation infrastructure, and enable research activity to begin. The primary goal of Phase 1 is to develop a functional site to initiate research, while funds are raised and designs are created for future phases. It is anticipated that Phase 1 would be in place for 2 to 5 years as project design and planning continues and funding is identified and secured for future phases. Phase 1 would also be used to initiate and establish industry and community connections to gain support for the project to help enable future phases.

The objectives for Phase 1 are to (1) prepare the site (i.e., grading, access, fencing, berms); (2) access water and install irrigation infrastructure; (3) secure power for the site; and (4) create shaded work areas and secure on-site storage. The site would be used throughout the year; however, the majority of research would likely occur between February and October depending on the crops or agricultural practices under study. Activities on-site would consist primarily of agricultural operations and research and education uses.

Future phases and ultimate project buildout would consist of a more permanent, visitor-friendly research farm. The objectives for future phases of work would be to (1) install permanent structures to support ongoing research on site (i.e., restrooms, classrooms and meeting spaces, composting facilities, storage); (2) improve access roads, gates, and parking; and (3) expand agricultural research to the full site acreage.

### **3.2.2 Research and Educational Use Program**

Phase 1 research would be limited in scope, and access would be controlled until the facilities can accommodate more complex engagement of on- and off-campus communities. Detailed plans of proposed research activities would be developed prior to implementation, specifying any disturbance to soil or vegetation, machinery, chemicals, or requirements from the on-site infrastructure. The approval process would include a review of farm regulatory requirements and land use restrictions, as well as other applicable state and federal regulations pertaining to agriculture and labor. Applicable regulatory bodies would include, but are not limited to, the California Department of Forestry and Fire Protection (Cal Fire), the California Occupational Safety and Health Administration (Cal-OSHA), the California Department of Pesticide Regulation (DPR), the State Water Resources Control Board (SWRCB), the San Joaquin Valley Air Pollution Control District (SJVAPCD), and the Merced County Agriculture Commissioner. Stipulations would be included in these agreements to allow termination of experiments if safety or regulatory protocols are violated. A safety and procedural orientation would be provided to the group leader(s), including documentation of site regulations and emergency procedures.

Initial research would primarily test existing infrastructure and familiarize researchers with the site conditions including soil properties, pests and crop diseases, and groundwater and surface water behavior. Research activities would likely include baseline surveys, in-field soil sampling, installation and operation of agricultural technology such as soil and weather sensors, and general agricultural operations. At full buildout, access to farm facilities for research would increase. Proposed research activities would require development and approval of detailed plans prior to implementation, similar to Phase 1 research activities.

With advanced planning and coordination, classes from UC Merced, other universities, community colleges, and high schools would be able to request to tour the site. A formal tour request and approval process would be developed, and each request would be contingent upon final approval by the farm director. During Phase 1, kindergarten through 8th grade class visits would be limited to the month of October during the harvest season and would have prescribed adult to student ratios. Students in 9th grade and older would also have prescribed ratios and visitor caps to limit group size, but would be able to visit year-round, pending approval from the farm director. At full buildout, educational uses would include UC Merced class visits and on-site classroom use. Experimental and instructional areas dedicated to soil and plant sample handling, robotics and electronics, aerial and drone machinery, food production, and agricultural cycles (irrigation, compost, wastewater treatment) would be available for educational uses.

### 3.3 PROJECT ELEMENTS

#### 3.3.1 Project Overview

The proposed project would be implemented and operated by several on-campus organizations, including the Sierra Nevada Research Institute (SNRI), the Center for Information Technology Research in the Interests of Society (CITRIS), School of Engineering (SoE), and the School of Natural Sciences (SNS). The farm would be managed by a multi-disciplinary team comprised of several UC Merced faculty, including a faculty advisory group and a multi-departmental working group, as well as the CITRIS program director, a farm director, and a farm coordinator. The farm coordinator would be responsible for managing the day-to-day operation of the farm.

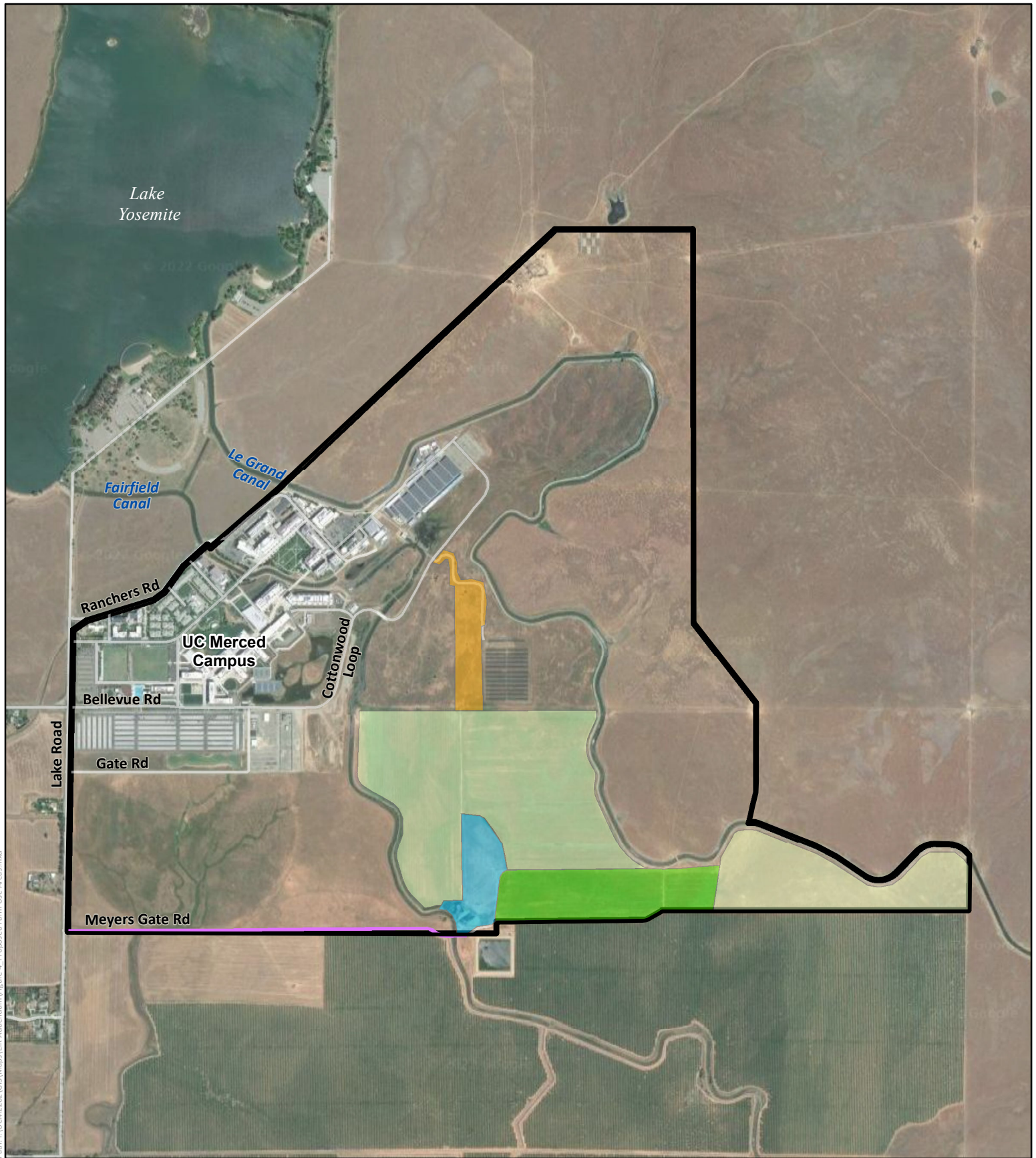
The project would include the following primary components as reflected in **Figure 4**:

- A central **farm facilities area** (approximately 14 acres), that would include bathrooms, meeting space(s), tool and equipment storage, water storage tanks, shade structure(s), electrical infrastructure, and limited parking as part of Phase 1 development, with permanent buildings and facilities added over time to support farm operations, research activities, education, and outreach during future phases;
- An approximately 33-acre **initial agricultural use area** (i.e., Phase 1), including row crops, permanent crops, irrigation lines, reservoirs, monitoring equipment, weather station, and other agricultural infrastructure to facilitate research activities;
- Additional approximately 154 acres of agricultural fields within **future agricultural use areas** that would be focused on permanent cropping systems (e.g., orchards); and
- **Access route improvements** along Meyers Gate Road and the Solar Array Road, consisting initially of gravel road surfacing and paved surfacing at project buildout.

#### 3.3.2 Phase 1 Development

The conceptual design reflecting the farm facilities area and the Phase 1 agricultural use area (agricultural fields) is shown in **Figure 5**. The proposed Phase 1 farm facilities and agricultural use area are described below.





Path: I:\UCM2022\GIS\Maps\EIR Addendum\Figure 4. Proposed Farm Use Areas.mxd

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MILES

0 750 1500  
FEET

Basemap Source: Esri World Imagery (2021)

**LEGEND**



UC Merced Campus

**Farm Use Areas**



Phase 1 Agricultural Fields (33 ac.)



Future Phase Agricultural Fields (154 ac.)



Farm Facilities (14 ac.)



Solar Array Road (13 ac.)



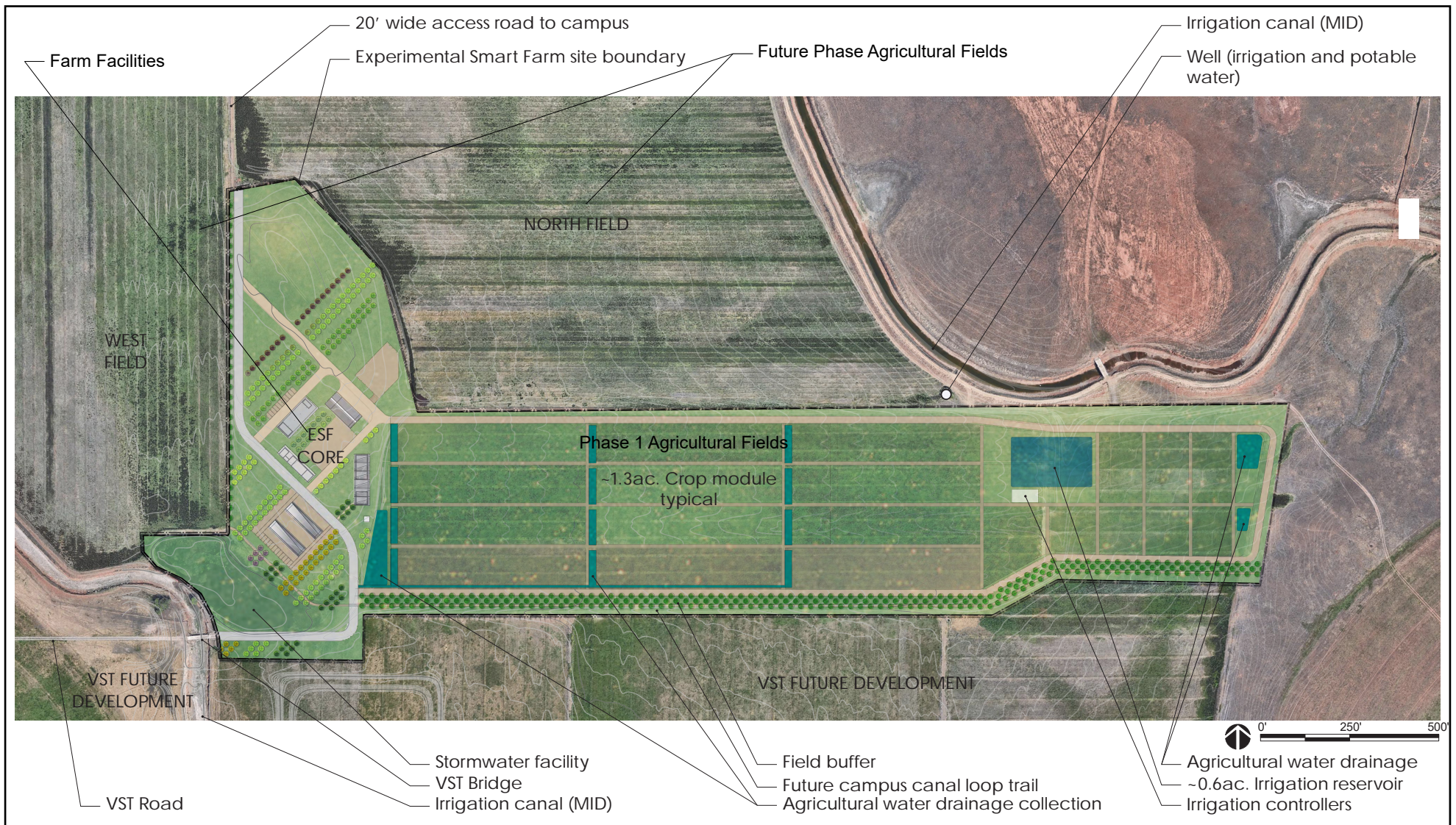
Meyers Gate Road (2 ac.)

**FIGURE 4**

**Proposed Farm Use Areas**

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### 3.3.2.1 Farm Facilities

Facilities proposed for development in Phase 1 include basic infrastructure to provide a safe and centralized area for storing on-site equipment and preparing for on-site work. Phase 1 facilities would be located within a 2-acre portion (i.e., maintenance area) of the overall approximately 14-acre facilities area, as reflected in **Figure 4** and **Figure 5**, including two 160-square foot shipping containers for operations storage covered by a 720-square foot engineered gable roof, an approximately 2,700-square foot pole barn, three 160-square foot shipping containers for research, portable restrooms, food cleaning and storage facilities, waste storage, and temporary trailers. The temporary trailers would be used for operations, field analysis, and sample storage. Items stored in the operations storage area and shipping containers would include hand tools, a Polaris Ranger (for on-site transport), sensors and instruments, gasoline (within a flammables cabinet), as well as safety supplies. Additional security measures, such as sensors or cameras may be installed if deemed necessary by the campus safety department. The site area would be graded and covered with road base/gravel prior to the installation of the temporary facilities.

### 3.3.2.2 Agricultural Use Area

Research and education would necessitate the planting, cultivation, and harvest of agricultural crops, including field and truck crops, as well as vine and tree crops. Phase 1 would include a limited scope of crop activity within the initial 33-acre agricultural use area. Approximately 5 to 10 acres would be utilized for row crop production on an annual rotation basis. The remaining area would be planted in cover and forage crops. Cover and forage crops could be harvested or grazed in cooperation with and under the supervision of local cattle, sheep, or goat grazers. Associated activities would require on-site work throughout the year that may include groups of workers or volunteers contributing to agricultural operations. Crop systems would be similar to cropping systems found in the Central/San Joaquin Valley and would include annual, perennial, and permanent crops. The specific crops planted and their footprint would be determined by availability, need, and funding, and would be subject to change over time. All activities would be conducted consistent with pertinent local, State, and federal agricultural regulations, University requirements, and campus regulatory permits.

Planting and cultivation would be planned and scheduled as needed for the specific crops, dependent upon the research activities. Activities would include seeding, planting transplants, weeding with hand tools, pruning, harvesting, and cleaning up remaining organic materials in the field. Soil amendment and tillage would occur annually and throughout the year as needed. Contracted machinery and trained workers would provide support for this activity. The activities would be scheduled in consideration of other campus regulatory requirements. Site maintenance, such as mowing roadsides, removing invasive/unwanted plants, and grading/filling roads, would be conducted regularly by farm staff as a part of regular operations.

Pest and weed management would be required on-site to cultivate crops and manage facilities. An Integrated Pest Management Plan would be developed in consultation with UC Merced facilities staff and local growers, and implemented for ongoing operations. Priority would be given to sustainable practices including mechanical or cultural preventative methods of control with an adaptive plan for the application of appropriate chemicals. Researchers who require pest management support in their projects would work with farm staff to execute this in accordance with

farm-wide practices and regulations as well as campus regulatory requirements. Record keeping of all applications and pest management activities would be a part of the site management. All pesticide regulations would be observed, and treatments would be applied by licensed and trained individuals.

Hazardous chemicals would be documented and stored in appropriate containers and at appropriate temperatures on-site according to agricultural regulation and in consultation with UC Merced Environmental Health and Safety. No unnecessary chemicals would be kept on-site and priority would be given to any materials used actively in farm management. Material Safety Data Sheets would be kept on-site for all inventory.

A nitrogen management plan would be developed and signed by a certified crop advisor in accordance with California Department of Water Resources (DWR) and local agency requirements. Additionally, a licensed engineer would develop a farm erosion management plan consistent with California DWR and local agency requirements. Water monitoring systems would be used to monitor water production, storage, and delivery. This data would be used to support Sustainable Groundwater Management Act (SGMA) requirements that would be implemented by the Merced Subbasin Groundwater Sustainability Agency.

Food harvested on-site would be evaluated for its potential to be donated or sold through local markets as a part of the research project evaluations. Federal Food Safety Modernization Act (FSMA) and other regulatory requirements would be adhered to, and all food harvested that does not comply with food safety standards would be disposed of through green waste processing on site.

Organic waste composting and green waste processing activities could be incorporated into research projects conducted on site, and would be restricted to compost feedstocks produced on the UC Merced campus.

Any waste would be collected in animal proof containers when it cannot be taken offsite immediately. Farm staff would arrange to drop off waste appropriately as per campus and Merced County requirements, or for a contractor to pick up waste if there are large project-related volumes. If necessary, a contract for a garbage pickup service may be implemented.

### **3.3.3 Future Phase Development**

After necessary funds are obtained, likely within 2 to 5 years of Phase 1 implementation, the proposed project would transition to future phases. Future phase activities would consist of implementing a larger, more permanent, and more visitor-friendly research farm.

Prioritized future phase activities would include the development of 20 additional parking spots, a farm maintenance shop, farm office, packing/processing area, self-contained cooler, drone lab, robotics lab and soils lab. Depending on funding, other future phase activities would include another additional 20 parking spaces, an open-air marketplace, and classrooms.

### 3.3.3.1 Farm Facilities

Future phases would expand research and educational use by bringing physical infrastructure directly adjacent to production and research areas. Future phases would include the construction of permanent buildings and facilities to support farm operations, research activities, education, and outreach. The anticipated future facilities, which would be added to the 14-acre farm facilities area shown in **Figure 4** and **Figure 5** would include:

- Farm administration area with an office (300 square feet), meeting room (300 square feet), and main point of entry (150 square feet);
- Produce processing center, including an exterior covered processing area (2,500 square feet) and a modular self-contained cooler (200 square feet);
- Maintenance and equipment storage building (4,000 square feet) with three open bays (960 square feet each) and an additional closed bay for maintenance (960 square feet);
- Soils workshop (1,000 square feet), drone workshop (400 square feet), and a robotics field station (400 square feet); and
- Five gender neutral restrooms with a shared trough sink hand washing facility.

Depending on funding for additional parking, classrooms, and a marketplace, the following additional education and outreach support buildings would be constructed:

- Three multipurpose classrooms sized 600 square feet, 850 square feet, and 1,350 square feet (estimated 2,800 square feet total);
- A covered, open-air marketplace with two buildings between 1,500 and 2,000 square feet; and
- Additional restrooms to meet increased use demands.

### 3.3.3.2 Agricultural Use Areas

Future phases would expand the agricultural use area by approximately 154 acres, as reflected in **Figure 4**. The activities conducted and management of these agricultural fields would be similar to as described above under Phase 1, but would be more focused on permanent cropping systems. Current grazing activities would continue in existing pasture areas outside of the Phase 1 use areas until future project phases are implemented. Grazers would be provided a minimum 1-year notice prior to the conversion of any land from grazing to use by the Experimental Smart Farm, and conversion would be limited to 20 acres per year.

Implementation of future phases would include the expansion of field production activities to the 64-acre flood-irrigated northeast pasture, the 47-acre flood-irrigated northwest pasture, and the 42-acre natural southeast pasture (**Figure 2**). These expansions would include similar activities to those described in **Section 3.3.2.2** for Phase 1, and would require an expansion of site infrastructure and

utilities as referenced below in **Section 3.4**. Following implementation of these expansions, the Experimental Smart Farm would include approximately 186 farmable acres.

### 3.4 INFRASTRUCTURE AND UTILITIES

#### 3.4.1.1 General Site Infrastructure

Approximately 150 linear feet of 4-foot-tall barbed wire fencing would be removed and replaced with new fencing and gates around the farm perimeter to secure the Phase 1 development area and exclude cattle. Additional fencing may be installed as needed for security and cattle exclusion under future phases of the project.

#### 3.4.1.2 Water

During Phase 1, there would be no water supply in the farm facilities area. Drinking water would be supplied by a contracted service, and a water trailer with a pump would provide pressure washing facilities. Restrooms would also be supplied as a contracted service and would include hand washing stations.

In the agricultural use areas, existing site irrigation infrastructure includes two agriculture wells and one return lift pump, which are connected by underground piping. Phase 1 would include the construction of a reservoir sized approximately 26,000 square feet with a capacity of 6 acre feet (AF) of water (**Figure 6**). A new variable frequency pump would be installed to provide irrigation water distribution to the Phase 1 site in both high and low pressure scenarios. Underground piping and infrastructure would be installed and plumbed to the reservoir.

During Phase 1, three shallow observation wells would be installed. The most proximate existing well to Phase 1 activities ("south well", as shown in **Figure 6**) would also require upgrading and repairs. This well and the return lift pump would be plumbed to the proposed reservoir. Additional repairs and upgrades would be required on other existing irrigation infrastructure, but those systems would remain disconnected from the reservoir until future phases.

Drainage would be integrated into existing drainage infrastructure on the farm. The existing irrigation system is designed to be a "closed" system. No water would leave the farm site, and by design all drain water would collect in a centralized pond. The existing return lift pump is capable of moving water to three different points after which it recirculates within the farm site, or is distributed to a neighboring reservoir. The new reservoir would be integrated as an additional point of return for the lift pump during Phase 1 implementation.

The current estimate of existing water consumption for the irrigated areas of the project site, including the northwest pasture, northeast pasture, and the Phase 1 agricultural use area, is approximately 860 AF per year. An additional approximately 2,000 AF per year is transferred to the neighboring VST property to the south of the UC Merced campus for the existing orchard uses, which would cease after 2025. The maximum anticipated water consumption of the Phase 1 35-acre farm site would be 175 AF per year. Existing grazing uses are expected to continue within the remaining 105 acres of irrigated pasture areas in the project area, and would consume up to 425 AF per year. Grazing uses on the 105 acres of irrigated pasture would continue indefinitely, or until the

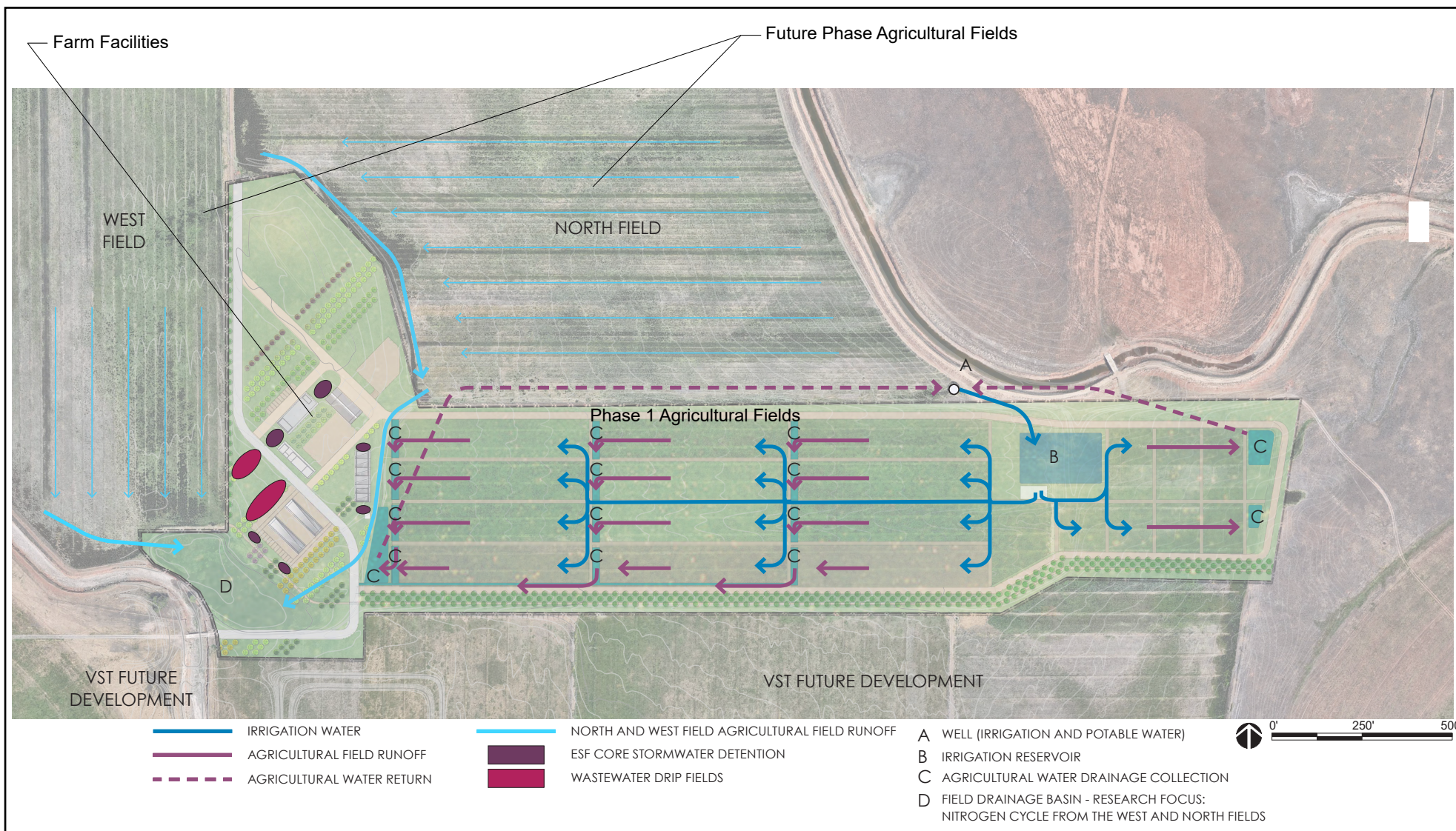
lands are converted to crop production during future phases of the farm. Water consumption of converted crop production land would remain similar to irrigated pasture consumption. Thus, the anticipated water use for the project site through 2025 would be up to an estimated 600 AF per year plus 2000 AF per year transferred to the neighboring orchards.

Beginning in 2025, under the revised 2022 Groundwater Sustainability Plan (GSP) for the three groundwater sustainability agencies (GSAs) in the Merced Groundwater Subbasin, the volume of water pumped from the wells on the project site would be restricted by the sustainable yield requirements established by GSA overseeing the campus. Under the GSP, per-acre pumping would be reduced. Compared to the projected 2025 water consumption rate, the anticipated total pumping capacity would be limited to between approximately 210 and 420 AF per year. Thus, the water consumption for the proposed project would be subject to the GSA requirements after 2025 and would be greatly reduced at farm buildout compared to current conditions. Pumping restrictions could be offset by on site recharge projects and additional surface water deliveries would be possible through surface water transfers via existing MID infrastructure.

Under future phases, additional pump and well upgrades may occur at the existing north well and south well, and additional permanent irrigation systems would be installed. Additionally, underground laterals would be added to existing mainlines, and control and automation systems would be expanded to subsections within existing field structures. A center pivot and linear irrigation system would be installed, along with additional storage and filtration infrastructure at the existing irrigation reservoir site.

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#### 3.4.1.3 Wastewater

Phase 1 facilities would consist of temporary buildings, and portable restrooms would be provided to handle any wastewater generated. At full buildout, wastewater generated as a result of the Experimental Smart Farm would primarily be from sinks (classrooms and bathrooms as well as produce and equipment wash stations) and toilets. Fixture selection and conveyance strategies would help minimize wastewater generation from these sources.

Implementation of future phases would include construction of an on-site wastewater treatment system consisting of a tank or system of tanks and one or more wastewater drain fields (**Figure 6**). The system would treat combined wastewater from buildings (including leachate from compost bins, if used). The wastewater would be treated to meet Regional Water Quality Control Board (RWQCB) standards for onsite dispersal.

Wastewater would go through two to three treatments, depending on final design. Initial primary treatment would separate liquids and solids (sludge) via gravity. Solids would be pumped out periodically and used for beneficial reuse. The separated liquids from the primary tank would then be pumped to the secondary treatment system. Options for secondary treatment could include an aerated/filtered system, such as a membrane bioreactor; an aerated/clarified system, such as a moving bed biofilm reactor; an attached growth aerobic system, such as packed bed trickling filters; and nature based solutions, such as a constructed wetland. Finally, treated wastewater would be polished with a backwashing 80-micron filter and inline micro filtration (20-micron) so that water being reintroduced back into the environment would be safe for onsite dispersal.

Dispersal and groundwater recharge following treatment of wastewater would be conducted via a drainpipe in gravel bed, gravel-less trenches, pressurized laterals, and/or drip tubing. Based on existing soil conditions, it is likely that any effluent would need to be highly treated and have a very low land application rate, which would require utilizing pressurized laterals or drip tubing for dispersal. Each would be integrated into the landscape and either vegetated with native plants or integrated into some beneficial use, such as shallow subsurface dispersal in agricultural areas. The area receiving this subsurface water would be protected from heavy vehicle traffic and future disturbance. A supplemental reserve area for additional dispersal may also be required.

#### 3.4.1.4 Electricity

Primary infrastructure and utilities proposed for Phase 1 development would include the extension of existing Pacific Gas and Electric (PG&E) power connections on site to provide 220V power to the facilities area. Future phase activities would include the installation of roof-top solar facilities to support the Experimental Smart Farm's electricity demands. In addition, an agrophotovoltaic system up to 1-acre in size would be installed at the west end of the Phase 1 Agricultural Fields. A hydroelectric power system may also be implemented. Future phases would expand power and electricity throughout the project area, both of which would be sourced from either the existing grid power system or the proposed photovoltaic or hydroelectric systems, once operational. Eventually, after installation of the photovoltaic system, the farm would be weaned from the grid power source.

#### 3.4.1.5 Stormwater

An existing retention pond adjacent to the Fairfield Canal in the southwest portion of the project site would capture stormwater and irrigation runoff from the proposed Phase 1 agricultural activities. A constructed stormwater treatment system would be implemented under a future phase of the project to control and treat runoff from permanent facilities constructed during future phases. Plans may include collection from building rooftops, as well as onsite stormwater infrastructure such as rain garden areas and infiltration basins or swales, as generally shown in **Figure 6**.

### 3.5 ACCESS AND CIRCULATION

**Roadway Improvements.** The project site is currently accessible via two vehicular roadways: Solar Array Road and Meyers Gate Road. As part of Phase 1 improvements, MID would add gravel to Meyers Gate Road for an upcoming project on Le Grand Canal. Depending on the extent of these improvements, additional required access road construction for Phase 1 purposes could be reduced or no longer needed. Additionally, the Solar Array Road would require grading and graveling. Both access roads would require annual dust mitigation maintenance in the spring. Primary access roadways would be paved during future phases of development with improvements to Meyers Gate Road likely occurring as part of the planned VST development to the south of the project site. Additional access points from the campus may be added as part of future phases of the UC Merced campus expansion.

**Access Improvements.** There are two unlocked chained gates on Solar Array Road and two gates with combination locks on Meyer's Gate Road. Access to the site would primarily be limited to daytime hours from dawn to dusk. Security measures would consist of gates and locks to provide a control point for users coming onto the site. An emergency site plan and procedures would be developed, and the main gate (campus-side) directly to the north would be used a gathering point in case of an emergency on the farm.

**Internal Circulation.** Existing native-surfaced and gravel-surfaced access roads would be utilized during Phase 1 farm activities, and approximately 3,000 linear feet of additional native-surfaced and gravel roads would be developed to facilitate internal circulation of passenger vehicles and farm equipment. Additional internal access roads would be installed, as needed, during future phases of development.

**Parking.** As part of Phase 1, a maximum of five passenger vehicles would be able to park within the gravel area adjacent to the proposed initial 2-acre maintenance area. For special events where more parking is required, additional parking would be available in the non-farmed areas to the south of the maintenance area. Depending on funding, future phase activities would include an additional 20-40 parking spaces. Special events and larger tours during future phases could require additional parking, which would be determined and arranged by the farm director.

### 3.6 SITE PREPARATION AND CONSTRUCTION

As reflected on **Figure 4**, Phase 1 improvements would occur primarily within the initial 33-acre agricultural use area and an approximately 2-acre maintenance area (located within the overall 14-

acre farm facilities area). Initial site modifications are expected to include access improvements, development of water retention berms for aquifer recharging, installation of irrigation reservoirs and lines, and development of facilities. Future phase construction would occur within the 14-acre facilities area and the 154-acre future agricultural use areas and would include similar site modifications to Phase 1. Phase 1 construction activities would be completed between October 2022 and June 2023. Future phase construction is anticipated to occur before 2030. Construction activities for each phase would generate approximately six daily trips to the project site. Access road use and construction would be suspended in the 24 hours after major precipitation events or if roads are excessively muddy or unstable. Turnaround areas would be located within the compacted edges of the roads along the staging area in the southern portion of the site or in the eastern portion of the site at the road junction adjacent to the south well.

Ground-disturbing activities during Phase 1 construction would include grading an approximately 9,000-square-foot area for the gravel pad underlying the Phase 1 facilities area, tilling the existing 33-acre pasture, leveling the prepared soil, and the grading of approximately 3,000 linear feet of gravel and native-surfaced roads within the Phase 1 development area. Ground-disturbing activities in future phases would include similar activities within the remaining 154-acre future agricultural use areas. Ground-disturbing activities would occur only when soil moisture is adequate for agricultural tillage and minimizing environmental impacts. After ground disturbance begins, in the interim period before planting, tilled soil would be protected by seeding the area with a cover or forage crop. In addition, existing erosion control and sediment detention measures would be maintained and improved, including but not limited to construction of drainage ditches and berms to prevent sediment erosion into the ponded area adjacent to the Fairfield Canal. Other proposed construction activities would include the removal of any unused or unsafe infrastructure.

Any waste generated from project construction would be taken offsite at the end of each work session, or arrangements would be made to collect waste in larger transports for the landfill as necessary. Portable restrooms would be placed in the staging area during the construction period. Upon the completion of project construction, unused construction materials would be appropriately relocated, disturbed areas would be re-graded and seeded with a mix of native species and/or planted with horticultural/agricultural plants, and any remaining waste would be disposed of as per campus and county ordinance using either fleet vehicles or garbage removal contractors.

## 3.7 PROJECT OPERATIONS

### 3.7.1 Projected Building Space and Population

As described in **Section 3.3.2**, only temporary facilities are proposed for Phase 1 project implementation. At project buildout, the project would increase the overall UC Merced building area by a conservatively estimated 16,000 square feet (e.g., for restroom facilities, maintenance and workshop buildings, instructional and event buildings, etc. as described in **Section 3.3.3**). Three additional employees would be required for the Phase 1 project, consisting of a farm director (not located at the Experimental Smart Farm site), farm coordinator, and farm technician. The operation and implementation of the farm would also be coordinated by existing campus organizations and faculty. A conservatively estimated up to four additional employees would be required for the farm buildout (e.g., daily farm workers) for a total of seven employees. This does not include student

researchers, interns, harvest workers, or any other volunteer or temporary workers. While UC Merced students could assist with agricultural operations and other volunteer activities, the proposed project would not provide capacity for or result in additional students.

### 3.7.2 Sustainability

Permanent buildings built as part of the project would comply with the University of California Policy on Sustainable Practices (Sustainability Policy) and UC Merced's sustainable practice design guidelines. All UC projects on the campus (including the proposed project) are required to achieve a Silver rating under the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) Building Design and Construction v4.0 Green Building Rating System.

The 2020 LRDP describes sustainability practices that would be employed at the campus to achieve the University's goals, which include reduction of waste, use of sustainable building materials for new construction projects, energy efficiency principles, minimization of water use, and incorporation of programs for alternate transportation to and from the campus. The 2020 LRDP establishes a "triple zero commitment" to produce zero net emissions, zero waste, and zero net water. Long-term goals of the farm include off the grid irrigation, potable water, wastewater, waste management, and internet coverage. Strategies to achieve these goals and maintain the "triple zero commitment" would be evaluated during future design phases of the project.

### 3.7.3 Daily and Seasonal Operations

Operations following Phase 1 implementation would primarily involve testing of infrastructure and site conditions and the initiation of research activities within the initial 33-acre agricultural use area. Activities would include surveys, in-field soil sampling, installation and operation of agricultural technology such as soil and weather sensors, and general agricultural operations. The frequency of site visits that would be necessary to complete these activities would vary, ranging from one to two times per year to complete monitoring activities such as soil sampling, to daily visits to complete agricultural labor activities throughout the life of the research study. Daily operations throughout all project phases would typically include activities such as crop maintenance; collection of soil, plant, and water samples; conducting surveys and other necessary research activities; and infrastructure oversight and maintenance. Seasonal work would include tilling, planting, harvesting, pruning, weeding, and any seasonal investigations involved in research, and would be similar under all phases of project implementation.

As part of Phase 1 implementation, the farm would also provide educational opportunities and community engagement opportunities, including a farmer's market and outreach events. A food truck may be provided during the farmer's market and/or special events. Educational site visits would be coordinated with classes from UC Merced as well as from outside the UC Merced community, typically during daytime hours when campus classes are in session.

During operation following construction of Phase 1, K-8 visits would be limited to the month of October, and would have prescribed adult to student ratios and visitor caps to limit group size. Students in 9th grade and older would also have prescribed ratios and visitor caps to limit group size as described in **Section 3.2.2**, but would be able to visit year-round, pending approval from the farm director. The ratio of adults to students would be 1:10 for grades K-5 and 1:15 for grades 6-8. For

high school class visits, the ratio of adults to students would be 1:15 with no more than 45 students and 50 visitors total. Similarly, for university and community college visits, the number of visitors would be limited to 50 people. No single tour group would remain on the site for more than 3 hours. Tours would be approved on an individual event basis and the exact numbers, timing, and activities would be predetermined. All visitors or volunteers would be required to sign standard UC Merced liability waivers to access the site.

Future phase daily uses would be limited to research activities in the field, field tours, and special events. On a daily basis, there would be two to three farm workers present for 8 hours each weekday throughout the year to conduct maintenance and production activities. Throughout the school year and during the summer sessions, an additional 6 to 10 researchers and/or students could be present using the workshops and field stations for up to 8 hours each weekday. Depending on funding for additional parking, classrooms, and marketplace, the number of workers on site daily could increase to between four and five farm workers. During the months of September and October, additional staff would be required for harvest. Up to 20 harvesters could be on site to perform harvest activities for up to 8 hours per day. Additional portable restrooms would be used to meet increased demands and comply with Cal-OSHA field operation requirements.

Initially during future phases, K-8 educational tours would continue to be scheduled in October only, with students grades 9-12 and older scheduled throughout the year, and tours would be limited to 50 people for up to 3 hours, similar to under Phase 1. Throughout the year, UC Merced faculty would be able to use the site for laboratory instruction or field tours with a limit of 30 people onsite for no more than 3 hours. Depending on funding for additional parking, classrooms, and the open-air marketplace, the implementation of future phases could double the size constraints for non-campus educational tours and could expand the tour availability to March through November. The frequency of tours could also increase, and special events would occur on a bimonthly basis with as many as 100 people in attendance. Events during planting and harvesting seasons (March through May and September through November) would occur at a higher frequency. For special events requiring additional restroom capacity, portable bathroom services would be used.

Weekend activities would be limited to special events and pre-approved farm operations activities. The farm director's approval would be required for any weekend activities. Special events would be limited based on available resources and at the discretion of the farm director. Depending on the event, additional parking and on-site security may be required, and additional lighting, sound resources, and other special event needs would be determined by the farm director.

Other community engagement and outreach events that would be open to the broader Merced or San Joaquin Valley communities would also be subject to similar size limitations as described above but would typically occur less frequently. These events would be more likely to occur on weekends or in the evening. A seasonal farmer's market facility would be in use at regular intervals (e.g., weekly or biweekly during harvesting season).

### **3.8 LRDP AMENDMENT**

The proposed project includes a Long Range Development Plan Amendment for a minor clarifying change in the CBR/SL and POS land use designations. The POS designation is assigned to

approximately 283 acres of undeveloped land. The POS category designates large and landscaped and natural spaces within the campus boundaries that can be used for passive recreation such as walking, biking, and observation of nature. The minor clarifying change would add existing agricultural fields as an allowable use and in addition, the existing agricultural fields could be utilized for campus research activities.

The CBR/SL designation is assigned to approximately 306 acres of undeveloped land located east of the Fairfield Canal, north of Le Grand Canal and Ranchers Road, and south of the campus. The CBR/SL land use designation allows for support services, solar and energy projects, and small structures of generally less than 10,000 square feet. This includes facilities for personnel and equipment related to the operation, safety, and maintenance of university facilities, general maintenance activities, materials handling, utility plants, service yards, recycling areas, and storage. Cattle grazing would also be allowed on lands designated CBR/SL. The minor clarifying change would allow agricultural research within existing agricultural fields on land designated CBR/SL.

## 4.0 COVERAGE UNDER THE 2020 LRDP

To determine the project's coverage under the 2020 LRDP, the following questions must be answered:

- Are the objectives of the project consistent with the objectives adopted for the 2020 LRDP?
- Are the changes to campus population associated with the project included within the scope of the 2020 LRDP's population projections?
- Is the proposed location of the project in an area designated for this type of use in the 2020 LRDP?
- Is the project included in the amount of the development projected in the 2020 LRDP?
- Have the conditions described in CEQA Guidelines Section 15162 calling for preparation of a subsequent EIR occurred?

**Sections 4.1 through 4.4** document the project's coverage by and consistency with the objectives, population projections, land use designations, and development projections contained in the 2020 LRDP.

### 4.1 2020 LRDP OBJECTIVES

The overall goal of the 2020 LRDP is to continue the growth of UC Merced as a premier research university, consistent with the University of California's mission of teaching, research, and service excellence. The overarching objective of the 2020 LRDP is to provide an up-to-date land use plan to guide the physical planning and development of the next phase of campus growth from about 10,000 to 15,000 students, as well as to establish a paradigm for the campus' character.

The following are the specific project objectives that would facilitate accomplishment of the overarching project objective:

- Provide the physical planning framework to guide development that would be needed to accommodate anticipated increases in population growth for the University of California system, both short-term and long-term.
- Reduce the costs of the next phase of campus development.
- Plan for a compact, pedestrian-oriented campus that reduces the need for new infrastructure.
- Plan and develop the campus to facilitate faculty-student interaction, ease and enjoyment of use of academic facilities, and an environment conducive to learning.
- Offer attractive and centrally located on-campus housing, consistent with UC-wide student housing policies.



- Provide opportunities for on-campus academic field research.
- Provide sufficient athletic facilities to offer high quality National Collegiate Athletic Association, recreational, and club athletic programs commensurate with other premier universities.
- To the extent practicable, plan and develop the campus with sustainable design by incorporating energy efficiency, water conservation, protection of biological resources, waste reduction and minimization, on-site stormwater management and reduced dependence on automobiles.
- Promote community integration and reflect the landscape, history, resources, and diverse cultures of the San Joaquin Valley in terms of physical development.

The project would support these 2020 LRDP objectives as follows:

**Provide opportunities for on-campus academic field research:** The Experimental Smart Farm would provide world class facilities and infrastructure on the UC Merced campus to support research on sustainable land management, regenerative agriculture, precision agriculture, automation/robotics, machine learning/AI, and the exploration of the future of farm work.

**Plan and develop the campus with sustainable design by incorporating energy efficiency, water conservation, protection of biological resources, waste reduction and minimization, on-site stormwater management, and reduced dependence on automobiles:** In addition to field research incorporating regenerative agriculture and sustainable land management, structures and facilities of the Experimental Smart Farm would include water storage and an automated irrigation network, renewable energy generation and equipment charging stations, and green waste composting facilities. The project would comply with the UC Sustainable Practices Policy. The goal for the new buildings is to be 20 percent more efficient than Title 24 standards and to support the UC Carbon Neutrality Initiative by seeking carbon neutral and/or net-zero energy performance. Project operational activities would be scheduled and implemented consistent with campus regulatory permit requirements and environmental commitments related to the protection of biological resources. Furthermore, at project buildout, it is anticipated that the farm would connect to existing campus pedestrian and bicycle paths.

**Promote community integration and reflect the landscape, history, resources, and diverse cultures of the California Central Valley region in terms of physical development:** The California Central Valley region is synonymous with agriculture. According to the California Water Science Center, Central Valley farms grow more than 250 different crops with a total estimated value of \$17 billion per year. While approximately 75 percent of the irrigated land in California and 17 percent of the irrigated land in the United States (U.S.) is in the Central Valley, farming in the Central Valley uses less than 1 percent of U.S. farmland to supply 8 percent of U.S. agricultural output (by value) and 25 percent of the food for the U.S., including 40 percent of the fruits, nuts, and other table foods eaten



in the U.S.<sup>4</sup> Located at the heart of this agricultural legacy, the Experimental Smart Farm would directly reflect and integrate into the landscape and resources of the region.

## 4.2 2020 LRDP CAMPUS POPULATION

UC Merced opened in 2005 with 865 students, 67 faculty, and about 450 staff. The 2020 LRDP SEIR estimated that between 2020 and 2030, the student population would increase from 9,700 full time equivalent (FTE) students to 15,000 students, an increase of about 5,300 students. Over the same period, faculty and staff would increase from 1,280 to 2,411, an increase of 1,131 persons. Overall, the campus population would increase by 6,431 persons (5,300 FTE students and 1,131 staff/faculty personnel) (**Table A**). As such, by 2030 the UC Merced campus is projected to have a total population of 17,411 students, faculty, and staff.

**Table A: Campus Student Population and Employees Under the 2020 LRDP**

	2020 (projected)	2030	Projected Increase 2020-2030
Commuting Students	4,900	7,800	2,900
Resident Students	4,800	7,200	2,400
Subtotal	9,700	15,000	5,300
Faculty	440	786	346
Staff (on-campus)	840	1,625	785
Subtotal	1,280	2,411	1,131
<b>Total Population (excluding dependents)</b>	<b>10,980</b>	<b>17,411</b>	<b>6,431</b>

Source: University of California, Merced. 2020. UC Merced 2020 Long-Range Development Plan Subsequent Environmental Impact Report.

As described in **Section 3.7.1**, approximately three additional employees would be required for the Phase 1 project, consisting of a farm director (not located at the Experimental Farm site), farm coordinator, and farm technician. The operation and implementation of the farm would also be coordinated by existing campus organizations and faculty. A conservatively estimated up to four additional employees would be required for the farm buildout (e.g., daily farm workers) for a total of seven employees. This does not include student researchers, interns, harvest workers, or any other volunteer or temporary workers. While UC Merced students could assist with agricultural operations and other volunteer activities, the proposed project would not provide capacity for or result in additional students. Thus, the project would not result in an exceedance of students or employees beyond what was projected under the 2020 LRDP SEIR.

## 4.3 2020 LRDP LAND USE DESIGNATION

The 2020 LRDP designates the project site as CBR/SL and POS.

<sup>4</sup> California Water Science Center. No date. California's Central Valley: Valley Facts.  
<https://ca.water.usgs.gov/projects/central-valley/about-central-valley.html>. Accessed March 9, 2022.

**CBR/SL:** The CBR/SL designation includes areas of the campus that will likely be developed at some point in the future but have not been designated for specific uses. Potential future uses could include academic, research, student housing, student and support services, athletic and recreation, parking, and similar uses as identified for the areas designated Campus Mixed Use.

The CBR/SL land use designation allows for the development of support services, small solar and other alternate energy projects, and small structures less than 10,000 square feet. This includes facilities for personnel and equipment related to the operation, safety, and maintenance of campus facilities, general maintenance activities, materials handling, utility plants, service yards, recycling areas, and storage. Cattle grazing would continue to be allowed on lands designated CBR/SL. The proposed project includes a minor clarifying change to the CBR/SL land use designation to allow agricultural research within existing agricultural fields on land designated CBR/SL.

**POS:** The POS designation applies to larger, landscaped or natural spaces within the campus boundaries. It also includes the campus stormwater management systems, including lakes and detention areas, as well as the irrigation canals, which may be integrated into the campus pathway and open space systems. Cattle grazing would also be allowed on lands designated POS. The proposed project includes a minor clarifying change to the POS land use designation to capture agricultural fields as an existing use in POS, and in addition, to allow for the use of the existing agricultural fields for campus agricultural research activities.

The Experimental Smart Farm Project would provide academic and research uses, alternative energy projects, and small structures less than 10,000 square feet consistent with the CBR/SL land use designation. Campus research activities associated with the Experimental Smart Farm would occur on existing agricultural fields, consistent with both the POS and CBR/SL land use designations, as clarified by the land use amendment described in Section 3.8 of this Addendum. Thus, with the land use amendment, the project would be consistent with and within the scope of development contemplated in the 2020 LRDP.

#### **4.4 2020 LRDP ACADEMIC BUILDING SPACE**

The 2020 LRDP provides capacity for approximately 1.8 million gross square feet of additional academic space, housing, student life and athletics, and campus operations to accommodate the project growth on the campus under the 2020 LRDP.

The project would support the University's effort to provide additional capacity to accommodate potential teaching and research initiatives, and would not exceed the academic building space contemplated in the 2020 LRDP. As described in **Section 3.3.3**, at project buildout, the project would increase the overall UC Merced building area by a conservatively estimated 16,000 square feet (e.g., for restroom facilities, maintenance and workshop buildings, instructional and event buildings, etc.).

## 5.0 CONSISTENCY WITH THE 2020 LRDP SEIR AND 2009 LRDP EIS/EIR

The evaluation contained in this consistency review was conducted in accordance with Sections 15152 and 15183.5(a) of the CEQA Guidelines which allow for tiered CEQA review provided the project's effects have been addressed in a prior programmatic analysis. The 2020 LRDP SEIR and 2009 LRDP EIS/EIR comprehensively addressed the potential environmental effects of campus growth and development due to implementation of future projects and activities proposed under the 2020 LRDP.

### 5.1 EVALUATION OF ENVIRONMENTAL IMPACTS

On the basis of the tiering and subsequent review concepts identified in the CEQA Guidelines, UC Merced has defined the following column headings in the environmental checklist used in this addendum. Both headings rely on the relevant analyses in the 2020 LRDP SEIR and 2009 LRDP EIS/EIR:

**Impacts Adequately Examined in the 2020 LRDP SEIR and 2009 LRDP EIS/EIR:** This column is checked where the potential impacts of the project were adequately examined in the certified 2020 LRDP SEIR and 2009 LRDP EIS/EIR. Where applicable, mitigation measures identified in the 2020 LRDP SEIR would mitigate the impacts of the project. All applicable mitigation measures from the 2020 LRDP SEIR<sup>5</sup> would be incorporated into the project, as noted in **Section 6.0** of this Addendum.

**Impacts Not Examined in the 2020 LRDP SEIR and 2009 LRDP EIS/EIR:** If a column is checked in this section, this indicates potential effects of the project were not adequately evaluated in the certified 2020 LRDP SEIR and 2009 LRDP EIS/EIR. However, as described in the supporting text, the potential effects of the project would result in: a) no impact in the category, b) a less-than-significant impact in the category, or c) a new potentially significant impact. In the instance that a) or b) is checked, no additional CEQA documentation would be necessary. In the instance that c) is checked, additional CEQA documentation would be necessary to further address the impact. All applicable mitigation measures would be incorporated into the project, as noted in **Section 6.0** of this Addendum.

On the basis of the evaluation that follows, UC Merced finds that the project would not have new significant effects on the environment that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, no substantial changes have occurred with respect to the circumstances under which the project will be undertaken, and no new information of substantial importance to the project has been identified.

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<sup>5</sup> The 2020 LRDP SEIR includes applicable mitigation measures from the 2009 LRDP EIS/EIR.

## 5.2 AESTHETICS

Aesthetics	Impact Examined in 2020 LRDP SEIR and 2009 EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
Would the Project...				
a. Have a substantial adverse effect on a scenic vista?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.2.1 Impact Analysis

#### *a. Would the project have a substantial effect on a scenic vista?*

A scenic vista is generally defined as an expansive view of highly valued landscape as observable from a publicly accessible vantage point. The area around the UC Merced campus is primarily agricultural with views of the Sierra Nevada Mountains in the distance. Previous analysis in the 2020 LRDP SEIR and the 2009 LRDP EIS/EIR concluded that impacts to scenic vistas from future development on the campus could be reduced to a less-than-significant level with implementation of **2020 LRDP Mitigation Measures AES-1b** and **AES-3a** (see **Section 6.1** of this Addendum). The project site is designated as CBR/SL and POS in the 2020 LRDP. Existing and historic land use at the project site consists primarily of agriculture, irrigated and non-irrigated pasture, and grazing. The proposed project would continue these existing and historic uses. Further, **2020 LRDP Mitigation Measures AES-1b** and **AES-3a** would be incorporated into the proposed project to reduce impacts on scenic vistas through encouraging views to the Sierra Nevada Mountains and building design criteria. As such, development of the proposed project would not have a substantial adverse effect on a scenic vista. The impact would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

The project site, which is located within the existing UC Merced campus, is not adjacent to or within view of a State scenic highway and therefore, implementation of the proposed project would not result in any impacts on scenic resources within a State scenic highway. Furthermore, there are no unique trees, rocky outcrops or historic buildings within the project footprint that could qualify as a scenic resource. As a result, no impact on scenic resources within a State scenic highway would occur, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*c. In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?*

The proposed project is located on the UC Merced campus in a non-urbanized area within the sphere of influence of the City of Merced. The visual character of the campus surrounding the project site includes student housing and academic buildings to the northwest, and undeveloped campus lands and conservation lands to the west and east, respectively. Directly to the south are the VST lands currently in agricultural use. Long distance views are largely precluded due to the flat terrain. The project footprint, which includes the proposed farm facilities area and agricultural fields, has already been disturbed for grazing and irrigation and is not occupied by natural features that enhance the visual character above that of other developed portions of the UC Merced campus. As discussed in the Initial Study prepared as part of the 2020 LRDP SEIR and in the 2009 LRDP EIS/EIR, development of small facilities, such as the proposed project, on CBR/SL designated land would not result in any greater impacts on visual character or quality than previously analyzed in the 2009 LRDP EIS/EIR. The proposed farm facilities would be low rise, would be designed to be consistent with goals of the 2020 LRDP and follow the design guidance in the campus Physical Design Framework. The architectural design of the proposed farm facilities would adhere to the campus aesthetic vision and reflect UC Merced's vision for a distinctive environment that is dynamic and engaging for learning, living, and working. The proposed buildings would create a visual connection with the agricultural uses surrounding the farm facilities with complementary forms and careful arrangement of building massing. In addition, public spaces located within the proposed farm facilities area would be designed to expand the visual experience for users, with the orientation towards views of surrounding agricultural fields, the natural landscape beyond campus, and campus landmarks. Finally, the proposed project would implement **2020 LRDP Mitigation Measures AES-1b** and **AES-3a** to ensure the new farm facilities and associated infrastructure improvements meet UC Merced design standards.

Implementation of the proposed project would not substantially degrade the existing visual character or quality of public views of the site and UC Merced campus. The impact would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.



*d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

Impacts related to light and glare from the development of the UC Merced campus were analyzed in the Initial Study prepared for the 2020 LRDP SEIR and in the 2009 EIR/EIS. The analysis in the latter concluded that despite the implementation of 2009 LRDP Mitigation Measure AES-3, the impacts related to light and glare from Campus and University Community North development would be significant and unavoidable. The proposed farm facilities would not result in any greater light and glare impacts than if the area were developed as part of the University Community North development, as studied in the 2009 EIR/EIS. The proposed facilities would be designed to be consistent with goals of the 2020 LRDP and follow the design guidance in the campus Physical Design Framework (i.e., “dark-sky” friendly lighting). Any lighting proposed for the outside of the proposed facilities would be designed to be directed downward to avoid spill over. The proposed facilities and any window façades would be developed with materials that do not generate glare. The guidelines of the 2020 LRDP would also be implemented for building design to reduce glare and excessive lighting.

Implementation of the proposed project would not create a new source of substantial light or glare which would adversely affect daytime or nighttime views on the UC Merced campus and surrounding off-campus area. The impact would be consistent with the analysis in the 2020 LRDP SEIR, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

### 5.3 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Agriculture and Forestry Resources Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 5.3.1 Impact Analysis

- a. *Would the project 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?*

Impacts on farmland were analyzed in the 2009 LRDP EIS/EIR and in the Initial Study for the 2020 LRDP SEIR. The analysis was based on the Farmland Mapping and Monitoring Program (FMMP) of

the California Department of Conservation, which maps the distribution of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (collectively known as Important Farmland) on a biannual basis. The analysis concluded that approximately 40 acres of Important Farmland would be impacted by buildout of the UC Merced campus under the 2020 LRDP. However, this impact was not considered significant because the University has already placed a substantial number of acres of land in eastern Merced County under conservation easements. The most current Important Farmland data for Merced County is from 2018.<sup>6</sup> According to the FMMP, the Experimental Smart Farm Campus site is designated as Grazing Land, Farmland of Local Importance, and Vacant or Disturbed Land. As the project would maintain the use of the Grazing and Farmland of Local Importance for agriculture, implementation of the proposed project would not convert Important Farmland to non-agricultural uses. No impact would occur, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

The UC Merced campus and project site is zoned by the County of Merced as Exclusive Agricultural (A-2); however, as the campus and site are State owned, the County Zoning code does not apply. The 2020 LRDP SEIR determined that the UC Merced campus, including the project site, is not under a Williamson Act contract. As such, implementation of the proposed project would not conflict with existing zoning for agricultural use nor would it conflict with a Williamson Act contract. No impact would occur, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?*

The UC Merced campus and project site are not zoned for/as forest land, timberland, or timberland zoned Timberland Production. As such, implementation of the proposed project would not conflict with existing forestland/timberland zoning designations/uses. No impact would occur, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*d. Would the project result in the loss of forest land or conversion of forestland to non-forest use?*

The UC Merced campus is developed with buildings and associated improvements as well as open space. The project site is primarily vacant or in agricultural use, and there is no forest land on the UC Merced campus nor on the project site. As such, implementation of the proposed project would not

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<sup>6</sup> California Department of Conservation, Farmland Mapping and Monitoring Program, 2018 Merced County, <https://www.conservation.ca.gov/dlrp/fmmp>. Accessed July 11, 2022.

result in the loss of forest land or conversion of forest land to non-forest use. No impact would occur, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

- e. Would the project 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?*

The project site does not contain forestland. The project site does include farmland, but agricultural use would be continued through implementation of the project. Proposed farm facilities would include maintenance and storage facilities, workshops, administrative offices, bathrooms, and classrooms; however, these buildings would support the continued agricultural use in the area. Thus, implementation of the proposed project would not involve other changes in the existing environment that would result in conversion of nearby farmland (e.g., existing agricultural uses on site or directly south of the campus) to non-agricultural use. No impact would occur, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.4 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Air Quality Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.4.1 Impact Analysis

#### *a. Would the project conflict with or obstruct implementation of the applicable air quality plan?*

The project site is within the San Joaquin Valley Air Basin (SJVAB), which is within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The SJVAPCD is responsible for air quality regulation within the eight-county San Joaquin Valley region. Both the State and the federal government have established health-based Ambient Air Quality Standards (AAQS) for six criteria air pollutants: carbon monoxide (CO), ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), lead, and suspended particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>). The SJVAB is designated as non-attainment for O<sub>3</sub> and PM<sub>2.5</sub> for federal standards and non-attainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> for State standards.

CEQA requires that certain proposed projects be analyzed for consistency with the applicable air quality plan. As discussed in the 2020 LRDP SEIR, for air quality planning purposes, the SJVAPCD creates emissions inventories based on existing and foreseeable future land uses within its jurisdiction. According to the 2020 LRDP SEIR, if a new project is consistent with the planned land use designation that was considered in the development of an air quality management plan, the proposed project would not conflict with and would not obstruct implementation of the applicable air quality management plan. The 2020 LRDP SEIR found that growth at the campus has been accounted for and included in the air quality planning efforts of the region and would not conflict with or obstruct implementation of the applicable air quality plan, and that impacts would be less than significant.



Under existing conditions, approximately 144 acres of the project site is designated as CBR/SL and approximately 68 acres is designated as POS. The proposed project would provide academic and research uses, alternative energy projects, and small structures less than 10,000 square feet consistent with the CBR/SL land use designation. Campus research activities associated with the Experimental Smart Farm would occur on existing agricultural fields, consistent with both the POS and CBR/SL land use designations, as clarified by the land use amendment described in Section 3.8 of this Addendum. Thus, with the land use amendment, the project would be consistent with and within the scope of development contemplated in the 2020 LRDP.

The increase in campus population (7 employees) and building space attributable to the proposed project is within the growth projections of the 2020 LRDP; therefore, the growth associated with the proposed project has been accounted for and included in the air quality planning efforts of the region and implementation of the proposed project would not conflict with or obstruct implementation of the applicable air quality plan. As such, consistent with the analysis in the 2020 LRDP SEIR, impacts would be less than significant, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*b. Would the project 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?*

The SJVAB is designated as non-attainment for O<sub>3</sub> and PM<sub>2.5</sub> for federal standards and non-attainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> for State standards. The SJVAPCD's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, the SJVAPCD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is unnecessary. The following analysis assesses the potential project-level construction- and operation-related air quality impacts.

**Short-Term Construction.** The 2020 LRDP SEIR analyzed the potential for campus development to result in an impact on air quality during construction activities. The 2020 LRDP SEIR analysis assumed that by 2020 UC Merced would have constructed about 2.5 million gross square feet (gsf) of building space, and between 2020 and 2030, UC Merced would construct an additional 1.83 million gsf of building space within a 103-acre portion of the campus. The 2020 LRDP SEIR found that that campus construction would result in a less than significant impact on air quality with

implementation of **2020 LRDP Mitigation Measures AQ-1a and AQ-1b** (see **Section 6.2** of this Addendum).

Similar to buildout of the LRDP, construction of the proposed project would require grading, site preparation, building, paving, and architectural coating activities. During construction of the proposed project, short-term degradation of air quality may occur due to the release of PM emissions (i.e., fugitive dust) generated by grading and paving activities. Emissions from construction equipment are also anticipated and would include CO, nitrogen oxides (NO<sub>x</sub>), reactive organic gases (ROGs), directly emitted PM<sub>2.5</sub> and PM<sub>10</sub>, and toxic air contaminants (TACs).

As identified above, the nominal increase in campus population, which along with the increase in building space attributable to the proposed project is within the growth projections of the 2020 LRDP. Therefore, construction emissions associated with the proposed project are accounted for in the estimated annual construction emissions evaluated in the 2020 LRDP SEIR. In addition, UC Merced would continue to implement **2020 LRDP Mitigation Measures AQ-1a and AQ-1b**, which would require the implementation of fugitive dust control measures that would be applied during construction grading (leveling of ground), excavation, and travel on unpaved surfaces during construction to comply with SJVAPCD Regulation VIII, along with a requirement that Tier 4 construction equipment be used to minimize NO<sub>x</sub> emissions during construction. With implementation of **2020 LRDP Mitigation Measures AQ-1a and AQ-1b**, impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR, no new or substantially more severe construction air quality impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

**Long-Term Operation.** The 2020 LRDP SEIR analyzed the potential for campus development under the 2020 LRDP to result in an impact on air quality from campus operations. That analysis, which was presented under Impact AQ-2 of the SEIR, analyzed impacts of campus facilities involving the addition of approximately 1.83 million gsf of building space, including 0.67 million gsf of academic space, such as classrooms, laboratory and research areas, and alumni and conference centers; 0.33 million gsf of student life and athletic uses; 0.48 million gsf of campus operations; 0.35 million gsf of housing; and approximately 1,680 parking spaces to accommodate approximately 15,000 students and 2,411 employees. The 2020 LRDP SEIR concluded that campus operations would result in a significant impact on air quality due to ROG and NO<sub>x</sub> emissions that would exceed SJVAPCD thresholds. The 2020 LRDP SEIR found that operational impacts would remain significant and unavoidable even with the implementation of **2020 LRDP Mitigation Measures AQ-2a and AQ-2b** (see **Section 6.2** of this Addendum).

Similar to the impacts identified in the 2020 LRDP SEIR, long-term air pollutant emission impacts that would result from the proposed project are those associated that are associated with mobile sources (e.g., vehicle trips), energy sources (e.g., electricity and natural gas), and area sources (e.g., architectural coatings and the use of landscape maintenance equipment).

As identified above, the proposed project would result in a nominal increase in campus population, which along with the increase in building space attributable to the proposed project is within the growth projections of the 2020 LRDP SEIR analyses; therefore, the operational emissions that would result due to the proposed project are included in the estimated emissions reported and evaluated

in the 2020 LRDP SEIR. UC Merced would continue to implement **2020 LRDP Mitigation Measures AQ-2a** and **AQ-2b**, which would include measures to reduce emissions from vehicles and from area and energy sources, such as improving traffic control, encouraging transit, pedestrian, and bicycle use, installing low maintenance landscaping, and using electric vehicles in their fleet. With implementation of **2020 LRDP Mitigation Measures AQ-2a** and **AQ-2b**, impacts would remain significant and unavoidable consistent with the analysis in the 2020 LRDP SEIR, but no new or substantially more severe operational air quality impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

**CO Hotspots.** The 2020 LRDP SEIR analyzed the potential for campus development under the 2020 LRDP to cause high levels of CO due to traffic associated with the campus. That analysis analyzed impacts of a 15,000-student campus in 2030. The 2020 LRDP SEIR evaluated the potential for the 2020 LRDP to cause or contribute to high CO concentrations using the CO screening guidance provided by the Bay Area Air Quality Management District (BAAQMD). This guidance provides that a project would have a less-than-significant impact with respect to CO levels if the addition of project traffic would not increase the total traffic at any affected intersection to more than 44,000 vehicles per hour. Buildout under 2020 LRDP would generate 8,406 total daily trips or 739 AM peak hour trips and 808 PM peak hour trips. The 2020 LRDP SEIR found that traffic at all intersections affected by the 2020 LRDP would be less than 44,000 vehicles per hour. Therefore, the 2020 LRDP SEIR found that the 2020 LRDP would not result in the violation of the CO standards and would not expose sensitive receptors to substantial CO concentrations and impacts would be less than significant.

Similar to the impacts identified in the 2020 LRDP SEIR, CO emitted by traffic associated with the proposed project would have the potential to result in substantial concentrations. As discussed in **Section 5.18**, Transportation, of this Addendum, the proposed project would generate fewer than 110 daily vehicle trips. Therefore, similar to buildout of the LRDP, the proposed project's contribution to peak hour traffic volumes at intersections in the vicinity of the project site would be well below 44,000 vehicles per hour. Therefore, the proposed project would not result in localized CO concentrations that exceed State or federal standards and this impact would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. The proposed project would not result in any new or more severe localized CO impacts that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no new mitigation would be required.

*c. Would the project expose sensitive receptors to substantial pollutant concentrations?*

The 2020 LRDP SEIR found that development under the 2020 LRDP would result in less-than-significant impacts related to exposure of sensitive receptors to substantial pollutant concentrations. Sensitive receptors are defined as people that have an increased sensitivity to air pollution or environmental contaminants. Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling units. The closest sensitive receptors to the proposed project include residences along Lake Road to the west, approximately 600 feet from the western-most point of the project site along Meyers Gate Road, and 0.9 mile from the Experimental Smart Farm facilities and agricultural use areas. The Glacier Point student housing and the Arts and Computational Sciences Building are the closest on-campus sensitive receptors, located approximately 1,000 feet and 1,100 feet from the project site, respectively.

Construction of the proposed project may expose surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). However, project contracts would be required to implement **2020 LRDP Mitigation Measures AQ-1a** and **AQ-1b**, which would require the implementation of fugitive dust control measures that would be applied during grading to comply with SJVAPCD Regulation VIII along with a requirement that Tier 4 construction equipment be used to minimize NO<sub>x</sub> emissions during construction. Once the proposed project is constructed, the proposed project would not be a significant source of long-term operational emissions. With implementation of **2020 LRDP Mitigation Measures AQ-1a** and **AQ-1b**, impacts would be less than significant consistent with the analysis in the 2020 LRDP SEIR, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*D. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?*

The 2020 LRDP SEIR found that construction activities under the 2020 LRDP would require the use of diesel-fueled equipment, architectural coatings, and asphalt, all of which have an associated odor. However, the 2020 LRDP SEIR found that these odors are not pervasive enough to cause objectionable odors affecting a substantial number of people. In addition, the 2020 LRDP SEIR found that the operation of buildout under the 2020 LRDP would not be a significant source of odors. Therefore, the 2020 LRDP SEIR found that implementation of the 2020 LRDP would not cause or be affected by odors. This impact was found to be less than significant.

Similar to the 2020 LRDP, construction of the proposed project would require the use of diesel-fueled equipment and architectural coatings, both of which generate odors. However, these odors would be short-term and temporary and would not be pervasive enough to affect a substantial number of people.

Once operational, the proposed project would include development of the proposed farm facilities and agricultural use areas, including improvements to Meyers Gate Road and Solar Array Road. Experimental and instructional areas dedicated to soil and plant sample handling, robotics and electronics, aerial and drone machinery, food production, and agricultural cycles (irrigation, compost, wastewater treatment) would be available for educational uses. Routine operation of the farm facilities and agricultural use areas could produce localized odors, but they would be temporary and limited in area and would not create odors or other emissions that could affect a substantial number of persons. The closest sensitive receptors to the proposed project include residences along Lake Road to the west, approximately 600 feet from the western-most point of the project site along Meyers Gate Road, and 0.9 mile from the Experimental Smart Farm facilities and agricultural use areas. The Glacier Point student housing and the Arts and Computational Sciences Building are the closest on-campus sensitive receptors, located approximately 1,000 feet and 1,100 feet from the project site, respectively. Any odors in general would be confined mainly to the project site and would readily dissipate. Impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR, and the proposed project would not result in any new or more severe odor impacts compared to those previously identified in the 2020 LRDP SEIR, and no new mitigation would be required.

## 5.5 BIOLOGICAL RESOURCES

Biological Resources Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
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 U.S. Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 U.S. Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.5.1 Impact Analysis

- a. *Would the project 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 U.S. Fish and Wildlife Service?*

Impacts on biological resources, including special-status plant and wildlife species, that would occur with development of the campus, were evaluated in the 2020 LRDP SEIR. The project site, which is located within an area designated for development by the 2020 LRDP, has been subject to



disturbance related to historic and existing agricultural uses, including cattle grazing within irrigated pastures and associated native-surfaced and gravel-surfaced access roads, fencing, and irrigation infrastructure.

Existing land cover types within the project area, as described in the 2020 LRDP SEIR, primarily include irrigated pasture, as well as California annual grassland (non-native annual grassland) and developed areas (i.e., associated with the existing solar array and roads). Predominant aquatic features include canal wetlands associated with the Fairfield Canal, as well as irrigation wetlands, with remnant vernal pools and swales located within the non-native annual grassland areas. Vegetation in the irrigated pasture areas consists primarily of grasses and other weedy species favored by summer irrigation. The characteristic species within the project site include sporadic to dense stands of Pacific rush (*Juncus effusus*), Italian rye grass (*Festuca perennis*), Bermuda grass (*Cynodon dactylon*), white clover (*Trifolium repens*), and annual blue grass (*Poa annua*). Non-native annual grassland, associated with the northern portion of the project site near the solar array and the southeastern non-irrigated pasture area, is dominated by non-native annual grass and forb species such as soft chess (*Bromus hordeaceus*), oats (*Avena fatua*, *A. barbata*), foxtail barley (*Hordeum murinum* ssp. *Leporinum*), rattail sixweeks grass (*Festuca myuros*), filarees (*Erodium cicutarium*, *E. moschatum*, *E. botrys*), and shining peppergrass (*Lepidium nitidum*).

Aquatic features were delineated within the project site prior to the development of the campus. Seasonal wetlands, including approximately 8.5 acres of canal wetlands and irrigation wetlands, exist within the project site along the Fairfield Canal in overflow areas where the surrounding topography prevents water from draining away from the canal and in the central portion of the site where irrigation waters from the pastures create summer flooding in former vernal pool systems. There are approximately 1.4 and 0.08 acres of vernal swales and vernal pools, respectively, located within the non-native annual grassland areas near the solar array and within the southeastern non-irrigated pasture area.

**Table B** lists the special-status species with the potential to occur within or in the vicinity of the project area. This assessment is based on a reconnaissance survey conducted by LSA on March 21-23, 2022; protocol level rare plant surveys conducted by LSA on March 21-23 and June 7, 2022; presence/absence California tiger salamander (CTS) (*Ambystoma californiense*) larval surveys conducted by LSA on March 23 and May 18, 2022; and recent preconstruction surveys and biological monitoring conducted to the west of the project site between 2015 and 2020 for the recently completed “2020 Project” consistent with the mitigation measures in the 2009 LRDP EIS/EIR, the 2020 LRDP SEIR, as well as the conditions specified by UC Merced’s existing State and federal permits for campus development. Updated species lists from the U.S. Fish and Wildlife Service’s (USFWS) Information for Planning and Consultation (IpaC)<sup>7</sup>, California Natural Diversity Data Base (CNDDB)<sup>8</sup>, and California Native Plant Society Online Database<sup>9</sup> were also reviewed.

<sup>7</sup> U.S. Fish and Wildlife Service. 2022. Information for Planning and Consultation (IPac) Online Threatened and Endangered Species Lists. Sacramento Fish and Wildlife Office.

<sup>8</sup> California Department of Fish and Wildlife (CDFW). 2022. California Natural Diversity Database - Rarefind 5 online computer program. Sacramento, CA. Sacramento, California.

<sup>9</sup> California Native Plant Society, Rare Plant Program. 2022. Inventory of Rare and Endangered Plants of California (online edition). Website: <http://www.rareplants.cnps.org>.

**Table B: Special-Status Animal and Plant Species with the Potential to Occur Within or in the Vicinity of the Project Site**

Name	Scientific Name	Listing <sup>1</sup>		
		Federal	State	Other
Plants				
Colusa grass	<i>Neostapfia colusana</i>	T	E	1B.1
Dwarf downingia	<i>Downingia pusilla</i>	--	--	1B.2
San Joaquin Valley Orcutt grass	<i>Orcuttia inaequalis</i>	T	E	1B.1
Shining navarretia	<i>Navarretia nigelliformis radians</i>	--	--	1B.1
Succulent owl's clover	<i>Castilleja campestris ssp. Succulenta</i>	T	E	1B.1
Wildlife				
Bald eagle	<i>Haliaeetus leucocephalus</i>	--	E, FP	--
Burrowing owl	<i>Athene cunicularia</i>	--	SSC	--
California horned lark	<i>Eremophila alpestris actia</i>	--	SSC	--
California tiger salamander	<i>Ambystoma californiense</i>	T	T	--
Crotch bumble bee	<i>Bombus crotchii</i>	--	SA	--
Ferruginous hawk	<i>Buteo regalis</i>	--	SSC	--
Golden eagle	<i>Aquila chrysaetos</i>	--	FP	--
Loggerhead shrike	<i>Lanius ludovicianus</i>	--	SSC	--
Mountain plover	<i>Charadrius montanus</i>	--	SSC	--
Northern harrier	<i>Circus cyaneus</i>	--	SSC	--
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	E	T	--
Short-eared owl	<i>Asio flammeus</i>	--	SSC	--
Swainson's hawk	<i>Buteo swainsoni</i>	--	T	--
Tricolored blackbird	<i>Agelaius tricolor</i>	--	T	--
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	T	--	--
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	E	--	--
White-tailed kite	<i>Elanus leucurus</i>	--	FP	--
Western pond turtle	<i>Actinemys marmorata</i>	--	SSC	--
Western spadefoot	<i>Spea hammondi</i>	--	SSC	--

<sup>1</sup> Endangered (E), Threatened (T), Species of Special Concern (SSC), Fully Protected (FP), CDFW Special Animals List (SA), California Rare Plant Rank 1B.1, 1B.2

A discussion of the potential for these species to occur, based on the analysis in the 2020 LRDP SEIR, is included below.

**Special-Status Plant Species.** As described in Section 4.2 of the 2020 LRDP SEIR, although potentially suitable habitat exists within undeveloped areas of the overall 1,026-acre campus site for 17 special-status plant species, surveys conducted to date (including those conducted in advance of the 2009 LRDP EIS/EIR and for the 2020 Project, as reflected in Table 4.2-4 of the 2020 LRDP SEIR) have not identified many of these species within the campus site. The 2020 LRDP SEIR reflects that five special-status plant species—succulent owl's clover (*Castilleja campestris ssp. succulenta*), Colusa grass (*Neostapfia colusana*), San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*), dwarf downingia (*Downingia pusilla*), and shining navarretia (*Navarretia nigelliformis* subsp. *radians*)—are known to occur within the vicinity of the project area based on documented sightings. However, all species

are associated with vernal pool or clay flat wetland habitat, which is limited to the approximately 1.4 and 0.08 acres of vernal swales and vernal pools, respectively, located on the project site within the non-native annual grassland areas near the solar array and within the southeastern non-irrigated pasture area. Appropriately timed spring and summer protocol level rare plant surveys conducted in 2022, as required by UC Merced's Incidental Take Permit (ITP) (No. 2081-2009-010-04)<sup>10</sup> for state-listed succulent owl's clover, Colusa grass, and San Joaquin Valley Orcutt grass, did not identify any of these species within the project site. Furthermore, UC Merced has already fully compensated for the loss of habitat for special-status plant species within the campus development area, which includes the project site. The 2020 LRDP SEIR documents UC Merced's compensation for the loss of special-status vernal pool plant species as a result of overall campus development (i.e., preservation of nearly 24,000 acres of Tier 1 and Tier 2 Conservation Lands with suitable habitat).

As the 2022 protocol level rare plant surveys within the project site were negative and the loss of special-status plant habitat was previously compensated for, the proposed project's impacts on special-status plant species would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts related to special-status plants would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

**Special-Status Wildlife Species.** The project's potential to impact special-status wildlife species is described below.

***Special-Status Amphibians and Reptiles.*** As described in Section 4.2 of the 2020 LRDP SEIR, CTS, western pond turtle (*Actinemys marmorata*), and western spadefoot (*Spea hammondi*) are known to occur within the vicinity of the project area based on documented sightings. Both western pond turtle and western spadefoot are State species of special concern, while CTS is both State- and federally-listed as threatened.

**California Tiger Salamander.** All undeveloped areas within the 1,026-acre campus site that were evaluated in the 2020 LRDP SEIR are considered occupied upland habitat for CTS. As described in the 2020 LRDP SEIR, 171 acres of the campus site that provide suitable upland habitat for CTS were previously graded and developed. Within the project site, suitable upland habitat for CTS is limited to the non-native annual grassland areas near the campus solar array to the north, the proposed farm facilities area adjacent to the Fairfield Canal, and within the southeastern non-irrigated pasture area. Thus, the proposed project would result in additional impacts to CTS habitat to accommodate the proposed facilities and agricultural use areas. However, UC Merced has already mitigated for the loss of 1,648 acres of CTS upland habitat via the preservation of nearly 17,600 acres of Conservation Lands. Furthermore, based on CTS larval surveys conducted by LSA within the freshwater marsh area located adjacent to the Fairfield Canal in the southernmost portion of the site, there is no suitable CTS breeding habitat on the project site. Therefore, due to the mitigation that has already been put in place, the project's impacts related to the loss of CTS habitat would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts related to CTS habitat would

<sup>10</sup> California Department of Fish and Wildlife. 2011. *Incidental Take Permit for the University of California, Merced Campus and Community North Project (with amendments)*. (2081-2009-010-04). Fresno, CA.

occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

While individual CTS are less likely to occur within the irrigated pasture areas of the site, there are potential CTS burrows located within the non-native annual grassland areas on the project site. Thus, their presence within the project site cannot be ruled out due to known or potential breeding ponds to the north and east. Project implementation could thus result in injury or mortality to individual CTS. UC Merced's existing ITP and Biological Opinion (BO) (USFWS file number 1-1-02-F-0107)<sup>11</sup> contain several measures to avoid and minimize take of CTS. These measures include requirements for a USFWS and California Department of Fish and Wildlife (CDFW)-approved Designated Biologist to conduct preconstruction surveys, excavate small mammal burrows, and monitor construction activities. UC Merced also provides an education program for all workers on the construction site that describes CTS and measures that must be implemented to protect this species. A CTS relocation plan has been developed and approved to salvage individual CTS found within the campus site. The ITP also requires the installation of a CTS exclusion fencing within 1.3 mile of known or potential CTS breeding habitat and excavation of small mammal burrows prior to project construction (ITP Amendment No. 3). UC Merced would continue to implement all requirements of the ITP and BO as part of the proposed project. The project would thus have a less-than-significant impact on CTS during construction and ongoing operation of agricultural areas, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts related to CTS take would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

Western Spadefoot. Habitats suitable for CTS are often also suitable for western spadefoot. However, hand excavation of burrows on the 2020 Project site located west of the project site and extensive dip net surveys of aquatic features on the adjacent Tier 1(a) Conservation Lands to the east have not resulted in the detection of western spadefoot. Furthermore, LSA did not detect this species within the project site during surveys conducted in 2022. Thus, it is not expected that western spadefoot would be affected either directly or indirectly by the proposed project. The avoidance and protection measures for CTS would also serve to protect this species, should an individual enter a work site. Therefore, the project impact on western spadefoot would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. No new or substantially more severe impacts related to western spadefoot would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

Western Pond Turtle. As described in the 2020 LRDP SEIR, UC Merced has already compensated for the loss of western pond turtle habitat through the preservation of a minimum of 175 acres of suitable habitat on the Tier 1(a) and Tier 2 Conservation Lands. While western pond turtle was not observed within the project site during surveys conducted by LSA, this species is known from an existing campus stormwater basin north of the project area and could potentially occur

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<sup>11</sup> U.S. Fish and Wildlife Service. 2002. *Final Biological Opinion on the Proposed University of California Merced Campus, Phase 1 and Campus Buildout (amended in 2009)*. August 19. (1-1-02-I-2926.) Sacramento, CA.

within the freshwater marsh area located adjacent to the Fairfield Canal in the southernmost portion of the site or within other canal wetlands along the Fairfield Canal.

With respect to the potential for project construction activities to result in injury or mortality of the species, UC Merced's 2009 Construction Mitigation Plan (CMP)<sup>12</sup>, which is a requirement of the BO, requires that a biologist conduct preconstruction surveys for western pond turtle prior to initial ground-disturbing activities in all suitable aquatic habitats within 100 feet of the work area. If pond turtles are not observed, no additional mitigation is required. If pond turtles are observed, they would be allowed to move out of the way on their own. If active nests are found, they would be fenced with an appropriate buffer and avoided until the young have hatched and are able to move out of the work area on their own. With the implementation of this CMP measure, potential project impacts to western pond turtle would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts related to Western pond turtle would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

**Special-Status Birds and Nesting Birds.** Several special-status bird species (as listed in **Table B**) and common birds could nest on the ground, within burrows, and in tree and shrub vegetation on the project site or vicinity. Active nests of all native bird species are protected under the federal Migratory Bird Treaty Act (MBTA) and Section 3503 of the California Fish and Game Code (CFGC), which prohibits the take, possession, or needless destruction of the nest or eggs of any bird.

As described in the 2020 LRDP SEIR, special-status birds known to nest on or near the campus include burrowing owl, Swainson's hawk, and tricolored blackbird. In April 2018, a Swainson's hawk nest was identified in a tree west of the Fairfield Canal, within approximately 700 feet of the northernmost portion of the project site. During surveys conducted by LSA in 2022, two adult Swainson's hawks with one fledgling were observed soaring within the project area, but no specific nest was identified. Potential burrowing owl habitat is currently limited to the annual grassland areas (i.e., near the campus solar array to the north, the proposed farm facilities area adjacent to the Fairfield Canal, and within the southeastern non-irrigated pasture area). No small mammal burrows were observed within the irrigated pasture areas during surveys conducted by LSA in 2022. Other special-status birds for which there is suitable nesting habitat on and adjacent to the project site include California horned lark, white-tailed kite, short-eared owl, and loggerhead shrike. The campus and adjacent lands also contain suitable nesting habitat for numerous non-special-status migratory birds, including red-tailed hawk (*Buteo jamaicensis*), red-winged blackbird (*Agelaius phoeniceus*), killdeer (*Charadrius vociferous*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), and cliff swallow (*Petrochelidon pyrrhonota*), whose nests are protected under the MBTA and CFGC Sections 3503 and 3503.5.

Grading and vegetation removal would occur on the site during project construction and during ongoing agricultural activities (e.g., tilling, pruning). Project implementation has the potential to

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<sup>12</sup> ICF Jones & Stokes 2009. *Final Construction Mitigation Plan for Biological Resources the University of California, Merced Project*. Prepared for University of California, Merced.

disturb active special-status and non-special-status migratory bird nests if ground-disturbing or vegetation removal activities occur during the nesting season (generally February 15 through August 15). The destruction or disturbance of active nests resulting in nest failure or loss of individuals would be a potentially significant impact, consistent with the analysis in the 2020 LRDP SEIR. However, **2020 LRDP Mitigation Measure BIO-9a** (see **Section 6.3** of this Addendum), as well as the conditions in UC Merced's ITP for Swainson's hawk (e.g., preconstruction nesting surveys, no disturbance buffers, etc.), would be implemented during project construction to reduce potential impacts to special-status and non-special-status migratory bird nests to less than significant, consistent with the analysis in the 2020 LRDP SEIR. UC Merced would comply with the MBTA and Section 3503 of the CFGC during operation of the farm, similar to other ongoing campus operational activities. Therefore, no new or substantially more severe impacts related to special-status birds and nesting birds would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

As described in the 2020 LRDP SEIR, UC Merced's location along the Pacific Flyway migratory route and its setting within a diverse environment that provides habitat for many resident bird species increases the potential for bird collisions with tall buildings on the campus. The proposed farm facilities could include design features (e.g., reflective surfaces or breezeways) that could result in resident or migratory bird collisions resulting in bird injuries or mortality. **2020 LRDP Mitigation Measure BIO-9b** (see **Section 6.3** of this Addendum), which specifies bird safe design considerations, would be implemented to reduce potential impacts associated with bird collisions to less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts related to bird collisions would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

Based on the areas identified in the 2020 LRDP for campus development (including the project site), the loss of foraging habitat for Swainson's hawk and other special-status bird species from the development of the campus under the 2020 LRDP was estimated and reported in the 2020 LRDP SEIR. The SEIR also noted that UC Merced has preserved more than 20,000 acres of foraging habitat for Swainson's hawk and other bird species within the Tier 1 and Tier 2 Conservation Lands. As the project site is included within the development area described and analyzed in the 2020 LRDP SEIR, the project would result in a less-than-significant impact to foraging habitat for Swainson's hawk and other special-status bird species, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts related to foraging habitat would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

**Special-Status Invertebrates.** As described in Section 4.2 of the 2020 LRDP SEIR, suitable habitat for vernal pool fairy shrimp (*Branchinecta lynchi*; federally-listed as threatened) and vernal pool tadpole shrimp (*Lepidurus packardii*; federally-listed as endangered) remains within the 1,026-acre campus site. Crotch bumble bee (*Bombus crotchii*) became a candidate endangered species under the California Endangered Species Act (CESA) in 2019 during the preparation of the 2020



LRDP SEIR. However, due to ongoing litigation<sup>13</sup>, this species does not currently have legal status under CESA but is currently listed on CDFW's 2022 Special Animals List, which identifies special-status species and "species at risk." Non-native annual grassland areas within the project site, in particular those areas with fossorial (burrowing) mammal activity, provide potential nest sites for Crotch bumble bee.

Vernal Pool Crustaceans. Vernal pool fairy shrimp and vernal pool tadpole shrimp are associated with vernal pools that form in depressions, usually in grassland habitats. These species may also occur in other wetlands that provide habitat similar to vernal pools, such as alkaline rain pools, ephemeral drainages, rock outcrop pools, ditches, stream oxbows, stock ponds, vernal swales, and some seasonal wetlands. While vernal pool tadpole shrimp are not known from the 1,026-acre campus site based on previous surveys that were conducted prior to the development of the campus, vernal pool fairy shrimp were identified adjacent to the project site near Bellevue Road west of the Fairfield Canal and on the Tier 1(a) Conservation Lands north of Le Grand Canal at the easternmost portion of the site. While this species may occur within the remnant vernal pools and swales located in the non-native annual grassland areas of the project site near the solar array and within the southeast non-irrigated pasture area, UC Merced has already fully compensated for the loss of habitat for these species. As reflected in the 2020 LRDP SEIR, the University has acquired nearly 24,000 acres of Conservation Lands that would protect 1,006 acres of occupied habitat for vernal pool fairy shrimp. Mitigation ratios achieved for direct and indirect impacts are 8:1 for Tier 1(a) Conservation lands and 16:1 with the addition of the Tier 2 Conservation Lands, substantially above the 3:1 minimum target specified in the 2002 BO. Similarly, 14 acres of occupied habitat for vernal pool tadpole shrimp are being protected, reflecting a mitigation ratio of 3.5:1, which is above the 3:1 minimum target specified in the Conservation Measures in the 2002 BO. Therefore, the project impact on vernal pool fairy shrimp and vernal pool tadpole shrimp is accounted for under the impacts of the 2020 LRDP and fully compensated by the mitigation that has been already implemented. The project's impact would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts related to vernal pool crustaceans would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

Crotch Bumble Bee. While there have been no documented observations of Crotch bumble bee within the 1,026-acre campus or the Tier 1(a) Conservation lands to the east of the project site, the campus is within the historical range for this species, and any crevices or openings within the annual grassland areas on the project site could provide potentially suitable underground nesting habitat for this species. Should Crotch bumble bee colonies or overwintering queens be present in underground nests on the project site, construction activities within non-native

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<sup>13</sup> On November 13, 2020, the Sacramento County Superior Court issued a ruling in *Almond Alliance v. California Fish and Game Commission*, deeming the State of California lacks authority to list four threatened bumble bee species as endangered under CESA, including the Crotch bumble bee. In February 2021, the Commission filed a Notice of Appeal through the California Attorney General's Office. In May 2022, a court ruled that CESA can apply to invertebrates, including insects. As of the date of this EIR Addendum, the California Fish and Game Commission has not yet voted to reinstate the process of listing this species under CESA.

annual grassland areas could adversely affect this species and its habitat. In the event that Crotch bumble bee is again considered a candidate species or is formally listed under CESA, **2020 LRDP Mitigation Measure BIO-4** (see **Section 6.3** of this Addendum) will be implemented during initial construction activities within annual grassland areas (i.e., near the campus solar array to the north, the proposed farm facilities area adjacent to the Fairfield Canal, and within the southeastern non-irrigated pasture area). With the implementation of this mitigation measure, any potential impacts on Crotch bumble bee would be reduced to less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts related to Crotch bumble bee would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

**San Joaquin Kit Fox.** As described in the 2020 LRDP SEIR, there is low potential for San Joaquin kit foxes (*Vulpes macrotis mutica*) to occur on the project site because the species has not been observed on or near the campus since its establishment, including on the adjacent approximately 6,500-acre Tier 1(a) Conservation Lands where camera monitoring has been conducted annually since 2015. The most recent documented occurrence in the project vicinity is from 1999 (CNDDDB Occurrence No. 26), approximately 2.5 miles southeast of the project site. Regardless, there is some potential for kit foxes to disperse through the project site, and a potential for physical harm to a kit fox, should one be present within a construction site. Both the 2002 BO and the 2009 BO issued to UC Merced by the USFWS and the ITP issued by CDFW contain extensive requirements, including pre-construction surveys and compliance measures, that UC Merced must implement during construction of projects, including the proposed project, to avoid harm to kit fox. Compliance with the BO and ITP requirements would adequately avoid and minimize harm to kit fox. Furthermore, as reflected in Section 4.2 of the 2020 LRDP SEIR, UC Merced has already compensated for the loss of residence and dispersal habitat for kit fox through the preservation of more than 25,918 acres of suitable habitat. Thus, consistent with the analysis in the 2020 LRDP SEIR, potential project impacts on kit fox related to injury or mortality due to construction activities and loss of residence and dispersal habitat would be less than significant. Therefore, no new or substantially more severe impacts related to special-status birds and nesting birds would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

- b. *Would the project 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 U.S. Fish and Wildlife Service?*

The project area does not contain riparian habitat or other sensitive natural communities. The project site consists of irrigated pasture, non-native annual grassland, and developed areas (i.e., associated with the existing solar array and roads). Thus, the project would have no impact on riparian habitat or other sensitive natural communities. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

As described above, there are approximately 8.5 acres of canal wetlands and irrigation wetlands along the Fairfield Canal and within the central portion of the project site, and approximately 1.48 acres of vernal pools and swales located within the non-native annual grassland areas near the solar array and within the southeastern non-irrigated pasture area. As described in Section 4.2 of the 2020 LRDP SEIR, the impacts of campus development on State and federally protected wetlands were fully evaluated in the 2009 LRDP EIS/EIR, and all seasonal wetlands, which include the canal wetlands and irrigation wetlands located on the project site, have been fully mitigated consistent with UC Merced's existing permit requirements. Thus, although UC Merced has filled less than half of the permitted wetlands acreage on the campus and University Community North sites, it has provided compensatory mitigation for all of the seasonal wetland acreage that is allowed to be filled under the permits from the U.S. Army Corps of Engineers (USACE) and RWQCB. Therefore, no additional compensatory mitigation would be required for any impacts to the 8.5 acres of canal wetlands and irrigation wetlands located on the project site.

In regard to vernal pools, which include the approximately 1.48 acres of vernal pools and swales located on the project site, the 2020 LRDP SEIR reflects that UC Merced has provided compensatory mitigation for 35.60 acres of fill (of the total permitted fill of 40.41 acres), although only 25.83 acres had been filled as of the 2020 LRDP SEIR. Based on an evaluation in September 2021 following the certification of the 2020 LRDP SEIR, 28.83 acres of vernal pools have been filled within the permit area. Thus, based on the proposed project's anticipated impacts to 1.48 acres of vernal pools and swales, the total fill within the permit area would still be within the 35.60 acres that were previously mitigated. Furthermore, as described in the 2020 LRDP SEIR, in the event that UC Merced fills all of the remaining vernal pool wetlands such that the total fill equals the permitted fill of 40.41 acres, it will need to provide an additional 4.81 acres of compensatory vernal pool mitigation. UC Merced has discussed this with the USACE, and the USACE has agreed that this small acreage can be mitigated via the purchase of vernal pool credits under the Sacramento District California In-Lieu Fee Program.

Thus, the project would have a less-than-significant impact on State or federally protected wetlands, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*d. Would the project 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?*

The project is located within the portion of the campus designated for future development as part of the 2020 LRDP, and impacts on wildlife movement resulting from campus buildout were fully evaluated in the 2009 LRDP EIS/EIR and incorporated into the 2020 LRDP SEIR by reference. The project area is located adjacent to existing campus development to the north and west and has been used for ongoing grazing activities. The Fairfield Canal and Le Grand Canal are located immediately

west and east of the site, respectively, and limit wildlife movement into the project area from adjacent undeveloped areas. Thus, the proposed project would not result in a new or more severe impact on wildlife movement than previously analyzed and disclosed in the 2009 LRDP EIS/EIR and 2020 LRDP SEIR, and any local wildlife movement adapted to human disturbance would resume once construction of the farm facilities is complete and grazing areas are gradually converted to agricultural uses areas associated with the project. There are no wildlife nursery sites within or adjacent to the project area. Thus, the project would have a less-than-significant impact related to wildlife movement or nursery sites, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

The proposed project would not conflict with any local policies or ordinances protecting biological resources, as the project site is State-owned and therefore not subject to local regulations. Thus, the project would have no impact related to this criterion. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

No adopted habitat conservation plan or natural community conservation plan applies to the project site or its vicinity. Thus, the project would have no impact related to this criterion. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.6 CULTURAL RESOURCES

Cultural Resources Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of formal cemeteries?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.6.1 Impact Analysis

*a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?*

The previous cultural resources investigations conducted for the 2009 LRDP EIS/EIR, as referenced in the 2020 LRDP SEIR, identified nine historic resources within the boundary of the UC Merced campus and the University Community North. These resources, including the Fairfield and Le Grand canals, were formally evaluated and recommended as not eligible for listing in either the National Register of Historic Places or the California Register of Historical Resources, and the State Historic Preservation Officer concurred with the finding. The project site, which is located within the study area previously evaluated for historical resources, has been subject to disturbance related to historic and existing agricultural uses, including cattle grazing and associated native-surfaced and gravel-surfaced access roads, fencing, and irrigation infrastructure. No historical resources have been discovered on the project site to date. In the event that historical resources are discovered during project construction activities, the proposed project would be required to implement **2020 LRDP Mitigation Measure CUL-2** (see **Section 6.4** of this Addendum), which addresses the treatment of unanticipated buried cultural resources. With implementation of this previously-adopted 2020 LRDP SEIR mitigation measure, currently undiscovered historical resources would be avoided, recorded, or otherwise treated appropriately, in accordance with pertinent laws and regulations, and impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?*

Impacts on archaeological resources from the development of the UC Merced campus were evaluated in the 2009 LRDP EIS/EIR, as referenced in the 2020 LRDP SEIR. Some areas of the campus evaluated were determined to have prehistoric sites that were previously recorded. The analysis concluded that the impacts on archaeological resources from campus development would be reduced to a less-than-significant level with the implementation of **2020 LRDP Mitigation Measure CUL-2**. The project site is not located in an area of the campus where prehistoric sites were previously recorded. As described above, the proposed project site has been subject to historic and existing agricultural uses, and no archaeological resources have been discovered on the site to date. In the event that archaeological resources are discovered during project construction activities, the proposed project would be required to implement **2020 LRDP Mitigation Measure CUL-2**.

With implementation of previously-adopted **2020 LRDP Mitigation Measure CUL-2**, the proposed project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5, and impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*c. Would the project disturb any human remains, including those interred outside of formal cemeteries?*

Impacts on human remains from the development of the UC Merced campus were evaluated in the 2009 LRDP EIS/EIR, as referenced in the 2020 LRDP SEIR. None of the areas of the campus (including the location of the proposed project) evaluated under the 2020 LRDP SEIR were determined to have previously discovered human remains. The analysis concluded that the impacts from campus development on human remains (if discovered) would be reduced to a less-than-significant level with the implementation of **2020 LRDP Mitigation Measure CUL-3** (see **Section 6.4** of this Addendum).

The project site has been subject to previous and ongoing disturbance associated with agricultural and grazing activities, and no evidence of human remains have been discovered on the site. In the event that human remains are discovered during project construction activities, the proposed project would be required to implement **2020 LRDP Mitigation Measure CUL-3**, which specifies procedures to appropriately collect and preserve human remains if encountered during construction activities. Therefore, impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.



## 5.7 ENERGY

Energy Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.7.1 Impact Analysis

- a. *Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?*
- b. *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

The 2020 LRDP SEIR concluded that campus development occurring under the 2020 LRDP would result in a less-than-significant impact related to the potential wasteful, inefficient or unnecessary consumption of energy resources during campus construction and operation, and that campus development would not conflict with a State or local plan for renewable energy or energy efficiency.

**Construction.** As described in Section 4.11 of the 2020 LRDP SEIR, campus development under the 2020 LRDP would require site preparation, grading, pavement and asphalt installation, building construction, architectural coating, and landscaping and hardscaping. No demolition would be required. All construction would be typical for the region and building type. The total consumption of gasoline and diesel fuel during construction activities under the 2020 LRDP was estimated using CalEEMod based on UC Merced constructing an additional 1.83 million gsf of building space between 2020 and 2030 within a 103-acre portion of the campus that includes the proposed project site. As reflected in the 2020 LRDP SEIR, off-road construction equipment, vendor trips, and hauling trips would consume approximately 0.63 million gallons of diesel over the entire 2020 LRDP construction period. Worker trips would consume about 1.9 million gallons of gasoline over the 2020 LRDP construction period. These amounts would be consumed over a period of 10 years and would represent a small percentage of the total energy used in the State.

As discussed in **Section 3.7.1** of this Addendum, the proposed project would result in a nominal increase in campus population, which along with the increase in building space attributable to the proposed project is within the growth projections of the 2020 LRDP. Furthermore, the construction of the proposed building would comply with CALGreen, which would also result in the use of

sustainable materials and recycled content during construction and the sourcing of products from nearby sources to the extent feasible. The project would also be required to comply with the California Air Resources Board's (CARB) adopted Airborne Toxic Control Measure (ATCM) to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other TACs. Finally, the proposed project would be designed to comply with the University of California Sustainable Practices Policy (Sustainability Policy), which contains policies for green building design, clean energy, climate protection, and zero waste. As such, project construction would not increase the consumption of energy resources beyond what was evaluated in the 2020 LRDP SEIR. Impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR, no new or substantially more severe construction energy impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

**Operation.** As described in the 2020 LRDP SEIR, campus operation under the 2020 LRDP would result in a net new demand of approximately 211 therms of natural gas per year and a net new electricity demand of 7.8 megawatts per year (MW/yr). Title 24 represents the State policy on building energy efficiency. The goals of the Title 24 standards are to improve energy efficiency of residential and non-residential buildings, minimize impacts during peak energy-usage periods, and reduce impacts on State energy needs. The Sustainability Policy requires buildings to exceed Title 24 by 20 percent or meet energy performance targets. At UC Merced, a more ambitious goal of outperforming Title 24 energy efficiency standards by 30 percent has been set. Current campus buildings, which employ an array of design and technological strategies to minimize and manage campus energy consumption, are using approximately 50 percent less energy than Title 24 standards.

Additional automobile use under the 2020 LRDP, which accounts for the increase in vehicle use associated with the proposed project, would result in the consumption of approximately 785,340 gallons of gasoline and 447,340 gallons of diesel related to vehicular travel. As described in **Section 5.9**, Greenhouse Gas (GHG) Emissions, of this Addendum, the 2020 LRDP found that the per capita emissions of GHGs under the 2020 LRDP from all energy use, including the proposed project, including petroleum-based fuel use, would not exceed the per capita GHG threshold. Although the total emissions from all energy use would exceed the total GHG emissions threshold, GHG emissions would be reduced to a less-than-significant level with the mitigation specified in **Section 5.9.1**.

The proposed project would result in a nominal increase in campus population, which along with the increase in building space attributable to the proposed project is within the growth projections of the 2020 LRDP. Therefore, the project emissions would remain below the established thresholds and the use of energy by the campus under the 2020 LRDP would not be wasteful or inefficient. Thus, with energy use associated with the project would not be inefficient, wasteful, and unnecessary, nor would the increased energy use associated with the project conflict with a State or local plan for renewable energy or energy efficiency. Impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR, no new or substantially more severe operational energy impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.8 GEOLOGY AND SOILS

Geology and Soils Would the Project...	Impact Examined in 2020 LRDP EIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.8.1 Impact Analysis

- a. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*
  - 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.*

The UC Merced campus, which includes the project site, is not located on, adjacent to, or near an Alquist-Priolo Earthquake Fault Zone.<sup>14</sup> According to the 2020 LRDP SEIR and the 2009 LRDP EIS/EIR, there are no active faults on or adjacent to UC Merced or the project site that could result in a significant seismic hazard. The nearest active fault is in the western portion of Merced County, at a distance from the project site such that seismic activity along that fault would not be expected to cause rupture or other adverse impacts at the project site. The Foothills fault system is approximately 15 miles northeast of the project site, but this system is not considered to be active.

As there are no active fault systems that could affect the UC Merced campus, the 2020 LRDP SEIR and the 2009 LRDP EIS/EIR concluded that construction of campus facilities, such as the proposed farm facilities, would not expose people or structures to a significant level of risk from fault rupture. In addition, the proposed farm facilities at the Experimental Smart Farm would be constructed to comply with the California Building Code. Impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

#### ii. *Strong seismic ground shaking?*

The region of the State where the project site is located is characterized by a low level of seismic activity and, as such, the ground-shaking hazard in the area is considered to be low. However, the 2020 LRDP SEIR and the 2009 LRDP EIS/EIR concluded that the construction of buildings on the campus, such as the proposed farm facilities as part of the Experimental Smart Farm, could still result in the exposure of people or structures to excessive risk from ground shaking. As such, **2020 LRDP Mitigation Measure GEO-2** (described in **Section 6.5** of this Addendum), which requires performance of a site-specific geotechnical investigation during project design to assess detailed seismic, geologic, and soil conditions and compliance with any recommendations, would be implemented as part of the proposed project. Project impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

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<sup>14</sup> United States Geologic Survey, Earthquake Hazards Program, Alquist-Priolo Faults, <https://earthquake.usgs.gov/education/geologicmaps/apfaults.php>. Accessed July 22, 2022.

### *iii. Seismic-related ground failure, including liquefaction?*

Although liquefaction can occur in the Central Valley, there are no areas on or adjacent to the UC Merced campus or the project site that are at a significant risk of such seismically induced events. In addition, the UC Merced campus and the project site are underlain by a hardpan layer of soil within 3 feet of the surface, serving to significantly reduce liquefaction hazards. The 2020 LRDP SEIR and the 2009 LRDP EIS/EIR concluded that construction of buildings on the campus (such as the proposed farm facilities) could still pose a risk to public safety and property by exposing people, property, and infrastructure to potentially adverse effects including seismic-related ground failure and liquefaction. The proposed project would implement **2020 LRDP Mitigation Measure GEO-2**, which would reduce potential impacts from liquefaction and seismic-related ground failure. Project impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

### *iv. Landslides?*

The UC Merced campus, which includes the project site, is located on and surrounded by relatively flat topography. Foothills of the Sierra Nevada Mountain Range are located 9.5 miles to the east of the project site. The 2020 LRDP SEIR and the 2009 LRDP EIS/EIR concluded that construction of on-campus buildings, such as the farm facilities associated with the proposed project, could still be subject to hazards related to seismically-induced landslides or landslide runout. The proposed project would implement **2020 LRDP Mitigation Measure GEO-2**, which would reduce potential impacts from seismic related landslides. Project impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

### *b. Would the project result in substantial soil erosion or the loss of topsoil?*

The 2020 LRDP SEIR and the 2009 LRDP EIS/EIR concluded that construction of new facilities on campus, such as the farm facilities and infrastructure associated with agricultural uses, would not result in substantial erosion or the loss of topsoil from grading activities. As the proposed farm facilities would occur on an area greater than 1 acre in size, the proposed project would be subject to National Pollutant Discharge Elimination System (NPDES) stormwater regulations, and would be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) during construction. The objectives of the SWPPP are to (1) identify pollutant sources that may affect the quality of stormwater associated with construction activity and (2) identify, construct, and implement stormwater pollution prevention measures to reduce pollutants in stormwater discharges during and after construction. The SWPPP is required to include a description of potential pollutants and the manner in which sediments and hazardous materials present on site during construction (including vehicle and equipment fuels) would be managed. The SWPPP must also include details of how the sediment and erosion control best management practices (BMPs) would be implemented. Compliance with NPDES regulation for control of pollutant discharge during construction would reduce the potential for significant soil erosion or sedimentation due to construction of farm facilities and infrastructure.

After ground disturbance begins, in the interim period before planting, tilled soil would be protected by seeding the area with a cover or forage crop. In addition, existing erosion control and sediment detention measures would be maintained and improved, including but not limited to construction of drainage ditches and berms to prevent sediment erosion into the ponded area adjacent to the Fairfield Canal. Additionally, the Experimental Smart Farm would implement an erosion management plan, developed by a licensed engineer, which would ensure that the erosion management remains consistent with California DWR and local agency requirements. Maintenance and improvement of existing erosion control and sediment detention measures and compliance with the erosion management plan would prevent impacts related to soil erosion or loss of topsoil during farm operations.

Impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required. For control of erosion from operation of campus facilities, please see **Section 5.11**, Hydrology and Water Quality, of this Addendum.

- c. Would the project 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?*

Issues related to seismically induced and non-seismic related landslide hazards are discussed above in **Section 5.8.1.a (iv)**. Issues related to liquefaction and related hazards are discussed above in **Section 5.8.1.a (iii)**. Issues related to soil properties are discussed below in **Section 5.8.1.d. 2020 LRDP Mitigation Measure GEO-2** would be implemented to reduce such geologic impacts from occurring during project development. Project impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

- d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?*

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Websoil survey, the project site is underlain by a number of soil types, as shown in Table C.<sup>15</sup>

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<sup>15</sup> United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) Websoil Survey. Website: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm> (accessed June 14, 2022).



**Table C: Project Soil Types**

Project Soil Types		
Soil Type Symbol	Full Soil Type Name	Approximate Percent of Project Area
2HB	Hopeton clay, 0 to 8 percent slopes	1.0%
AcA	Anderson gravelly soils, channeled, 0 to 3 percent slopes	1.1%
CgB	Corning gravelly loam, 0 to 8 percent slopes	11.6%
CkB	Corning gravelly sandy loam, 0 to 8 percent slopes	1.7%
MrA	Montpellier coarse sandy loam, 0 to 3 percent slopes	4.2%
PnB	Peters clay, 2 to 8 percent slopes	0.9%
RaA	Raynor clay, 0 to 3 percent slopes	0.3%
ReB	Redding gravelly loam, 0 to 8 percent slopes, dry	75.2%
RgB	Rocklin loam, 3 to 8 percent slopes	2.0%

SOURCE: NRCS 2022

The soils present on the project site have a moderate to high shrink-swell potential (i.e., soil expansiveness). This shrinking (when dry) and swelling (when wet) of these soils can result in differential ground movement. If structures, such as the farm facilities associated with the project, are constructed in areas with expansive and/or weak soils, structural damage could occur. As a result, the 2020 LRDP SEIR and the 2009 LRDP EIS/EIR concluded that expansive soils could cause a risk for post-construction heave and cracking of concrete slabs, as well as lightly loaded foundations and pavements. The proposed project would implement **2020 LRDP Mitigation Measure GEO-2** to ensure design features are included in construction of the proposed project to reduce damage associated with potential expansive soils. Project impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?*

As described in **Section 3.4.1.3**, implementation of the proposed project would include construction of an on-site wastewater treatment system consisting of a tank or system of tanks and one or more wastewater drain fields (see **Figures 6A** and **6B** for proposed locations). The system would treat combined wastewater from buildings (including leachate from compost bins, if used). The wastewater would be treated to meet Regional Water Quality Control Board (RWQCB) standards for onsite dispersal. The wastewater treatment would be small scale, limited to the farm facilities, and would not involve construction of a wastewater treatment plant or other large facilities.

Dispersal and groundwater recharge following treatment of wastewater would be conducted via a drainpipe in gravel bed, gravel-less trenches, pressurized laterals, and/or drip tubing. Project design accounts for the slow permeability of soils in the project area by ensuring that any effluent would be highly treated and have a very low land application rate, utilizing pressurized laterals or drip tubing for dispersal. Each would be integrated into the landscape and either vegetated with native plants or integrated into some beneficial use, such as shallow subsurface dispersal in agricultural areas.

The area receiving this subsurface water would be protected from heavy vehicle traffic and future disturbance. A supplemental reserve area for additional dispersal may also be required.

With these project design components that account for the soil conditions on the project site, impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur and no additional mitigation would be required.

*f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Impacts on paleontological resources from the development of the UC Merced campus, including the area where the proposed project would be developed, were evaluated in the 2009 LRDP EIS/EIR, as referenced in the 2020 LRDP SEIR, and were found to be potentially significant. The analysis concluded that the impacts from campus development could be reduced to a less-than-significant level with the implementation of **2020 LRDP Mitigation Measures CUL-4a** and **CUL-4b** discussed in **Section 6.4** of this Addendum. The project site is not occupied by any unique geologic formations. During the course of project construction activities, if paleontological resources are uncovered, the proposed project would be required to implement **2020 LRDP Mitigation Measures CUL-4a** and **CUL-4b**. These measures would ensure that if any previously undiscovered paleontological resources are found during project construction, the resources would be collected and properly curated as warranted.

With implementation of **2020 LRDP Mitigation Measures CUL-4a** and **CUL-4b**, the proposed project would not directly or indirectly destroy a unique paleontological resource. Impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.9 GREENHOUSE GAS EMISSIONS

Greenhouse Gas Emissions Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.9.1 Impact Analysis

- a. *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

The 2020 LRDP SEIR evaluated the potential impact of GHG emissions associated with implementation of the 2020 LRDP in Section 4.3, Greenhouse Gas Emissions.

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO<sub>2</sub>);
- Methane (CH<sub>4</sub>);
- Nitrous oxide (N<sub>2</sub>O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur Hexafluoride (SF<sub>6</sub>).

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, believed to be causing global warming. While some of the manmade GHGs such as CO<sub>2</sub>, methane, and N<sub>2</sub>O also occur naturally, some gases, like HFCs, PFCs, and SF<sub>6</sub> are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its

atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO<sub>2</sub>, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO<sub>2</sub> over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO<sub>2</sub> equivalents" (CO<sub>2</sub>e).

The proposed project's impacts related to the release of GHG emissions for both the construction and operation periods are discussed below.

**Construction GHG Emissions.** As discussed in the 2020 LRDP SEIR, GHG emissions associated with construction activities would occur throughout the timeframe of the 2020 LRDP from January 2021 to December 2030. Construction activities would include site preparation, grading, building construction, pavement and asphalt installation, landscaping and hardscaping, and architectural coatings. The 2020 LRDP SEIR found that approximately 6,118 metric tons of CO<sub>2</sub>e would be emitted during the approximately 10-year construction period, which is about 612 metric tons of CO<sub>2</sub>e per year. The 2020 LRDP SEIR found that construction GHG emissions would result in a less-than-significant impact.

Similar to buildout of the LRDP, construction activities associated with the proposed project would produce combustion emissions from various sources. Construction would emit GHGs through the operation of construction equipment and from worker and builder supply vendor vehicles for the duration of the approximately 10-month construction period for Phase 1 of the Experimental Smart Farm. The combustion of fossil-based fuels creates GHGs such as CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. Furthermore, the fueling of heavy equipment emits CH<sub>4</sub>. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

As discussed in **Section 3.7.1** of this Addendum, the proposed project would result in a nominal increase in campus population, which along with the increase in building space attributable to the proposed project is within the growth projections of the 2020 LRDP. Therefore, construction GHG emissions associated with the proposed project are accounted for in the estimated annual construction emissions evaluated in the 2020 LRDP SEIR. As such, construction-phase GHG emissions associated with the proposed project are accounted for in the estimated annual construction emissions reported above. No new or substantially more severe construction GHG impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

**Operational GHG Emissions.** As discussed in the 2020 LRDP SEIR, implementation of the 2020 LRDP would contribute to long-term cumulative increases in GHG emissions as a result of additional buildings and people on the campus. Sources of new emissions would include building heating, cooling and lighting systems, water use, wastewater generation, and solid waste generation, as well

as increases in traffic to the campus. The campus does not, and would not as part of the implementation of the 2020 LRDP, emit industrial gases. Thus, the campus would generate little in the way of GHGs other than CO<sub>2</sub>. While certain research activities on the campus may involve the emission of other GHGs, these activities typically result in minimal GHG emissions.

The 2020 LRDP SEIR evaluated GHG impacts based on emissions reduction goals set forth in Assembly Bill (AB) 32 and Senate Bill (SB) 32. According to AB 32 and SB 32, the State's 2020 emissions must be reduced to 1990 emissions levels, and by 2030 to be 40 percent below 1990 emissions, respectively. Using UC Merced's 2005 GHG emissions as baseline, and reduction targets from the State laws, two campus-specific thresholds were developed: the first one involving a total emissions threshold, and the second one involving an efficiency threshold based on per capita emissions. The 2020 LRDP SEIR used a total emissions threshold of 3,300 metric tons of CO<sub>2</sub>e per year and a per capita threshold of 2.44 metric tons of CO<sub>2</sub>e per capita per year in 2030, which, if exceeded, would represent a significant impact.

The 2020 LRDP SEIR found that the campus' per capita emissions of 0.63 metric tons of CO<sub>2</sub>e per capita per year in 2030 would be well below the UC Merced 2030 per capita target of 2.44 metric tons of CO<sub>2</sub>e per capita per year. However, the 2020 LRDP SEIR found that the campus' total emissions of 10,137 metric tons of CO<sub>2</sub>e in 2030 would exceed the threshold of 3,300 metric tons of CO<sub>2</sub>e per year. As such, the 2020 LRDP SEIR found that implementation of the 2020 LRDP would result in a potentially significant impact. The 2020 LRDP SEIR identified **2020 LRDP Mitigation Measures GHG-1a, GHG-1b, and GHG-1c** to reduce this impact to a less-than-significant level.

Similar to the impacts identified in the 2020 LRDP SEIR, long-term operation of the proposed project would generate GHG emissions from area, mobile, waste, and water sources, as well as indirect emissions from sources associated with energy consumption. Mobile-source GHG emissions would include project-generated vehicle trips associated with trips to the proposed project. Area-source emissions would be associated with activities such as agricultural uses, landscaping, and maintenance equipment on the project site and other sources. Waste-source emissions generated by the proposed project include energy generated by landfilling and other methods of disposal related to transporting and managing project-generated waste. In addition, water-source emissions associated with the proposed project are generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment.

As identified above, the proposed project would result in a nominal increase in campus population, which along with the increase in building space attributable to the proposed project is within the growth projections of the 2020 LRDP SEIR analyses; therefore, the operational GHG emissions that would result due to the proposed project are included in the estimated emissions reported and evaluated in the 2020 LRDP SEIR. UC Merced would continue to implement **2020 LRDP Mitigation Measures GHG-1a, GHG-1b, and GHG-1c**, which would include measures to reduce campuswide GHG emissions and reduce emissions from vehicles and from area and energy sources. With implementation of **2020 LRDP Mitigation Measures GHG-1a, GHG-1b, and GHG-1c**, impacts would be less than significant consistent with the analysis in the 2020 LRDP SEIR, no new or substantially more severe operational GHG impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

As discussed in the 2020 LRDP SEIR, AB 32 (the Global Warming Solutions Act of 2006) established the goal for the reduction of California's GHG emissions to 1990 levels by 2020. In 2015 and 2016, SB 350 (Clean Energy and Pollution Reduction Act) and SB 32 (California Global Warming Solutions Act of 2006) were signed into law, establishing the State's mid-term target for 2030 emissions to be 40 percent below the 1990 emissions. As discussed in **Section 5.9.1.a** above, with the implementation of the 2020 LRDP, on a per capita basis, the campus would emit 0.63 metric tons per capita in 2030, which is below the campus-specific threshold of 2.44 metric tons per capita per year derived for the campus for compliance with SB 32. Furthermore, UC Merced would implement **2020 LRDP Mitigation Measures GHG-1a, GHG-1b, and GHG-1c** to reduce its total emissions such that they remain below 3,300 metric tons of CO<sub>2</sub>e per year, a target emissions level that is 40 percent less than the campus' 2020 emissions target. Therefore, with mitigation, campus development under the 2020 LRDP would not conflict with the State laws and regulations related to GHG emissions.

In addition, as discussed in the 2020 LRDP SEIR, the 2020 LRDP is a projected development program for the Merced campus for the years 2020 through 2030. Under the plan, the campus is anticipated to add about 1.83 million square feet of building space by 2030. The campus population is projected to increase by 5,300 persons to a total of about 17,400 persons by 2030. The addition of building space would increase the use of energy on the campus and the additional population would result in more persons commuting to the campus. Increased on-campus population would also increase water use, wastewater generation and solid waste generation. All of these changes would have the potential to increase the campus' GHG emissions. However, campus development under the 2020 LRDP would be compliant with the UC Sustainability Policy, UC Merced Sustainability Strategic Plan, and the UC Merced CAP. Campus projects under the 2020 LRDP would achieve a minimum of a Silver rating under the LEED Green Building Rating System. It was determined that, with implementation of **2020 LRDP Mitigation Measures GHG-1a, GHG-1b, and GHG-1c**, the 2020 LRDP would not conflict with the UC Sustainability Policy or the UC Merced plans adopted to reduce GHG emissions.

The proposed project would include development of the proposed farm facilities and agricultural use areas, including improvements to Meyers Gate Road and Solar Array Road. The proposed project would result in a nominal increase in campus population, which along with the increase in building space attributable to the proposed project is within the growth projections of the 2020 LRDP SEIR analyses. Further, UC Merced would continue to implement **2020 LRDP Mitigation Measures GHG-1a, GHG-1b, and GHG-1c** to ensure operational GHG emissions from campus development under the 2020 LRDP remain less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, the proposed project would not conflict with applicable plan, policy, or regulations pertaining to GHGs. With implementation of **2020 LRDP Mitigation Measures GHG-1a, GHG-1b, and GHG-1c**, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.



## 5.10 HAZARDS AND HAZARDOUS MATERIALS

Hazards and Hazardous Materials Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. For a project located 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, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.10.1 Impact Analysis

*a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Previous analysis in the 2020 LRDP SEIR and the 2009 LRDP EIS/EIR concluded that routine transport, use, and disposal of hazardous materials would be associated with the construction and operation of the additional facilities on the campus, such as the proposed farm facilities and agricultural uses. Hazardous materials in the form of fuels, paints, etc., would be used during project construction;

once the proposed Experimental Smart Farm is constructed, some hazardous materials use would be associated with the operation of the farm.

**Construction.** The use of hazardous chemicals in varying amounts during construction of the proposed facilities would be subject to hazard control. Construction and maintenance activities would use hazardous chemicals, such as solvents and cleaners, fuels (gasoline and diesel) for portable generators, oils and lubricants, paints and paint thinners, adhesives, cleaning and coating agents (e.g., solvents and corrosives) in addition to soaps and detergents, and potentially the application of pesticides and herbicides. Building construction activities are required to comply with all applicable environmental, health and safety compliance regulations including, but not limited to, Titles 8 and 22 of the California Code of Regulations, Uniform Fire Code, and Division 20 of the California Health and Safety Code. Additionally, the transport and unloading of hazardous materials to and from the proposed project site during construction activities would comply with United States Department of Transportation (DOT) and California Department of Transportation (Caltrans) regulations.

**Operation.** The 2020 LRDP provides for the development of uses on the UC Merced campus such as research and instructional laboratories, central plant, vehicle maintenance facilities, and other facilities that would involve the transport, use, or dispose of hazardous materials. The operation of the proposed project could include the use of various chemicals and biohazards (particularly agricultural chemicals, pesticides, and/or transgenic plant materials) that may pose different levels of hazards with their uses, as described below.

All work during operation of the Experimental Smart Farm would comply with federal, state, and local regulations regarding agricultural materials, including the Federal Insecticide, Fungicide, and Rodenticide Act, the Federal Plant Pest Act, and California's Title 3 CCR, Food and Agriculture Code regulating pesticide laws in the state.

Pest and weed management would be required on-site to cultivate crops and manage facilities. An Integrated Pest Management Plan would be developed in consultation with UC Merced facilities staff and local growers, and implemented for ongoing operations. Priority would be given to sustainable practices including mechanical or cultural preventative methods of control with an adaptive plan for the application of appropriate chemicals. All applications would be made in accordance with all California Department of Pesticide Regulation guidelines, including restrictions based on wind speed, temperatures, and time of year, which are designed to mitigate any potential drift. Researchers who require pest management support in their projects would work with farm staff to execute this in accordance with farm-wide practices and regulations as well as campus regulatory requirements. Additionally, prevailing winds are north to southwest, in the opposite direction of the Tier 1(a) Conservation Lands, which are located east and north of the project site on the other side of Le Grand Canal as described in Section 3.1.2, and the easternmost portion of the campus and the canal itself along with the MID berm/access road setback on either side of the canal would serve as a buffer between the proposed project and the Conservation Lands. Record keeping of all applications and pest management activities would be a part of the site management. All pesticide regulations would be observed, and treatments would be applied by licensed and trained individuals.

Hazardous chemicals would be documented and stored in appropriate containers and at appropriate temperatures on-site according to agricultural regulation and in consultation with UC Merced Environmental Health and Safety. No unnecessary chemicals would be kept on-site and priority would be given to any materials used actively in farm management. Material Safety Data Sheets would be kept on-site for all inventory.

As an experimental scientific research facility, UC Merced cannot predict every possible biological agent or research application it might conceivably use in the future within the proposed farm facilities. However, it is expected that small quantities of various biologically hazardous substances could be used for research in the proposed farm facilities. To minimize workers' and students' exposure to hazards, the Campus has established a biosafety program similar to that of other UC campuses. The biosafety program covers all research activities involving biohazardous materials, including transgenic plants. UC Merced's Institute Biosafety Committee (IBC) oversees the use of biohazardous materials by creating and enforcing policies and procedures, reviewing biohazardous materials use, and monitoring construction and use of biohazardous containment facilities. The UC Merced IBC must approve all projects involving biohazardous materials and grant a biological use authorization (BUA) prior to beginning work. The UC Merced IBC complies with all University policies, national guidelines, industry guidelines, federal, state, and County regulations.

UC Merced policies and procedures would also address the procurement, handling, and disposal of any carcinogenic, controlled, volatile, flammable, and/or explosive substances within the proposed farm facilities and agricultural use areas. The Campus Department of Environmental Health and Safety (EH&S) department provides compliance support to research principal investigators and assists in implementing measures designed to ensure compliance with applicable environmental, health and safety laws and regulations. Students, researchers, and staff within the proposed Experimental Smart Farm would be required to follow hazard control hierarchy including following standard engineering and administrative controls to minimize the risk of potential exposure to human health and the environment.

Consistent with the 2020 LRDP SEIR, the Campus' compliance with all state, federal, and local hazardous materials regulations would reduce any construction, operational, and maintenance-related hazardous materials impacts to a less-than-significant level. The proposed project would also comply with all state, federal, and local hazardous materials regulations as described above. Therefore, impacts related to the routine transport, use, or disposal of hazardous materials resulting from the proposed project would be less than significant, consistent with the analysis in the 2020 LRDP SEIR, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*b. Would the project 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?*

As discussed above under **Section 5.10.1.a**, the proposed project would be consistent with the 2020 LRDP SEIR, and the transport of hazardous materials during project construction and operation would be conducted in accordance with all applicable state and federal laws. The transport of any hazardous materials to the campus would be conducted in accordance with the Hazardous Materials

Transportation Act (49 U.S. Code 5101 et seq.) and other state and federal requirements. Nonradioactive chemicals, biohazardous materials, and other packages may be delivered by outside carriers directly to receiving entrances at the proposed farm facilities. Alternatively, incoming packages may be delivered at the campus main receiving facility for UC Merced personnel to deliver to campus locations, such as the proposed farm facilities. However, transportation of hazardous materials around the campus would increase the possibility of accidents capable of exposing people on and off campus to hazardous materials. To minimize the potential for accidental spills of hazardous materials during transit, suppliers and transporters are and would continue to be required to follow stringent U.S. DOT regulations for packaging and handling.

Hazardous waste leaving the campus or the proposed farm facilities and agricultural use areas would be packaged in drums and containers that meet U.S. DOT packaging requirements. As a result of U.S. DOT performance packaging specifications, containers are less likely to be damaged and release their contents in the event of an accident. Although transportation of hazardous materials has associated risks of spills or releases, management of transported wastes in compliance with applicable hazardous materials transportation regulations (e.g., California Code of Regulations, Title 4, *Business Regulations*) would help to minimize the risk.

Due to the relatively small amounts of hazardous materials involved and compliance with applicable transport regulations, the proposed project would not create any new or substantially more severe hazards to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

As stated in the Initial Study prepared as part of the 2020 LRDP SEIR, there are no existing K-12 schools within one-quarter mile of the UC Merced campus, and no new schools have been built or planned within one-quarter mile of the campus since publication of the 2020 LRDP SEIR. Implementation of the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. No impact would occur, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*d. Would the project 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?*

Impacts related to hazardous materials sites were evaluated in the 2020 LRDP SEIR and were found to be potentially significant. The analysis concluded that the impacts from unknown hazardous materials sites would be reduced to a less-than-significant level with adherence to Campus policies and implementation of **2020 LRDP Mitigation Measure HAZ-4** (see **Section 6.7** of this Addendum).

The proposed project site has been subject to disturbance related to historic and existing agricultural uses, including cattle grazing and associated native-surfaced and gravel-surfaced access roads, fencing, and irrigation infrastructure. However, no hazardous materials sites have been found within the footprint of the proposed project area. According to the California Department of Toxic Substance Control EnviroStor website there are no known hazardous waste sites located within 1,000 feet of the project site.<sup>16</sup> The proposed project would also implement **2020 LRDP Mitigation Measure HAZ-4**, which addresses the treatment and removal of hazardous materials in the event hazardous materials sites are revealed during construction activities associated with the proposed project. Impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*e. Would the project be located 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, would the project result in a safety hazard or excessive noise for people residing or working in the project area?*

As stated in the 2020 LRDP SEIR Initial Study, the UC Merced campus and the proposed project site are not located within an airport land use plan or within 2 miles of a public use airport. Consistent with the analysis in the 2020 LRDP SEIR, no impact would occur as a result of the proposed project, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

As stated in the 2020 LRDP SEIR Initial Study, UC Merced has adopted both an Emergency Operations Plan and a Crisis Communications Plan that the proposed project would abide by. The Campus emergency response team is trained and equipped to respond to hazardous materials emergencies. In the event of such an emergency at the project site, UC Merced would provide sufficient resources to respond to a Level A hazardous materials incident (the most hazardous level), in coordination with the County of Merced, if necessary. In addition, UC Merced would prepare (or update) safety planning documents in accordance with California Health and Safety Code Section 25517.5, as well as applicable laws, regulations, and Campus policies in association with the proposed project. As described in the 2020 LRDP SEIR Initial Study, the Campus would implement safety training programs upon occupying the proposed farm facilities and agricultural use areas to ensure efficient implementation of any emergency response plan. In addition, the farm director and farm coordinator would be responsible for preparing and implementing an emergency action plan specific to the Experimental Smart Farm. These plans would contain detailed procedures for proposed farm facilities occupants and users to follow in the event of various emergencies and evacuations. The proposed group of farm facilities would be assigned a building safety coordinator who would address emergency planning and safety training for the occupants, employees, staff, and students occupying the proposed project facilities. In addition, the UC Merced Police Department would make the necessary contact with EH&S in the event of a minor spill or release at the

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<sup>16</sup> California Department of Toxic Substances, EnviroStor Website, <https://www.envirostor.dtsc.ca.gov/public/> (Accessed July 11, 2022).

proposed farm facilities and agricultural use areas. The 2020 LRDP SEIR Initial Study concluded that development of the campus would not impair implementation of physically interfere with any emergency response plan or emergency evacuation plan, and per the 2020 LRDP SEIR Initial Study, the impact would be less than significant. The proposed project would similarly adhere to these requirements, and, consistent with the analysis in the 2020 LRDP SEIR, impacts would be less than significant. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?*

Per the 2020 LRDP SEIR Initial Study, because high-fire-risk grazing pastures surround the UC Merced campus on all sides, the growth in population due to the 2020 LRDP would translate into a greater potential for wildland and urban fires along with a greater number of people exposed to fires on and off campus.

Adequate wildland fire defenses and responses to wildland fires are a priority for the State. In recognition of the severity of wildland fire hazards in certain areas of California, the State has enacted legislation (i.e., California PRC Section 4291) requiring local jurisdictions to adopt minimum recommended road standards for fire equipment access; standards for identifying streets, roads, and buildings minimum private water supply reserves for emergency fire use; and standards for fuel breaks and greenbelts to achieve fuel reductions. The UC Merced campus has been designed to minimize human intrusion into the adjacent conservation lands by way of landscaping and fencing.

The UC Merced campus would use the Management Plan for Conservation Lands and the Adjacent Campus Buildout Lands<sup>17</sup> as a guide to balance fire prevention and suppression methods with protection of natural resources and biodiversity. The Management Plan has four distinct goals regarding fire protection and management that would be applicable to the proposed project: (1) develop fire protection that emphasizes public safety and protection of university properties, especially in the interface areas; (2) prevent a substantial increase in fire frequency from “pre-university” (i.e., before development of the campus) conditions to maintain the natural habitat; (3) minimize ground-disturbing fire prevention and suppression methods (e.g., fuel breaks); and (4) use prescribed fire as a management tool to control invasive weeds that threaten biodiversity. The 2020 LRDP SEIR Initial Study concluded that with the implementation of the fire prevention measures described above and adherence to the guidelines of the Management Plan for the adjacent conservation lands, impacts related to wildland fires resulting from development under the 2020 LRDP would be less than significant. The proposed project would also adhere to these measures and guidelines, and would not result in an increase in student or employee population. Consistent with the analysis in the 2020 LRDP SEIR, impacts resulting from the proposed project would be less than significant; therefore, no new or substantially more severe impacts would occur that have not

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<sup>17</sup> Airola Environmental Consulting. 2008. Management Plan for Conservation Lands and the Adjacent Campus Buildout Lands for the University of California, Merced. September.



already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.11 HYDROLOGY AND WATER QUALITY

Hydrology and Water Quality Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Result in substantial erosion or siltation on- or off-site;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 5.11.1 Impact Analysis

*a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?*

Impacts on water quality from the development of the UC Merced campus and University Community North were evaluated in the 2009 LRDP EIS/EIR and 2020 LRDP SEIR and were found to be less than significant.

**Construction.** Consistent with the evaluation in the 2009 LRDP EIS/EIR, the 2020 LRDP SEIR determined that construction activities under the 2020 LRDP could result in soil erosion and release of sediment into receiving waters. Spills or leaks from heavy equipment and machinery (petroleum products and other heavy metals) in staging areas and building sites could also adversely affect receiving water quality.

However, because construction associated with the 2009 LRDP and 2020 LRDP would disturb greater than 1 acre of soil, construction activities would be subject to the requirements of the SWRCB's NPDES permit Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Orders No. 2010-0014-DWQ and 2012-0006-DWQ) (Construction General Permit). The Construction General Permit (CGP) requires preparation of a Stormwater Pollution Prevention Plan (SWPPP) and implementation of construction BMPs during construction activities. Construction BMPs would include, but not be limited to, erosion control and sediment control BMPs designed to minimize erosion and retain sediment on site and good housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. Compliance with the CGP and preparation of a SWPPP that would specify construction BMPs to be implemented to target pollutants of concern would ensure construction impacts related to surface water quality standards, waste discharge requirements, and surface water quality would be less than significant, consistent with the analysis in the 2020 LRDP SEIR.

As described in the in the 2009 LRDP EIS/EIR, dewatering activities performed during project construction would not result in the discharge of sediments or pollutants into receiving waters because dewatering activities would be subject to the requirements of the SWRCB's NPDES permit Waste Discharge Requirements for Limited Threat Discharges to Surface Water (Order No. R5-2008-0082, NPDES No. CAG995002, as amended by Orders No. R5-2013-0073, R5-2016-0076, and R5-2022-006) (Groundwater Discharge Permit). The construction contractor would be required to comply with the requirements of the Groundwater Discharge Permit for discharges of groundwater from construction activities to surface waters. This order requires water sampling, analysis, treatment (if required), and reporting of dewatering related discharges of groundwater extracted during construction prior to its release into surface waters to ensure that effluent limitations for constituents are not exceeded. Compliance with the Groundwater Discharge Permit would ensure that if dewatering is required during construction, the project would not degrade water quality.

The proposed project would be subject to the same existing regulatory requirements related to construction activities as evaluated in the 2009 LRDP EIS/EIR and 2020 LRDP SEIR. Therefore, because construction activities associated with the proposed project would be subject to the Construction General Permit and Groundwater Discharge Permit, construction activities associated with the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur and no additional mitigation would be required.

**Operation.** The 2009 LRDP EIS/EIR and 2020 LRDP SEIR concluded that water quality impacts from campus operations would be less than significant. The SWRCB has designated UC Merced as a small Municipal Separate Storm Sewer System (MS4) that is subject to the NPDES General Permit for

Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) (Order No. 2013-0001-DWA, NPDES No. CAS000004, as amended by Orders No. WQ 2015-0133-EXEC, 2016-0069-EXEC, 2018-0001-EXEC, and 2018-0007-EXEC) (Phase II Small MS4 Permit). NPDES regulations require the development and implementation of a Storm Water Management Program (SWMP) that includes BMPs aimed at addressing runoff pollutants in compliance with the Phase II Small MS4 Permit requirements. The SWMP would include runoff management programs that the University would implement to control pollutants before they enter the waterways and the campus would be designed to be low impact development (LID) by incorporating the use of bioswales and detention basins to provide treatment to site runoff before it is discharged to nearby waterbodies.

The 2009 LRDP EIS/EIR and 2020 LRDP SEIR concluded that wastewater generated on the campus under the 2009 LRDP and 2020 LRDP would be similar to wastewater discharged from other parts of the City of Merced and would not contain constituents in concentrations that could cause the City's wastewater treatment plant (WWTP) to exceed the waste discharge requirements that apply to the discharge of treated effluent.

The proposed project would be required to comply with the Campus policies related to stormwater discussed in the UC Merced Water Action Plan<sup>18</sup> as well as applicable California Stormwater Quality Association Municipal BMPs<sup>19</sup> aimed at addressing runoff pollutants associated with operation of the proposed project in compliance with the Phase II Small MS4 Permit requirements.

As discussed in **Section 3.0**, Project Description, drainage on-site would be integrated into existing drainage infrastructure on the farm. The existing irrigation system is designed to be a "closed" system. No water would leave the farm site, and by design all drain water would collect in a centralized pond. An existing retention pond adjacent to the Fairfield Canal in the southwest portion of the project site would capture stormwater and irrigation runoff from the proposed Phase 1 agricultural activities. Additionally, a constructed stormwater treatment system would be implemented under a future phase of the project to control and treat runoff from permanent facilities constructed during future phases. Plans may include collection from building rooftops, as well as onsite stormwater infrastructure such as rain garden areas and infiltration basins or swales.

Phase 1 facilities would consist of temporary buildings and portable restrooms would be provided to handle any wastewater generated. At full buildout, wastewater generated as a result of the Experimental Smart Farm would primarily be from sinks (classrooms and bathrooms as well as produce and equipment wash stations) and toilets. Fixture selection and conveyance strategies would help minimize wastewater generation from these sources.

Implementation of future phases would include construction of an on-site wastewater treatment system consisting of a tank or system of tanks and one or more wastewater drain fields. The system

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<sup>18</sup> University of California, Merced. 2017. UC Merced Campus Water Action Plan. Available at: <https://ucmerced.app.box.com/s/giprs5xkb4lc2upt7x29tye8pczab0se> (accessed August 16, 2022).

<sup>19</sup> California Stormwater Quality Association. 2003. California Stormwater BMP Handbook, Municipal. January 2003. As listed on UC Merced's Environmental Safety Compliance page: <https://ehs.ucmerced.edu/environmental-safety/compliance>. Accessed August 16, 2022.

would treat combined wastewater from buildings (including leachate from compost bins, if used). UC Merced would be required to submit a Report of Waste Discharge to the Central Valley RWQCB in order to obtain Waste Discharge Requirements (WDRs) or a Waiver of Reports of Waste Discharge and WDRs and the wastewater would be treated to meet RWQCB standards for onsite dispersal.

The proposed project would be subject to the same existing regulatory requirements related to the operation of the campus and would be subject to additional WDRs due to the proposed on-site wastewater treatment system. Therefore, because operation of the proposed project would be subject to the Phase II Small MS4 Permit, WDR's from the Central Valley RWQCB, and compliance with applicable California Stormwater Quality Association Municipal BMPs, operation of the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. The Tier 1(a) Conservation Lands are located more than 0.25 mile east of the majority of the project site, which is separated from the Conservation Lands by Le Grand Canal. The easternmost portion of the project site is located south of Le Grand Canal, approximately 125 feet south of the Conservation Lands, with the canal itself along with the MID berm/access road setback on either side of the canal serving as a buffer between the proposed project and the Conservation Lands, preventing any water from draining from the proposed project to the Conservation Lands. Furthermore, the natural slope of the land in the project site, which will be retained, would move any potential storm water from east to west, away from the Conservation Lands. Thus, the proposed project would not result in a new or more severe impact on water quality than what was previously analyzed and disclosed in the 2009 LRDP EIS/EIR and 2020 LRDP SEIR and impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. No new or substantially more severe impacts would occur and no additional mitigation would be required.

*b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

**Groundwater Recharge.** Impacts on groundwater supplies from the development of the campus were evaluated in the 2009 LRDP EIS/EIR and 2020 LRDP SEIR and determined to be less than significant. As described in Section 4.4 of the 2020 LRDP SEIR, the development of additional impervious surfaces on the campus such as new buildings, roads, paths and parking lots, would normally have the potential to reduce recharge of the underlying aquifer. However, campus development under the 2020 LRDP would not substantially reduce recharge compared to existing conditions for several reasons. The campus is located in an area that is known to have soil types with low to moderate recharge potential. There are substantial amounts of clay in the campus site soils, which restrict the ability of surface water to percolate into the groundwater aquifer. Additionally, a clay hard pan exists near the ground surface that further inhibits the potential of surface water to infiltrate down to the groundwater aquifer. Therefore, groundwater recharge under pre-development conditions is generally low on the campus site. Further, the Campus's Water Action Plan sets forth a number of near- and long-term actions that would be reflected in the proposed Smart Farm project design, including: (1) incorporation of green infrastructure and LID strategies into site design in order to manage 30 to 50 percent of total volume runoff on-site, and (2)

incorporation of retention basins into site design and development to capture 100 percent of campus stormwater under normal precipitation conditions.

As previously discussed, the proposed project would include the incorporation of rain garden areas and infiltration basins or swales and would be developed consistent with the Campus's Water Action Plan. Additionally, as discussed in the 2009 LRDP EIS/EIR and 2020 LRDP SEIR, the groundwater recharge on the campus site is generally low under existing conditions due to substantial amounts of clay in the campus site soils and the existence of a clay hard pan. Therefore, consistent with the analysis in the 2009 LRDP EIS/EIR and 2020 LRDP SEIR, implementation of the proposed project would not substantially interfere with recharge such that aquifer volume would be affected, and the impact related to groundwater recharge would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur and no additional mitigation would be required.

**Groundwater Supplies.** The 2020 LRDP SEIR evaluated the impact of campus development under the 2020 LRDP for its potential to decrease groundwater supplies. As described in the 2020 LRDP SEIR, based on a water use factor of 31.4 gallons per capita per day (gpcd) and the 2030 population projections for the campus, projected water demand for the campus was conservatively estimated to be approximately 612 acre feet (AF) per year by 2030. This estimate is considered conservative because it does not take into account further reductions in campus water use due to UC Merced's implementation of its Water Action Plan in compliance with the UC Sustainable Practices Policy. Furthermore, the estimated campus water demand is approximately 56 percent lower than the City of Merced's 2015 Urban Water Management Plan (UWMP) 2030 estimate for the campus of 1,406 AF per year. The 2015 UWMP also concluded that the City has an adequate groundwater supply to meet water demands during normal, single-dry, and multi-dry years. Therefore, although the implementation of the 2020 LRDP would increase the amount of groundwater that would be withdrawn from the Merced Subbasin compared to existing conditions, the amount is substantially less than the amount accounted for UC Merced in the City's UWMP.

Both potable and non-potable water for the proposed project would be sourced from on-site groundwater wells. The non-potable water supply would also be supplemented by harvested rain from the building roofs. The Hydrogeology Evaluation completed for the proposed project<sup>20</sup> indicated that spring 2021 groundwater levels in the region near UC Merced had depth-to-water contours ranging from 100 to 200 feet below ground surface (bgs) to the northwest and southwest of UC Merced. Depth-to-water was measured at one of the on-site wells on March 8, 2022 and the measurement was approximately 150 feet bgs.

The current estimate of existing water consumption for the irrigated areas of the project site, including the northwest pasture, northeast pasture, and the Phase 1 agricultural use area, is approximately 860 AF per year. An additional approximately 2,000 AF per year is transferred to the neighboring VST property to the south of the UC Merced campus for the existing orchard uses, which would cease after 2025. The maximum anticipated water consumption of the Phase 1 35-acre farm site would be 175 AF per year. Existing grazing uses are expected to continue within 105 acres

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<sup>20</sup> Tetra Tech Inc. and Glumac. 2022. *University of California, Merced, Experimental Smart Farm, Hydrogeology Evaluation for Baseline Site Assessment Report*.



of irrigated pasture areas, which would consume up to 425 AF per year. The 105 acres of irrigated pasture would continue indefinitely, or until the lands are converted to crop production during future phases of the farm. Water consumption of converted crop production land would remain similar to irrigated pasture consumption. Thus, the anticipated water use for the project site would be up to an estimated 600 AF per year plus 2000 AF per year transferred to the neighboring orchards through 2025.

Beginning in 2025, under the revised 2022 Groundwater Sustainability Plan (GSP) for the three groundwater sustainability agencies (GSAs) in the Merced Groundwater Subbasin, the volume of water pumped from the wells on the project site would be restricted by the sustainable yield requirements established by the overseeing GSA for the campus. Under the GSP, per acre pumping would be reduced. Compared to the projected 2025 water consumption rate, the anticipated total pumping capacity would be limited to between approximately 210 and 420 AF per year. Thus, the water consumption for the proposed project would be subject to the GSA requirements after 2025 and would be greatly reduced at farm buildout compared to current conditions. Pumping restrictions could be offset by on site recharge projects and additional surface water deliveries would be possible through surface water transfers via existing MID infrastructure.

Therefore, because the proposed project would not increase the demand for potable water or require extraction of groundwater in excess of what is extracted under existing conditions, the proposed project would result in a less-than-significant impact related to the substantial decrease of groundwater supplies, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur, and no additional mitigation would be required.

*c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*

*i. Result in substantial erosion or siltation on- or off-site;*

The 2009 LRDP EIS/EIR and 2020 LRDP SEIR analyzed the changes in drainage patterns as a result of campus development under the 2009 LRDP and 2020 LRDP. As previously discussed, the CGP requires the preparation of a SWPPP to identify construction BMPs to be implemented as part of the proposed project to reduce impacts on water quality during construction, including those impacts associated with soil erosion and siltation. With compliance with the requirements in the CGP and implementation of the construction BMPs, the 2009 EIS/EIR and 2020 LRDP SEIR concluded that construction impacts related to on- or off-site erosion or siltation would be less than significant.

Additionally, NPDES regulations require the development and implementation of a SWMP that includes BMPs aimed at addressing runoff pollutants in compliance with the Phase II Small MS4 Permit requirements. The SWMP would include runoff management programs that the University would implement to control pollutants before they enter the waterways, and the campus would be designed to be LID by incorporating the use of bioswales and detention basins to provide treatment to site runoff before it is discharged to nearby waterbodies. Therefore, the 2020 LRDP SEIR determined that although increased stormwater runoff would be generated, implementation of LID strategies and green infrastructure as well as the provision of stormwater detention and retention

facilities would control the peak flow and volume of stormwater runoff and would avoid potential flooding and erosion/siltation impacts in downstream areas.

Construction of the proposed project would be subject to these same existing regulatory requirements, and impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

After ground disturbance begins, in the interim period before planting, tilled soil would be protected by seeding the area with a cover or forage crop. In addition, existing erosion control and sediment detention measures would be maintained and improved, including but not limited to construction of drainage ditches and berms to prevent sediment erosion into the ponded area adjacent to the Fairfield Canal. Additionally, the Experimental Smart Farm would implement an erosion management plan, developed by a licensed engineer, which would ensure that the erosion management remains consistent with California DWR and local agency requirements. Maintenance and improvement of existing erosion control and sediment detention measures and compliance with the erosion management plan would prevent impacts related to soil erosion or loss of topsoil during farm operations.

Operational impacts to erosion or siltation would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, operation of the Experimental Smart Farm would not result in any new or substantially more severe impacts that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;*

The 2009 LRDP EIS/EIR and 2020 LRDP SEIR analyzed the changes in drainage patterns as a result of campus development under the 2009 LRDP and 2020 LRDP. The analyses concluded that the impacts from 2020 LRDP campus development would be less than significant. With the development of the Phase 1 campus and the 2020 Project, stormwater from developed surfaces is collected by the campus storm drain system and discharged into a number of detention facilities that are designed to hold flows from a 100-year, 24-hour storm. At the time of the 2009 LRDP EIS/EIR, it was determined that with the provision of adequate detention facilities, the Fairfield Canal would have capacity to handle the stormwater discharged by the campus. As described in the 2020 LRDP SEIR, stormwater flows in excess of the 100-year, 24-hour storm event may be discharged to the Fairfield Canal through an existing agreement between UC Merced and MID. Because the canal is not used during fall and winter to convey irrigation water, under normal conditions, the Fairfield Canal would have capacity to handle the stormwater discharged by the campus. While the existing campus stormwater management system does not currently use this option, this agreement with MID would reduce the need for overflow discharges to other downstream receiving waters, such as Cottonwood Creek, for storms larger than the 100-year event. New development on the campus would also comply with the UC Sustainable Practices Policy and UC Merced Water Action Plan which requires a variety of actions to protect and restore the integrity of the local watershed, including but not limited to incorporating green infrastructure and low-impact development strategies into site

design in order to manage 30 to 50 percent of total volume runoff on-site and incorporation of retention and detention basins and other stormwater features into site design and development.

For the proposed project, drainage would be integrated into existing drainage infrastructure on the farm. The existing irrigation system is designed to be a “closed” system. No water would leave the farm site, and by design all drain water would collect in a centralized pond. A constructed stormwater treatment system would be implemented under a future phase of the project to control and treat runoff from permanent facilities constructed during future phases. Plans may include collection from building rooftops, as well as onsite stormwater infrastructure such as rain garden areas and infiltration basins or swales. The proposed drainage facilities and BMPs needed to accommodate stormwater runoff would be appropriately sized so that on-site flooding would not occur. Additionally, the proposed project would comply with the UC Sustainable Practices Policy and UC Merced Water Action Plan as previously discussed above. Impacts related to on- or off-site flooding from an increase in surface runoff would thus be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts related to on- or off-site flooding from an increase in surface runoff would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or*

As previously discussed, new development on the campus would incorporate a variety of measures to minimize impacts, such as incorporating green infrastructure and LID strategies and incorporating of retention and detention basins and other stormwater features into site design and development. The 2020 LRDP SEIR determined that although increased stormwater runoff would be generated, implementation of LID strategies and green infrastructure as well as the provision of stormwater detention and retention facilities would control the peak flow and volume of stormwater runoff so that the drainage system capacities would not be exceeded. Additionally, as previously discussed, NPDES regulations require the development and implementation of a SWMP that includes Best Management Practices aimed at addressing runoff pollutants in compliance with the Phase II Small MS4 Permit requirements.

For the proposed project, the “closed” irrigation system and proposed stormwater treatment system would control and treat runoff from permanent facilities constructed during future phases. The proposed on-site drainage facilities would be adequately sized to convey and reduce runoff, such that on-site drainage facility capacity would not be exceeded. Additionally, as previously discussed, NPDES regulations require the development and implementation of a SWMP that includes BMPs aimed at addressing runoff pollutants in compliance with the Phase II Small MS4 Permit requirements. For these reasons, impacts associated with the introduction of substantial sources of polluted runoff or additional runoff as a result of the project would be less than significant, consistent with the analysis in the 2020 LRDP SEIR, and would not result in an exceedance in capacity of existing or planned stormwater drainage systems. Therefore, no new or substantially more severe impacts associated with the introduction of substantial sources of polluted runoff or additional runoff as a result of the project would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*iv. Impede or redirect flood flows?*

No portion of the campus site is within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map. Further, there are no watercourses that would be developed with new facilities. Therefore, consistent with the analysis in the 2020 LRDP SEIR, no impact related to impeding or redirecting flood flows would occur, no new or substantially more severe impacts related to impeding or redirecting flood flows would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?*

As described in the 2020 LRDP SEIR, the campus, including the project site, is not within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map. In addition, Lake Yosemite, which is located approximately 0.5 mile northeast of the project site, has not historically produced seiches in association with tectonic activity. As a result, the campus is not at risk of seiche or tsunami inundation. Therefore, consistent with the analysis in the 2020 LRDP SEIR, there would be no impact with regard to these criteria and no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

As discussed above in **Section 5.11.1.a**, the project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality; therefore, the proposed project would not conflict with or obstruct the implementation of the RWQCB's 2018 Basin Plan for the Central Valley Region,<sup>21</sup> which encompasses both the Sacramento River and San Joaquin River Basins.

As described in Section 4.4 of the 2020 LRDP SEIR, a Groundwater Sustainability Plan (GSP) was developed for the Merced Subbasin and was adopted in November 2019. Per the GSP, current agricultural and urban groundwater demand in the Merced Subbasin would need to be reduced by approximately 10 percent in order to balance out the change in groundwater storage over a long-term average condition, based on modeling of current and projected subbasin conditions and absent implementation of any new supply-side or recharge projects. On both a per capita basis and total demand basis, UC Merced has reduced its demand substantially from previous levels and the reductions are significantly more than the required 10 percent water demand reduction identified in the GSP to bring the groundwater subbasin into balance. The Campus will continue to implement actions to reduce use of potable water, as reflected in the 2020 LRDP SEIR. The Campus will also

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<sup>21</sup> Regional Water Quality Control Board, Central Valley Region (CVRWQCB). 2018. The Water Quality Control Plan (Basin Plan) for the Sacramento River Basin and the San Joaquin River Basin. Fifth Edition. May.

continue to work with the City and the MID to identify other sources of water, including the use of canal water for irrigation and other non-potable uses.

As previously discussed, a clay hard pan exists near the ground surface that inhibits the potential of surface water to infiltrate down to the groundwater aquifer and groundwater recharge under pre-development conditions is generally low on the campus site. Therefore, the proposed project would not significantly interfere with groundwater recharge. Additionally, the proposed project would not increase the demand for potable water or require extraction of groundwater in excess of what is extracted under existing conditions, as detailed in **Section 5.11.1.b**. Water monitoring systems would be used to monitor water production, storage, and delivery. This data would be used to support Sustainable Groundwater Management Act (SGMA) requirements that would be implemented by the Merced Subbasin Groundwater Sustainability Agency. Therefore, the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.12 LAND USE AND PLANNING

Land Use and Planning Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Physically divide an established community?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.12.1 Impact Analysis

#### a. *Would the project physically divide an established community?*

The project site is located within the existing UC Merced campus and within the boundary of the 2020 LRDP. The proposed project is intended to expand agricultural research capabilities on the campus and would be integrated into the overall campus development plan specified in the 2020 LRDP. There is no existing community within the UC Merced campus or adjacent to the UC Merced campus or project site. As such, implementation of the proposed project would not physically divide an established community. No impact would occur, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

#### b. *Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?*

UC Merced is a State entity and not subject to regional or local land use controls. As the proposed project is located on the UC Merced campus, it would not be subject to land use plans, policies or regulations adopted by the City of Merced or Merced County to avoid or minimize an environmental effect. The land use plan that is applicable to the project is the 2020 LRDP. The 2020 LRDP was designed to guide the future development of the campus in a manner that would avoid and minimize any adverse effects of campus growth and development.

Campus research activities associated with the Experimental Smart Farm would occur on existing agricultural fields, consistent with both the POS and CBR/SL land use designations, as clarified by the land use amendment described in Section 3.8 of this Addendum. Thus, with the land use amendment, the project would be consistent with and within the scope of development contemplated in the 2020 LRDP.



As discussed in **Section 3.7.1** of this Addendum, the proposed project would result in a nominal increase in campus population, which along with the increase in building space attributable to the proposed project is within the growth projections of the 2020 LRDP. Following the incorporation of the land use amendment to the 2020 LRDP, implementation of the proposed project would not cause a significant environmental impact due to a conflict with the 2020 LRDP. Impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

### 5.13 MINERAL RESOURCES

Mineral Resources Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 5.13.1 Impact Analysis

- a. *Would the project 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?*
- b. *Would the project 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?*

As discussed in the Initial Study prepared for the 2020 LRDP SEIR, the campus, including the project site, is not located on land designated as a mineral resource zone (MRZ). The Merced County General Plan EIR indicates the County's primary mineral resources are sand and gravel mining operations, with significant aggregate deposits concentrated along the San Joaquin River and its tributaries, including the Merced River.<sup>22</sup> These areas are not near the project site. Implementation of the proposed project would not result in the loss of availability of a known mineral resource that would be valuable to the region and residents of the state. Therefore, this issue is not relevant to the project, there would be no impacts, consistent with the analysis in the 2020 LRDP SEIR, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

<sup>22</sup> Merced County, 2030 Merced County General Plan, Draft Program Environmental Impact Report, Geology, Soils, and Mineral Resources, pg. 10-5 and Figure 10-3, November 2012.

## 5.14 NOISE

Noise Would the Project Result in...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. For a project located within the vicinity of a private airstrip or 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, would the project expose people residing or working in the project area to excessive noise levels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The proposed project site is located within the UC Merced campus, which is located in eastern Merced County, east of Lake Yosemite and Lake Road, and approximately 2 miles northeast of the jurisdictional limits of the City of Merced. The project site is largely undeveloped and no major fixed noise sources exist on the site. Noise sources in the vicinity of the project site include existing campus activity more than 1,000 feet to the west and northwest, traffic on local and campus roadways to the north and west, and noise from off-campus agricultural operations to the south and southeast. Single-family residential units located on Lake Road (west of the site) are the nearest off-campus sensitive receptors from the proposed project, approximately 600 feet from the westernmost point of the project site along Meyers Gate Road, and 0.9 mile from the Experimental Smart Farm facilities and agricultural use areas. The Glacier Point student housing and the Arts and Computational Sciences Building are the closest on-campus sensitive receptors, located approximately 1,000 feet and 1,100 feet from the project site, respectively. The planned Medical Education (ME) Building Project, when built, would be the closest noise sensitive receptor to the proposed project, also at approximately 1,000 feet. Though the ME Building Project has not yet been implemented, building could begin before the completion of future phases of the proposed Experimental Smart Farm.

No heavily traveled roads or freeways are within the vicinity of the proposed project site on the UC Merced campus. SR 99, SR 59, and SR 140 are all located about 2.5 miles or further from the project site and do not affect noise levels in the project area. Nearby roadways tend to be light to moderately traveled, at moderate vehicle speeds, and do not handle large volumes of heavy-duty trucks or buses. As such, while motor vehicle traffic causes noise within the proposed project site

and tends to be the primary noise source in locations adjacent to traveled roadways, the resulting noise levels are not excessive. The 2020 LRDP SEIR estimated that ambient roadway noise level on Lake Road is about 59.7 A-weighted decibels (dBA) Community Noise Equivalent Level (CNEL) at 75 feet while the modeled roadway noise level on Bellevue Road is about 60.5 dBA CNEL at 75 feet. It is noted that noise levels along these roadways are likely slightly higher than these modeled levels due to the contribution of noise from other non-roadway noise sources.

Off-site stationary and area noise sources include common building or home mechanical equipment, such as air conditioners, ventilation systems, or pool pumps, and industrial or agricultural operations. These noise sources become a concern when they are in close proximity to land uses where people would be sensitive to noise. No industrial or manufacturing facilities are located on or near the project site or UC Merced campus; however, some agricultural-related operations and land maintenance activities cause occasional, daytime noise within the area of the proposed project.

Construction activities associated with the 2020 Project occurred between 2016 and 2020, and all buildings and other facilities under the 2020 Project are operational. These facilities contribute to the existing ambient noise levels on campus near the project site. Typical campus generated noise includes people talking, landscaping and maintenance activities, truck deliveries, and on-campus vehicle circulation. The proposed project would be developed adjacent to, but still a minimum of 1,000 feet away from, the 2020 Project facilities on land that has been previously graded and disturbed.

Overall, traffic and campus activity are the dominant noise sources in the project area.

#### 5.14.1 Impact Analysis

- a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

**Construction Noise.** The proposed project would generate temporary construction noise as construction activities occur. While the closest on-campus sensitive receptors are located approximately 1,000 feet from the overall project site, they are located approximately 0.5 mile from the proposed farm facilities area. Phase 1 construction activities occurring within the proposed farm facilities area or in the construction staging area would therefore occur more than 0.5 mile from nearest sensitive receptors located in on-campus student residences and off-campus along East Bellevue and Lake Roads.

As described in the 2020 LRDP SEIR, noise generated by construction activities is anticipated to be greatest during site grading activities and excavation for underground utilities. For the proposed project, this could also include irrigation system installation and upgrades. Noise generated during foundation and building construction would be lower. Maximum noise levels at a distance of 50 feet from the source would typically range from 70 to 90 dBA during excavation and grading activities and from 65 to 85 dBA during building construction. Hourly average construction noise levels measured at a distance of 50 feet from the project site are typically 75 dBA to 85 dBA during busy construction periods. Hourly average construction noise levels would typically range from 74 to 85

dBA at a distance of 50 feet from the center of construction activities and 56 to 71 dBA at a distance of 400 feet, not taking into account shielding from buildings or terrain. Maximum noise levels would typically range from 70 to 90 dBA at a distance of 50 feet and 52 to 72 dBA at a distance of 400 feet. Construction noise levels decrease at a rate of about 6 dBA per doubling of distance between the source and receptor. Shielding by buildings or terrain often results in much lower construction noise levels at distant receptors. Daytime construction noise would be exempt from the County's Ordinance and would result in a less-than-significant impact.

Consistent with the 2020 LRDP SEIR, a significant noise impact would occur if construction activity is predicted to result in: (1) maximum noise levels exceeding 75 dBA Maximum Sound Level ( $L_{max}$ ) at any residential property or 80 dBA  $L_{max}$  at any non-residential property between the hours of 6:00 p.m. and 7:00 a.m.; (2) an hourly average sound level that is more than 10 dBA equivalent continuous sound level ( $L_{eq}$ ) above the ambient sound level between the hours of 6:00 p.m. and 10:00 p.m.; or (3) an hourly sound level more than 5 dBA  $L_{eq}$  above the ambient sound level between the hours of 10:00 p.m. and 7:00 a.m.

Due to the distance between the on- and off-campus sensitive receptors and the construction and staging areas for the proposed Phase 1 farm facilities (greater than 0.5 mile), construction noise would not exceed the standards listed above. Furthermore, the proposed project would implement **2020 LRDP Mitigation Measure NOI-3** (described in **Section 6.8** of this Addendum), which would further minimize the less-than-significant construction noise impact through equipment noise controls and construction timing constraints.

Future phase construction activities at the project site could occur as close as 1,000 feet from on-campus student housing and classroom facilities, including the existing Glacier Point student housing and the proposed ME Building. Maximum construction noise levels at a distance of 1,000 feet from the source would typically range from 44.5 to 64.5 dBA during excavation and 39.5 to 59.5 dBA during building construction. Hourly average construction noise levels at a distance of 1,000 feet from the project site would typically range from 49.5 dBA to 59.5 dBA during busy construction periods. Project construction would not exceed the 75 dBA residential or 80 dBA non-residential maximum criterion at the closest existing academic building and on-campus residences.

The 2020 LRDP shows the Campus Mixed Use (CMU) land use area extending to the westernmost limit of the project area, though there is no CMU land use area within the project area (see **Figure 3**). CMU allowed uses include academic, instructional and research laboratories, library and learning facilities, research archive facilities, student housing including graduate and faculty, student support services, university affiliate dining and retail, athletic and recreational facilities, administrative, child care, service facilities, warehouse/storage facilities and parking facilities. Ancillary support facilities include administrative facilities, performance and cultural facilities, clinical facilities, research institutes, services supporting academic operations, and alumni and conference center. The 2020 LRDP does not specify where future residential and academic buildings would be built, but anticipates that "campus development during the 2020 LRDP planning period would include more intensive mixed-use development in the vicinity of the Transit Center area south of East Bellevue Road. New campus development would also likely occur along the perimeter back edge of Cottonwood Meadow." The 2020 LRDP covers campus buildout to 2030, so it is possible that future phase construction of the proposed Experimental Smart Farm could occur after new on-campus

residential and academic buildings are constructed within the CMU buildout area. Buildings in the locations described above could be as close as 450 feet to agricultural use areas, but would still be more than 2,000 feet from the farm facilities area. At a distance of 450 feet, maximum construction noise levels would typically range from 51.3 to 71.3 dBA during excavation and 46.3 to 66.3 dBA during building construction. Hourly average construction noise levels at a distance of 450 feet from the project site would typically range from 56.3 dBA to 66.3 dBA during busy construction periods. None of these predicted construction noise levels would exceed 75 dBA  $L_{max}$ , and the hourly average sound level increase would be at most 7.8 dBA  $L_{eq}$ . However, hourly sound levels could increase by more than 5 dBA  $L_{eq}$  during construction. Implementation of **2020 LRDP Mitigation Measure NOI-3** would reduce the construction noise levels at the on-campus sensitive receptors to a less-than-significant level.

**Operational Noise.** The 2020 LRDP SEIR analyzed the potential for campus development through 2030 under the 2020 LRDP to result in noise impacts. The proposed Experimental Smart Farm is part of the UC Merced campus development occurring under the 2020 LRDP because it would result in a nominal increase in campus population, which along the new building space that would be added to the campus by the project is accounted for in the growth assumptions of the 2020 LRDP; as such, the operational noise impacts of the proposed project are adequately analyzed as part of the 2020 LRDP SEIR noise impact analysis.

The campus development under the 2020 LRDP, including that of the proposed project, would increase traffic volumes on the local roadway network compared to existing conditions, particularly during harvest or special events held at the Smart Farm. Such an increase in traffic volumes would have the potential to result in increased traffic noise levels at noise-sensitive receptors located along East Bellevue and Lake Roads. There are some existing residential receptors along East Bellevue and Lake Roads that would be exposed to noise from traffic on the two roadways. Most homes on Lake and East Bellevue Roads are set back about 100 feet from the center of the road. However, a small number of homes along East Bellevue Road are located about 80 feet from the roadway.

Noise increases due to 2020 LRDP-related traffic on East Bellevue and Lake Roads were calculated in the 2020 LRDP SEIR by comparing the 2020 LRDP traffic noise levels to no 2020 LRDP (Background) traffic noise levels within the same time frame. Background plus 2020 LRDP traffic on East Bellevue Road would cause the ambient noise levels to increase from 58.5 dBA Day Night Average Sound Level ( $L_{dn}$ ) (East of SR 59) and 59.6 dBA  $L_{dn}$  (East of G Street) at the present time to about 61.1 dBA  $L_{dn}$  (East of SR 59) and 62.6 dBA  $L_{dn}$  (East of G Street) under 2030 conditions. Noise levels at residences at a distance of up to 80 feet from this roadway would experience a slightly higher noise level increase. Along Lake Road, noise levels would increase from about 60.9 dBA  $L_{dn}$  (South of East Bellevue Road) and 61.0 dBA  $L_{dn}$  (South of East Cardella Road) at the present time to about 61.6 dBA  $L_{dn}$  (South of East Bellevue Road) and 62.6 dBA  $L_{dn}$  (South of East Cardella Road) in 2030. The resulting noise levels in 2030 along both roadways would not exceed the exterior noise standard of 65 dBA  $L_{dn}$  that is applicable to residential land uses in Merced County. Furthermore, although the 2020 LRDP would cause noise increases along both roadways, the increase would be less than 3 decibels. At full build-out, the proposed project would add approximately 16,000 gsf of building space on the campus, which is well within and a small fraction of the 1.83 million gsf building space increase evaluated in the 2020 LRDP SEIR. The anticipated population increase associated with the



proposed Experimental Smart Farm (i.e., seven staff members) is also within the projected 2020 to 2030 campus population increase that was analyzed in the 2020 LRDP SEIR (i.e., 6,431 students, faculty, and staff). Thus, the proposed project's contribution to traffic-related increases in ambient noise levels is adequately analyzed in the 2020 LRDP noise analysis and determined to be less than significant.

Daily noise-generating activities associated with the proposed project would include farm equipment, student gatherings and conversations, farm maintenance activities, on-site traffic, and mechanical equipment noise. The existing project site is currently used for agricultural purposes, and many of these noise-generating activities already occur as part of the existing agricultural fields, particularly farm equipment and maintenance activities and mechanical equipment noise. The closest off-campus noise-sensitive receptors to the proposed project include residences along Lake and East Bellevue Roads to the west. The closest private residence is approximately 600 feet from the western-most point of the project site along Meyers Gate Road, and 0.9 mile from the Experimental Smart Farm facilities and agricultural use areas. As a result of the intervening distance and the fact that noise levels generated by the activities associated with the proposed project would generally be low at the source, noise generated by daily activities at the proposed Experimental Smart Farm is not expected to exceed the noise standard of 65 dBA  $L_{dn}$  exterior and 45 dBA  $L_{dn}$  interior at off-site residential locations. Off-site receptors are not expected to be exposed to noise levels in excess of the standards for noise-sensitive uses with implementation of the proposed project.

On-campus noise-sensitive receptors, including student housing and academic buildings, the closest of which are approximately 1,000 feet west and northwest from the project site, could be exposed to excessive noise associated with proposed project operation. For instance, noise levels could be elevated from the operation of commercial-grade heating, ventilation, and air conditioning (HVAC) systems associated with the proposed farm facilities, or from operation of farm equipment in nearby agricultural use areas. However, noise levels associated with typical commercial grade HVAC systems can be reduced to below the noise standard for residences and academic buildings at a distance of less than 50 feet from the source with the use of standard attenuation barriers. Operation of farm equipment would be seasonal and intermittent and therefore short-term. All tractor work that would require higher horsepower equipment, resulting in potentially high-decibel noise outputs, would be limited to the months of October/November and May/June. All other work would be completed by smaller tractors, some electric, resulting in low-decibel noise outputs. In addition, prevailing winds travel north to southwest, minimizing noise impacts to noise-sensitive receptors to the north and west. As a result, on-site receptors are not expected to be exposed to noise levels in excess of the standards for noise-sensitive uses with implementation of the proposed project.

Overall, the proposed project would not result in a substantial temporary or permanent increase in ambient noise levels in the vicinity of the proposed project in excess of established standards. Consistent with the analysis in the 2020 LRDP SEIR, impacts would be less than significant. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?*

The 2009 LRDP EIS/EIR and 2020 LRDP SEIR analyzed the potential for construction activities associated with projects under the 2009 LRDP and 2020 LRDP to result in groundborne vibration impacts on nearby sensitive receptors. These analyses concluded that in the event that impact pile driving was employed in the construction of campus buildings, it could result in damage to structures when conducted within 50 feet of a structure and could also affect highly sensitive uses such as certain types of laboratories. At this time, it is not known if pile driving activities would be needed for construction of future buildings within the farm facilities area. However, as described above, construction activities associated with farm building facilities would be located more than 0.5 mile from other campus buildings or sensitive uses. Furthermore, due to the small size and nature of the future farm buildings, construction activities associated with these small facilities would be unlikely to result in substantial vibrations and on- and off-site sensitive receptors. Though these impacts are not anticipated, the **2020 LRDP Mitigation Measures NOI-4a and 4b** (see **Section 6.8** of this Addendum), which specify strategies to minimize vibration impacts and noticing procedures, would be implemented if pile driving activities are used during project construction.

Overall, the proposed project is not anticipated to result in generation of excessive groundborne vibration or groundborne noise levels. Consistent with the analysis in the 2020 LRDP SEIR, impacts would be less than significant. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*c. For a project located within the vicinity of a private airstrip or 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, would the project expose people residing or working in the project area to excessive noise levels?*

The Merced Municipal Airport is approximately 7 miles southwest of the project site and the campus, and Castle Airport (the former Castle Air Force Base) is approximately 6 miles to the west. While noise from aircraft overflights is occasionally perceptible at the project site, it does not substantially affect the noise environment. A review of the County's Noise Element indicates that the 65 dBA  $L_{dn}$  noise contours associated with the airports in the region do not encompass or include any portion of the project site or the UC Merced campus. A private airstrip is located approximately 1.8 miles southeast of the project site and UC Merced campus. The airstrip is used by planes involved in agriculture operations (e.g., fertilizing, seeding, and baiting). As the airstrip does not support commercial flights and is used for a limited number of agricultural flights, it is not anticipated that airstrip operations would expose the project occupants to excessive noise levels.

Implementation of the proposed project on the UC Merced campus would not expose people residing or working in the area to excessive noise levels from public and private airport/airstrip operations. Consistent with the analysis in the 2020 LRDP SEIR, no impact would occur. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.15 POPULATION AND HOUSING

Population and Housing Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Induce substantial unplanned 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)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.15.1 Impact Analysis

- a. *Would the project induce substantial unplanned 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)?*

The UC Merced campus and the proposed project are located in the County of Merced, which has a current (2022) population of 284,338. There are 90,883 residents that live in unincorporated areas of the County, while the remaining balance live in incorporated cities within Merced County. The City of Merced has a current (2022) population of 89,058 residents.<sup>23</sup> By 2035, the estimated population for Merced County will be 330,805 residents, while the estimated population for the City of Merced will be 101,585 residents.<sup>24</sup>

The 2020 LRDP SEIR estimated that between 2020 and 2030, the student population would increase from 9,700 FTE students to 15,000 students, an increase of about 5,300 students. Over the same period, faculty and staff would increase from 1,280 to 2,411, an increase of 1,131 persons. Overall, the campus population would increase by 6,431 persons (5,300 FTE students and 1,131 staff/faculty personnel). As such, by 2030 the UC Merced campus is projected to have a total population of 17,411 students, faculty, and staff. The 2020 LRDP SEIR determined that the UC Merced campus would be developed with additional housing to accommodate 50 percent of the 2030 student population. The remaining balance of students would be accommodated by housing within the City of Merced or in communities within a 40-mile radius of the campus. The SEIR also noted that all of the new employees would live off campus. The 2020 LRDP SEIR determined that enough housing is

<sup>23</sup> State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties and the State — January 1, 2021-2022*. Sacramento, California, May 2022. [https://dof.ca.gov/wp-content/uploads/Forecasting/Demographics/Documents/E-5\\_2022\\_InternetVersion.xlsx](https://dof.ca.gov/wp-content/uploads/Forecasting/Demographics/Documents/E-5_2022_InternetVersion.xlsx), Accessed August 17, 2022.

<sup>24</sup> Merced County Association of Governments (MCAG), 2022 Regional Transportation Plan/Sustainable Communities Strategy for Merced County.

available and planned in the City of Merced and in communities within the 40-mile radius of the campus to house the new students and employees who would live off campus.

As discussed in **Section 3.7.1** of this Addendum, it is anticipated that the maximum number population increase resulting from the proposed project would be seven staff members. The proposed project would not result in an increase in the student or faculty population than what was analyzed and projected in the 2020 LRDP EIR. Up to 20 temporary harvest workers would work on a short-term and seasonal basis, and existing students and faculty would be able to conduct research.

The seven employees associated with the proposed project are a part of the population growth projected under the 2020 LRDP and are accounted for in the analysis of population and housing impacts of campus growth by 2030 as presented in the 2020 LRDP SEIR.

In summary, as enough housing is available and planned in the City of Merced and in communities within the 40-mile radius study area to house additional employees and dependents that would relocate into the study area, the impact on population growth and housing would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*

The proposed project would be developed on a portion of the UC Merced campus that is currently vacant. No residential units or student housing is located on the proposed project site. As such, implementation of the proposed project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. No impact would occur, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.16 PUBLIC SERVICES

Public Services Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. 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:				
i. Fire protection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. Police protection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Schools?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. Parks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v. Other public facilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.16.1 Impact Analysis

a. *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:*

#### i. *Fire protection?*

As described in the 2020 LRDP SEIR, the UC Merced campus is jointly served by the County of Merced Fire Department and Cal Fire. The County Fire Department responds to incidents at UC Merced with its engine company out of Fire Station 85, supplemented by a ladder truck from the Atwater fire station (as needed) and paid call firefighters (PCFs). UC Merced and the County have reached an agreement to increase staffing at Fire Station 85 to a minimum of two paid fire fighters 24 hours per day, seven days a week, thereby increasing the station's capacity to serve the campus in the near term.

Development under the 2020 LRDP would accommodate about 15,000 students by 2030. As described in Section 2.3.1 of the 2020 LRDP SEIR, based on an enrollment of 9,700 students in 2020, the campus population is projected to increase by about 5,300 students by 2030, and employment at the campus is projected to increase by 1,131 faculty and staff. The SEIR analysis found that because the growth on the UC Merced campus would occur incrementally over the planning horizon of the 2020 LRDP, there was not an immediate need for an increased fire service or additional resources from the fire department. However, if the demand for staff and equipment to serve new

campus development resulted in the need for new or modified fire station facilities to house the additional staff and/or equipment, the environmental impacts from fire station construction would need to be evaluated and disclosed. The SEIR noted that the environmental impacts from an expansion of the existing County Fire Station No. 85 are expected to be less than significant or less than significant with mitigation. It also noted that if the existing County fire station is expanded or a new one is constructed by the County and significant environmental impacts requiring mitigation are identified by the County, the University would pay for its fair share of the cost of mitigation.

The proposed Experimental Smart Farm would increase the amount of building space on the campus compared to existing conditions, but the increase would be a small portion of the projected increase in building space under the 2020 LRDP (16,000 square feet of 1,830,000 square feet under the 2020 LRDP [about 0.9 percent of the additional building space projected to be developed under the 2020 LRDP]). Implementation of the proposed project would also generate a very minor increase in the number of staff (an additional seven staff members) on the UC Merced campus.

The proposed farm facilities and agricultural use areas would be developed to existing California Fire Building Code standards as well as UC Merced building code fire standards. The new buildings would be designed with a sprinkler system, fire extinguishers in various locations, and a fire alarm system to alert occupants in the event of a fire. The proposed buildings would not exceed a maximum of four stories in height, similar to nearby UC Merced campus buildings, allowing fire apparatus to adequately reach the top of the buildings in the event of a fire. The proposed farm facilities would be built to safety standards that exceed the minimum requirements for the handling and storage of hazardous materials. The storage, handling, use, and disposal of all hazardous materials, hazardous wastes and other scientific and agricultural materials within the proposed farm facilities and agricultural use areas would be subject to UC Merced EH&S program requirements. Additionally, UC Merced would coordinate with the Merced County Fire Department in providing fire department staff with locations of hazardous materials, the types of hazardous materials, and building evacuation plans in the event of a fire or release of hazardous materials that may occur at the proposed Experimental Smart Farm.

Implementation of the proposed project would not result in an increase in the need for additional fire personnel and/or fire department equipment to provide adequate service to the proposed Experimental Smart Farm and UC Merced campus. The additional building space and staff members associated with the proposed project would represent a negligible portion of the anticipated growth covered under the 2020 LRDP, and would not result in a substantial increase in the need for fire services. No impact would occur, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## *ii. Police protection?*

The UC Merced campus, including the project site, is served by the UC Merced Police Department. To maintain the right staffing level, about 30 sworn officers would be required at full campus development under the 2020 LRDP. The 2020 LRDP land use diagram includes adequate land for the expansion of the campus public safety (police) building as needed. The environmental consequences of developing campus facilities, including additional police facilities, on land designated CMU in the



2020 LRDP were evaluated in the 2020 LRDP SEIR and were mitigated to a less-than-significant level by the mitigation measures included in the 2020 LRDP SEIR. The 2020 LRDP SEIR determined that environmental impacts associated with future campus police station expansion would be reduced to less-than-significant levels.

The proposed Experimental Smart Farm would increase the amount of building space on the campus compared to existing conditions, but the increase would be a small portion of the projected increase in building space under the 2020 LRDP (16,000 square feet of 1,830,000 square feet under the 2020 LRDP [about 0.9 percent of the additional building space projected to be developed under the 2020 LRDP]). Implementation of the proposed project would also generate a small increase of staff (an additional seven staff members) on the UC Merced campus. As described above in **Section 5.16.1.a (i)**, the size and nature of the proposed project would not cause the campus population to increase over what was analyzed in the 2020 LRDP SEIR. In addition, the proposed farm facilities would include exterior lighting and additional security features that would ensure that safety in the area is maintained and that the need for UC Merced Police Department services would not be substantially increased due to a substantial increase in calls for service.

The existing campus public safety building is currently at capacity, and a new or expanded building is in the early planning stages. UC Merced anticipates that the new or expanded public safety building would accommodate any additional police staff needed for the proposed project and other future projects covered under the 2020 LRDP. In the event that the expanded public safety building is not operational prior to the completion of the proposed project, any additional police staff would be accommodated in other existing spaces on campus. Therefore, while additional police staff may be required, the project itself would not generate the need for an expansion of the campus public safety building that would result in significant environmental impacts.

In summary, implementation of the proposed project would not increase the need for police services such that expanded facilities or new facilities would be required, the development of which could result in an environmental impact. As such, impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

### *iii. Schools?*

As described in the 2020 LRDP SEIR, the campus, as well as the project site, is located within the boundaries of the Merced City School District (MCSD), the Weaver Union School District (WUSD), and the Merced Union High School District (MUSHD). There are 14 elementary schools and 4 middle schools in the MCSD. Development of the UC Merced campus, and the proposed project, under the 2020 LRDP would generate a demand for primary and secondary education facilities. The 2020 LRDP SEIR concluded that development of the campus under the 2020 LRDP would generate a total of 900 K-12 students. The approximately 900 K-12 students generated by development under the 2020 LRDP would be dispersed throughout the City of Merced as well as in other Merced County communities and in Mariposa and Stanislaus Counties.

Using the same methodology of student generation that was presented in the 2020 LRDP SEIR, the proposed project is anticipated to generate approximately five K-12 students,<sup>25</sup> all of which have been accounted for in the K-12 students projected to be generated under the 2020 LRDP. The K-12 students generated by the proposed project represent 0.6 percent of the K-12 students estimated to be generated under the 2020 LRDP through 2030. As the student population of the UC Merced campus grows and employees are hired within the parameters of the 2020 LRDP, homes will concurrently be developed throughout the surrounding area. Pursuant to SB 50, developers will be required to pay school impact fees as single-family homes or multi-family units are constructed. School impact fees are considered full and complete mitigation for school impacts. Students, faculty and staff associated with the proposed project that are homeowners would also pay property taxes, a portion of which would go towards the funding of local K-12 public schools. Based on the above, the project's impacts related to schools would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

#### *iv. Parks?*

Lake Yosemite Regional Park is the closest facility to the UC Merced campus, including the proposed project site. MID owns the 486-acre lake and the surrounding shoreline, and the County operates the park for recreational uses under a 50-year lease (1976 to 2026). The City of Merced Parks and Community Services Department maintains city parks and recreational facilities. Nearby community and neighborhood parks include Elmer Murchie Park, Fahrens Park, Bob Carpenter Neighborhood Park, Merino Park, Ranhill Park, and Burbank Park.

As described in the 2020 LRDP SEIR, development of the campus under the 2020 LRDP would result in a residential population on the campus of about 7,200 students by 2030. As described above in **Section 5.16.1.a (i)**, the on-campus population increase associated with the proposed project is accounted for as part of the anticipated campus growth between 2020 and 2030. As described in the 2020 LRDP SEIR, recreational facilities and open space that would be developed on the campus under the 2020 LRDP would adequately serve the needs of the on-campus residential population, as well as the daytime population of the UC Merced campus. Furthermore, the proposed project is not anticipated to result in an increase in campus student population, as researchers associated with the Experimental Smart Farm would already be enrolled as students. Consequently, the population increase associated with the proposed project, which includes seven employees, would not result in demand for the construction of off-site recreational facilities. Implementation of the proposed project would not trigger construction of new parks or require expansion of existing parks in areas outside of the UC Merced campus.

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<sup>25</sup> For the purposes of this analysis, it was conservatively determined that all new faculty/staff under the proposed project would relocate from outside the area; as such, approximately 7 employees would relocate from outside the area. It is assumed that staff relocating from outside the area would also be accompanied by dependents. Thus, the proposed project would generate four K-8 students ( $7 \times 0.496$ ) and one 9-12 student ( $7 \times 0.213$ ), for a total generation of five K-12 students.

Due to the proximity of Lake Yosemite Regional Park to the campus, as well as proposed project site, and the range of unique water-related recreational amenities offered at the regional park that would not be available on campus, is the 2020 LRDP SEIR anticipated that new on-campus student residents as well as faculty and staff would use the regional park. Because the Lake Yosemite Regional Park is currently at capacity during summer months, the 2020 LRDP SEIR conservatively assumed that the use of the park by the campus community could contribute to the acceleration of physical deterioration of the park facilities and contribute to the need for new park facilities. While the 2020 LRDP SEIR concluded that most of the increase in park facility use associated with the campus (i.e., between fall and late spring when school is in session) would not coincide with the current peak park use which occurs during summer, it nonetheless determined that the deterioration of existing park facilities could be accelerated, and this was considered a potentially significant impact associated with implementation of development under the 2020 LRDP. The 2020 LRDP SEIR identified **2020 LRDP Mitigation Measures PUB-6a** through **PUB-6c** (see **Section 6.9** of this Addendum) to reduce the impact on Lake Yosemite Regional Park from campus development to a **less-than-significant** level. As the proposed project is part of the growth anticipated under the 2020 LRDP, it is assumed the employees generated by the project would use the amenities at Lake Yosemite Regional Park. However, the proposed project, which would increase the campus staff by seven employees, would result in a small contribution to the accelerated deterioration of these park facilities that would be mitigated by the implementation of **2020 LRDP Mitigation Measures PUB-6a** through **PUB-6c**, which require UC Merced's participation in park maintenance and improvements.

Based on the discussion above, the proposed project's impacts related to parks would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

#### *v. Other public facilities?*

UC Merced provides extensive library resources through its Leo & Dottie Kolligian Library, located on the campus at 5200 North Lake Road. The increased regional population associated with the proposed project (approximately seven employees and five associated K-12 students) under the 2020 LRDP would result in a small increased demand for public library services compared to existing conditions. However, the library system of the campus would continue to meet the needs of a modern research and teaching institution, and thus provide a large array of library services, would continue to be available to students, staff, and faculty of the campus, as well as the general public on a limited basis. Therefore, the small increase in demand for library services would be distributed between the UC Merced Kolligian Library and the Merced County Library. Therefore, consistent with the analysis in the 2020 LRDP SEIR, the impact on the City library system associated with implementation of the proposed project would be less than significant, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.17 RECREATION

Recreation Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.17.1 Impact Analysis

- 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?*

Impacts on recreation facilities located at Lake Yosemite Regional Park from the development of the proposed project under the 2020 LRDP was evaluated in the 2020 LRDP SEIR and **Section 5.16.1.a (iv)** of this Addendum. The 2020 LRDP SEIR concluded that the population growth of the campus and the proposed project through 2030 could contribute to the degradation of facilities at Lake Yosemite Regional Park. As such, **2020 LRDP Mitigation Measures PUB-6a** through **PUB-6c** (see **Section 6.9** of this Addendum) would be applicable to the proposed project thus reducing impacts to the Lake Yosemite Regional Park. Additionally, recreational facilities and open space that would be developed on the campus under the 2020 LRDP would adequately serve the needs of the residential and daytime population of the UC Merced campus. Consequently, the minimal regional population increase associated with the proposed project would not result in demand for the construction of off-site recreational facilities. Implementation of the proposed project would not trigger construction of new parks or require expansion of existing parks in areas outside of the UC Merced campus. Impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

- 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?*

The land use diagram in the 2020 LRDP assigns nine acres of land designated for Active Open Space (athletic facilities and fields) and 289 acres designated for POS (large landscaped or natural spaces). Of the 1,026 acres on the campus, approximately 29 percent are planned as active and passive open

space. Implementation of the proposed project would result in the conversion of 68 acres of land designated as POS to CBR/SL. The campus would then have a total of 221 acres of land designated for POS, and 22 percent of campus land would remain as planned or existing active and passive open space. Many of these areas on the campus, including trails and bicycle paths, would also be available to the general population of the surrounding area. The proposed project would also incorporate pedestrian and bicycle connectivity through the development of paths or shared roadways that would connect to the rest of the UC Merced campus. The 2020 LRDP SEIR analyzed and disclosed the physical impacts on the environment from the development of the 2020 LRDP, including the recreational facilities that may be developed on the campus under the plan. The proposed project would not include recreational facilities or require the construction or expansion of recreational facilities that may have an impact on the environment. Impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.18 TRANSPORTATION

Transportation Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Result in inadequate emergency access?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.18.1 Impact Analysis

*a. Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

The 2020 LRDP SEIR analyzed potential impacts of traffic generated by campus growth on roadway facilities based on an analysis of level of service (LOS) impacts at 19 intersections under Year 2030 No 2020 LRDP Conditions and Year 2030 with 2020 LRDP Conditions. The 2020 LRDP SEIR concluded that nine intersections would be significantly affected by the traffic added under the 2020 LRDP, and mitigation measures were adopted to reduce impacts at these intersections to a less-than-significant level. However, since the certification of the 2020 LRDP SEIR in March 2020, CEQA documents (as of July 1, 2020) must evaluate transportation impacts based on vehicle miles traveled (VMT), consistent with Senate Bill 743. As specified by SB 743 and the associated updates to the CEQA Guidelines, automobile delay, as measured by “level of service” and other similar metrics, generally no longer constitutes a significant environmental effect under CEQA (Public Resources Code, Section 21099, subd. (b)(3)) and the LOS mitigation measures would not be applicable to the proposed project.

However, per SB 743 and the associated updates to the CEQA Guidelines, “Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant



transportation impact.<sup>26</sup> Using projected usage numbers for the Experimental Smart Farm facilities provided in the Conceptual Design Package,<sup>27</sup> there would be at least 95 people on site daily in the farm facilities and agricultural use areas between April and October. This includes an estimated 88 professors, students, and staff from UC Merced. Additionally, Meyers Gate Road is already used for trips related to the grazing activities on the existing site and for trips related to maintenance of the Fairfield Canal by MID. Thus, the majority of the daily visitors at the Experimental Smart Farm would be part of the existing (i.e., not project-generated) campus population and would therefore not generate new trips. However, full build out of the proposed project would result in an increase in seven employees (see **Section 3.7.1** of this Addendum), as well as an increase in special tours and events (see **Section 3.7.3**). Each new employee could result in an increase of two to four trips per day, so the increase in daily trips at the project site due to the seven on-site employees would be up to 28 new trips. Harvest days would occur once a week during the months of September and October, bringing up to ten harvest workers to the project site, resulting in an approximately 20 additional trips eight to ten days a year.

Regular K-12 school trips bringing groups of up to 50 people (K-8 students in October only and 9-12 students throughout the year) would occur, but these groups would be bussed or carpooled to the site, adding between 2 (assuming bus transport) and 50 daily trips (conservatively assuming 25 vehicles with 2 passengers per vehicle). Including the estimated 28 employee trips and the possibility of 20 harvest worker trips, K-12 educational site visits would result in a maximum of 98 daily trips and therefore would not result in a significant increase in VMT.

Occasional large events, estimated to occur three to six times a year, and a seasonal farmer's market selling only produce grown on campus, could result in more than 110 trips in a day. However, these would be one-off events, similar to other events that occur on campus throughout the year, and would not contribute to a significant increase in VMT at the project site. Therefore, the proposed project would have a less-than-significant VMT impact.

With respect to impacts on transit service, similar to the 2020 LRDP, the proposed project does not include any changes to transit service or infrastructure provided by non-University operators. UC Merced will continue to make improvements to CatTracks to serve the enrolled students, faculty and staff (including those of the proposed project) and will continue to work with transit providers to coordinate service with the campus-provided service. Consistent with the analysis in the 2020 LRDP SEIR, the proposed project's impact on transit facilities would be less than significant.

With respect to pedestrian and bicycle facilities, the 2020 LRDP and the proposed project do not include any infrastructure changes outside the campus and, thus, would not disrupt existing facilities, interfere with existing or planned pedestrian and bicycle facilities, nor conflict with adopted plans. The proposed project would include connectivity to the existing pedestrian and

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<sup>26</sup> California Office of Planning and Research. 2018. "Technical Advisory on Evaluating Transportation Impacts in CEQA." [https://opr.ca.gov/docs/20190122-743\\_Technical\\_Advisory.pdf](https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf). Accessed July 13, 2022.

<sup>27</sup> UC Merced. 2022. Experimental Smart Farm 50% Conceptual Design.

bicycle facilities of the UC Merced campus. Consistent with the analysis in the 2020 LRDP SEIR, the proposed project's impact on pedestrian and bicycle facilities would be less than significant.

Overall, the proposed project would not conflict with a program, plan, ordinance, or policy related to transit, roadway, or bicycle and pedestrian facilities. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*b. Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?*

As discussed above in **Section 5.18.1(a)**, the proposed project would generate fewer than 110 daily trips and can therefore be assumed to have less-than-significant transportation impacts. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

The proposed project would include development of the proposed farm facilities and agricultural use areas, including improvements to Meyers Gate Road and Solar Array Road. Consistent with the analysis in the 2020 LRDP SEIR, implementation of the proposed project would not include changes to off-campus roadways and would not include changes to roadway geometry of on-campus roadways; as such, the proposed project would not increase hazards due to a geometric design feature of roadways or intersections. The proposed project would include the use of farm equipment on site but these would operate on internal access roads connecting agricultural use areas to maintenance and storage facilities. Bellevue Road, Lake Road, Meyers Gate Road, and Solar Array Road would continue to provide access to the site once the proposed project is completed and operational. Overall, the proposed project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment would not be used on roadways outside of the Experimental Smart Farm area). No impact would occur, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*d. Would the project result in inadequate emergency access?*

As described in the 2020 LRDP SEIR, all transportation facilities, including connections to off-campus facilities and the proposed project site, would be constructed according to State of California design standards for roadway and intersection design and operations. Meyers Gate Road and Lake Road would provide access to the proposed project once it is completed and operational. Both Meyers Gate Road and Lake Road have been designed to accommodate emergency vehicles travel; as such, adequate emergency access to the project site would be provided. For these reasons, implementation of the proposed project would not result in inadequate emergency access. Impacts would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.18 TRIBAL CULTURAL RESOURCES

Tribal Cultural Resources Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
e. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.18.2 Impact Analysis

- a. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:*
- i. *Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or*
  - ii. *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.*

Assembly Bill (AB) 52, which came into effect on July 1, 2015, requires that lead agencies consider the effects of projects on tribal cultural resources (TCRs) and conduct notification and consultation with federally and non-federally recognized Native American tribes early in the environmental review process. As part of the 2020 LRDP SEIR, UC Merced notified eight tribes identified by the

Native American Heritage Commission (NAHC) to inform them of the commencement of CEQA review of the proposed 2020 LRDP. No requests for formal consultation were received by UC Merced, and no TCRs were identified as part of the AB 52 consultation conducted for the 2020 LRDP SEIR. As reflected in the 2020 LRDP SEIR, the geographic area of the UC Merced campus is not known to contain TCRs. Based on surveys conducted prior to and in conjunction with the preparation of the 2009 LRDP EIS/EIR, no known prehistoric sites are located within the campus site, although previously recorded prehistoric sites were identified within the University Community North study area. Furthermore, no cultural resources have been encountered during grading and excavation conducted on the campus site since 2002 when the construction of the campus was commenced. Therefore, the campus is not expected to contain any TCRs.

Because the project is consistent with the 2020 LRDP and the campus is not expected to contain any TCRs, it is anticipated that the potential for impacts to TCRs is low. However, earthmoving activities could potentially disturb previously undiscovered buried archaeological resources, including human remains, which could be considered TCRs. Therefore, all projects under the 2020 LRDP would be required to implement **2020 LRDP Mitigation Measures CUL-2** and **CUL-3** (see **Section 6.4** of this Addendum) to ensure that should cultural resources, including human remains, be encountered, they would be protected, documented, and preserved, as appropriate. In summary, the proposed project would result in a less-than-significant impact on TCRs, consistent with the analysis in the 2020 LRDP SEIR. No new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.19 UTILITIES AND SERVICE SYSTEMS

Utilities and Service Systems Would the Project...	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. 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 provider's existing commitments?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.19.1 Impact Analysis

- a. *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?*

The proposed Experimental Smart Farm would connect to existing utilities and infrastructure that currently serve the UC Merced campus. Water supply would be drawn from existing wells within the project site. Future phases would also implement on-site power supply, wastewater treatment, and stormwater collection. Discussions pertaining to water supply and wastewater treatment are described below in **Sections 5.19.1.b** and **c**, respectively.

Stormwater generated by the temporary Phase 1 facilities would be conveyed into an existing pond on site, which is currently used for irrigation collection and return within the existing "closed" irrigation system. A constructed stormwater treatment system would be implemented under a

future phase of the project to control and treat runoff from permanent facilities constructed during future phases. Plans may include collection from building rooftops, as well as onsite stormwater infrastructure such as rain garden areas and infiltration basins or swales, as generally shown in **Figures 6A** and **6B**. As described in **Section 5.11**, Hydrology and Water Quality, the construction of the stormwater treatment system would not result in significant environmental effects.

Primary infrastructure and utilities proposed for Phase 1 development would include the extension of existing PG&E power connections on site to provide 220V power to the facilities area. Future phase activities would include the installation of roof-top solar panels on buildings within the farm facilities area, and an agrophotovoltaic system up to 1-acre in size to the west of the Phase 1 Agricultural Fields. A hydroelectric power system may also be implemented. Future phases would expand power and electricity throughout the project area, both of which would be sourced from either the existing grid power system or the proposed photovoltaic or hydroelectric systems, once operational. Eventually, after installation of the photovoltaic system, the farm would be weaned from the grid power source.

The 2020 LRDP SEIR discussed the use of electricity and natural gas and the need to update infrastructure to adequately serve the anticipated population of UC Merced up to 2030. Campus operation under the 2020 LRDP is anticipated to result in a net new demand of approximately 211 therms of natural gas and a net new electricity demand of 7.8 MW annually. All UC projects on the campus (including the proposed project) are required to achieve a Silver rating under the LEED Rating System. The UC Merced campus also has a 1.0 MW ground-mounted solar array and has installed roof-top solar panels on some of the residence halls on the campus to provide 4.2 MW of power. In compliance with UC Sustainable Practice Policy, 100 percent of the power that will be needed by the campus at buildout under the 2020 LRDP will be obtained from a number of renewable and alternative technologies, including wind turbines, fuel cells, and photovoltaic systems. The proposed project would account for an additional approximately 16,000 gsf of building space on the campus, which is well within the 1.83 million gsf increase evaluated in the 2020 LRDP SEIR. The anticipated population increase associated with the proposed Experimental Smart Farm (i.e., seven staff members) is also well within the projected 2020 to 2030 campus population increase that was analyzed in the 2020 LRDP SEIR (i.e., 6,431 students, faculty, and staff). As such, while the project would require extension of power connections to the farm facilities and agricultural use areas, implementation of the proposed project would not require additional electrical infrastructure beyond what is needed for buildout of the UC Merced campus under the 2020 LRDP. It should be noted that the proposed project would not require natural gas; as such, implementation of the proposed project would not require additional natural gas conveyance infrastructure beyond what is needed for buildout of the UC Merced campus under the 2020 LRDP.

The proposed project would include a main communication room or cabinet in each building to support connection of the Experimental Smart Farm site to the UC Merced wide area network and to the internet. Additionally, some infrastructure would be installed to connect the site to the various telecommunication service providers in the area, including provisions for future UC Merced buildout to the west.



As required by law, all utility connections would be constructed in accordance with all applicable building codes and applicable standards to ensure an adequately sized and properly constructed transmission and conveyance system.

Based on the discussion above, impacts associated with stormwater, electric power and natural gas, and telecommunications facilities would be less than significant, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?*

As discussed in the 2020 LRDP SEIR, the City of Merced provides potable water to the campus. However, both potable and non-potable water for the proposed Experimental Smart Farm would be drawn from onsite wells. The non-potable water supply would also be supplemented by harvested rain from the building roofs. Existing irrigation facilities and proposed improvements are described in **Section 3.4.1.2** of this Addendum.

The current estimate of existing water consumption for the irrigated areas of the project site, including the northwest pasture, northeast pasture, and the Phase 1 agricultural use area, is approximately 860 AF per year. An additional approximately 2,000 AF per year is transferred to the neighboring VST property to the south of the UC Merced campus for the existing orchard uses, which would cease after 2025. The maximum anticipated water consumption of the Phase 1 35-acre farm site would be 175 AF per year. Existing grazing uses are expected to continue within 105 acres of irrigated pasture areas, which would consume up to 425 AF per year. The 105 acres of irrigated pasture would continue indefinitely, or until the lands are converted to crop production during future phases of the farm. Water consumption of converted crop production land would remain similar to irrigated pasture consumption. Thus, the anticipated water use for the project site would be up to an estimated 600 AF per year plus 2000 AF per year transferred to the neighboring orchards through 2025.

Beginning in 2025, under the revised 2022 Groundwater Sustainability Plan (GSP) for the three groundwater sustainability agencies (GSAs) in the Merced Groundwater Subbasin, the volume of water pumped from the wells on the project site would be restricted by the sustainable yield requirements established by the overseeing GSA for the campus. Under the GSP, per acre pumping would be reduced. Compared to the projected 2025 water consumption rate, the anticipated total pumping capacity would be limited to between approximately 210 and 420 AF per year. Thus, the water consumption for the proposed project would be greatly reduced at farm buildout compared to current conditions and would be subject to the GSA requirements after 2025. Pumping restrictions could be offset by on site recharge projects and additional surface water deliveries are possible through surface water transfers via existing MID infrastructure.

Water demands related to irrigation of the proposed agricultural use areas as well as those related to the proposed farm facilities would be met with water from the two on-site wells, and would not increase the demand for potable water or require extraction of groundwater in excess of what is

extracted under existing conditions. Therefore, consistent with the analysis in the 2020 LRDP SEIR, impacts would be less than significant, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*c. Would the project 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 provider's existing commitments?*

Wastewater service is provided to the campus (including the project site) by the City of Merced, at the City's Wastewater Treatment Plant, pursuant to an extraterritorial urban services agreement. However, the proposed project would include the construction of an on-site wastewater treatment system consisting of a tank or system of tanks and one or more wastewater drain fields (see **Figures 6A** and **6B** for proposed locations) designed to treat all wastewater generated by the Experimental Smart Farm.

The system would treat combined wastewater from buildings (including leachate from compost bins, if used). The wastewater would be treated to meet RWQCB standards for onsite dispersal. Wastewater would go through two to three treatments before going through a multi-layer filtration process so that water being reintroduced back into the environment would be safe for onsite dispersal. Once constructed, wastewater generated as a result of Phase 1 and future phases would primarily be from sinks (classrooms and bathrooms as well as produce and equipment wash stations) and toilets. Fixture selection and conveyance strategies would help minimize wastewater generation from these sources.

Dispersal and groundwater recharge following treatment of wastewater would be conducted via a drainpipe in gravel bed, gravel-less trenches, pressurized laterals, and/or drip tubing. Based on existing soil conditions, it is likely that any effluent would need to be highly treated and have a very low land application rate, which would require utilizing pressurized laterals or drip tubing for dispersal. Each would be integrated into the landscape and either vegetated with native plants or integrated into some beneficial use, such as shallow subsurface dispersal in agricultural areas. The area receiving this subsurface water would be protected from heavy vehicle traffic and future disturbance. A supplemental reserve area for additional dispersal may also be required.

All wastewater from the proposed project would be treated onsite, therefore there would be no impacts to the City of Merced's Wastewater Treatment Plant or any other wastewater treatment provider, consistent with the analysis in the 2020 LRDP SEIR. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

- d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?*
- e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?*

The 2020 LRDP SEIR evaluated the amount of solid waste that would be generated due to campus buildout through 2030 under the 2020 LRDP. As detailed above under previous responses, the estimated campus population increase and total building space associated with the proposed project are within the growth assumptions used in the 2020 LRDP EIR analyses. As such, the size and population of the proposed project has been accounted for in the 2020 LRDP and its solid waste generation/disposal.

It is anticipated that the primary on-site waste generated by the proposed project would be agricultural, and would be handled with on-site composting systems. Other solid waste generated, which would have been accounted for in the 2020 LRDP estimates, would be either recycled or otherwise diverted (average diversion rate estimated at 43 percent) or would be sent to the Merced County Highway 59 landfill.

It is anticipated that capacity at the Highway 59 Landfill will be reached in approximately 2065. While full development of the campus and the proposed project would generate more solid waste than existing conditions, it is anticipated that eventually very little solid waste would be disposed of in a landfill in the future. However, in the interim, based on the existing diversion rate of approximately 43 percent, the campus (which includes the proposed project) would dispose of about 516 tons of waste per year in the landfill by 2030. This is about 0.11 percent of the permitted annual amount of waste that can be accepted at Highway 59 Landfill, which can accept up to 459,000 tons per year. As the campus (which includes the proposed project) anticipates that 90 percent of solid waste would be diverted from the landfill in the future, the amount disposed at the landfill annually would be even lower. As there is adequate capacity available in the landfill, an expansion of the landfill would not be required. Implementation of the proposed project would not generate solid waste in excessive of state or local standards, or in excess of the capacity of the Highway 59 Landfill. Consistent with the analysis in the 2020 LRDP SEIR, impacts would be less than significant. Therefore, no new or substantially more severe impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

## 5.20 WILDFIRE

### Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

According to the California Department of Forest and Fire Protection (CalFire), the campus including the project site is not located in a State Responsibility Area (SRA) or Local Responsibility Area (LRA) Very High Fire Hazard Severity Zone (VHFHSZ).<sup>28</sup> CalFire has a legal responsibility to provide fire protection on all SRA lands, which are defined based on land ownership, population density and land use. Local cities and jurisdictions are responsible for fire protection on all land designated as LRAs. An SRA Moderate Fire Hazard Severity Zone is designated adjacent to the northeast boundary of the campus within the conservation lands.<sup>29</sup>

### 5.20.1 Impact Analysis

#### a. *Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?*

UC Merced has adopted both an Emergency Operations Plan and a Crisis Communications Plan. The Campus emergency response team is trained and equipped to respond to campus emergencies including fires. UC Merced provides sufficient resources to respond to campus emergencies, in

<sup>28</sup> CalFire, Fire and Resource Assessment Program, California Fire Hazard Severity Zone Viewer, Website: <https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414>. Accessed July 14, 2022.

<sup>29</sup> CalFire, Fire and Resource Assessment Program, California Fire Hazard Severity Zone Viewer, Website: <https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414>. Accessed July 14, 2022.

coordination with the County of Merced, if necessary. In addition, UC Merced would prepare (or update) safety planning documents in accordance with California Health and Safety Code Section 25517.5, as well as applicable laws, regulations, and Campus policies. The Campus would implement safety training programs upon occupying a new campus building to ensure efficient implementation of any emergency response plan. In addition, the farm coordinator would be responsible for preparing and implementing an emergency action plan for the Experimental Smart Farm. The plan would contain detailed procedures for occupants of the farm facilities and agricultural use areas to follow in the event of various emergencies and evacuations. The new facilities associated with the proposed project would be assigned a building safety coordinator who would address emergency planning and safety training for the occupants, employees, staff, and students. According to the 2020 LRDP SEIR, development of the campus, including the proposed project, would not impair implementation of or physically interfere with any emergency response plan or emergency evacuation plan, and this impact is considered less than significant. Therefore, no new impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*b. Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*

As discussed above, the UC Merced campus is not located in a designated SRA or LRA VHFHSZ. The proposed project is located on the southeast side of the campus and is located on land that is relatively flat. As the UC Merced campus is located on the floor of the Central Valley, smoke from nearby fires has the potential to accumulate in the valley dependent on the wind pattern and inversion layer associated with local weather events. The proposed project would be under and would comply with the Emergency Operations Plan and Crisis Communications Plan of UC Merced. The farm coordinator would prepare and implement an emergency response plan that would provide evacuation procedures in the event of a fire or wildfire in the area. The new farm facilities associated with the proposed project would be assigned a building safety coordinator who would address emergency planning and safety training for the occupants, employees, staff, and students. Finally, the proposed project would be designed to comply with the most current California Fire Code requirements and would include such features as fire sprinkler systems. Implementation of the proposed project would not exacerbate wildfire risks and thereby would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would be less than significant. Therefore, no new impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*c. Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

The proposed project includes the development of the proposed farm facilities and agricultural use areas. The proposed project would not include the development of new roads, fuel breaks, emergency water sources, power lines or other utilities that may exacerbate fire risk. Improvements to existing roads would be implemented, resulting in increased emergency access. During Phase 1,

the proposed farm facilities and agricultural use areas would connect to existing utilities that serve the UC Merced campus. Future phases would involve use of power from photovoltaic arrays on site. Utility connections during all phases would be designed according to the most up to date California Building Codes, including the California Fire Code to minimize fire risk. The proposed project would also be designed to incorporate fire protection features such as a sprinkler system, fire extinguisher stations throughout the facilities, smoke and heat detectors, fire alarm system with automatic voice evacuation capabilities, and fire-rated construction materials. Overall, impacts would be less than significant. Therefore, no new impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.

*d. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

The project site, similar to the majority of the UC Merced campus, is located on relatively flat land. The foothills of the Sierra Nevada Mountain range are located approximately 9.5 miles east of the project site (the nearest sloped topography to UC Merced and the project site); as such, the project site has a low susceptibility to downslope or downstream flooding or landslides as a result of runoff or post-fire slope instability. The 2020 LRDP SEIR indicates that the campus and project site are not prone to flooding pursuant to the Federal Emergency Management Administration (FEMA) Flood Insurance Rate Map (FIRM). Overall, implementation of the proposed project would not expose people or structure to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Impacts would be less than significant. Therefore, no new impacts would occur that have not already been addressed by the 2020 LRDP SEIR and 2009 EIS/EIR, and no additional mitigation would be required.



## 5.21 MANDATORY FINDINGS OF SIGNIFICANCE

Mandatory Findings of Significance	Impact Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR	Impact not Examined in 2020 LRDP SEIR and 2009 LRDP EIS/EIR		
		No Impact	Less than Significant Impact	Potentially Significant Impact
a. Does the project have the potential to substantially 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, substantially 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5.21.1 Impact Analysis

*a. Does the project have the potential to substantially 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, substantially 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?*

All applicable mitigation measures identified in the 2020 LRDP SEIR to avoid and reduce impacts are integrated into the proposed project and with the integration of these measures, the project would not substantially degrade the quality of the environment. Implementation of the project would have the potential to adversely impact California tiger salamander, western spadefoot, western pond turtle, burrowing owl, Swainson's hawk, tricolored blackbird, nesting birds, vernal pool fairy shrimp, vernal pool tadpole shrimp, and crotch bumble bee, and would also have the potential to adversely impact previously undiscovered cultural resources and/or human remains. With implementation of the **2020 LRDP Mitigation Measures** listed in **Section 6.0** of this Addendum, compliance with Merced County and University of California requirements, and application of standard practices, development of the project would not: (1) degrade the quality of the environment; (2) substantially reduce the habitat of fish or wildlife species; (3) cause a fish or wildlife population to drop below

self-sustaining levels; (4) threaten to eliminate a plant or animal community; (5) reduce the number or restrict the range of a rare or endangered plant or animal; or (6) eliminate an important example of a major period of California history. Project impacts for items (1)-(6) would be less than significant with the incorporation of **2020 LRDP Mitigation Measures**.

- 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)?*

The 2020 LRDP SEIR identified significant and unavoidable cumulative impacts to air quality (construction and operation), hydrology and water quality (groundwater supplies), and transportation/traffic (intersection level of service). As part of the 2020 LRDP SEIR development program, the proposed project would minimally contribute to some of these significant and unavoidable cumulative impacts, such as air quality and hydrology and water quality. However, the Project is within the scope of campus development and population evaluated in the 2020 LRDP SEIR, as noted in **Section 4.0** of this Addendum. These impacts were also addressed in the Findings and Statement of Overriding Considerations adopted by the Regents in connection with their approval of the 2020 LRDP. No conditions have changed, and no new information has become available since certification of the 2020 LRDP SEIR that would alter this previous analysis. No additional mitigation is available to reduce the project's contribution to these previously identified impacts.

- c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

As described in this Addendum, implementation of the project could result in impacts to aesthetics; air quality; biological resources; cultural resources; geology, soils, and seismicity; greenhouse gas emissions; hazardous materials and wastes; noise; and public services. Implementation of the **2020 LRDP Mitigation Measures** included in **Section 6.0**, compliance with Merced County and University of California regulations, and application of standard construction practices would ensure that the project would not result in environmental impacts that would cause substantial direct or indirect adverse impacts on human beings. Impacts would be less than significant with the incorporation of **2020 LRDP Mitigation Measures**.

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## 6.0 APPLICABLE 2020 LRDP SEIR MITIGATION MEASURES

The following mitigation measures that were adopted upon approval of the 2020 LRDP SEIR would be incorporated into the proposed Experimental Smart Farm Project.

### 6.1 AESTHETICS

**2020 LRDP MM AES-1b:** Where possible, major vehicular and pedestrian transportation corridors on the Campus shall be located and designed to provide views of the Sierra Nevada.

**2020 LRDP MM AES-3a:** The University shall design all new aboveground infrastructure on the Campus to the following standards: (a) Screen aboveground infrastructure from view from public rights-of-way or scenic vistas, via landscaping, fencing or other architectural screening; (b) Require creative design measures to camouflage structures by integrating them with existing buildings and among other existing uses; (c) Locate aboveground infrastructure on sites that are not visible from visually sensitive areas, such as residential communities and open space areas; (d) Require providers to co-locate their structure on a single site, where technically feasible and visually desirable; and (e) Locate antennae and equipment on other existing community facility sites, such as water tanks or utility poles.

### 6.2 AIR QUALITY

**2020 LRDP MM AQ-1a:** The construction contractors shall be required via contract specifications to use construction equipment rated by the U.S. EPA as meeting Tier 4 (model year 2008 or newer) emission limits for engines between 50 and 750 horsepower.

**2020 LRDP MM AQ-1b:** UC Merced shall include in all construction contracts the measures specified in SJVAPCD Regulation VIII (as it may be amended for application to all construction projects generally) to reduce fugitive dust impacts, including but not limited to the following:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions using application of water or by presoaking.
- When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least 6 inches of freeboard space from the top of the container shall be maintained.

- 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 visible dust emissions. Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, storage piles shall be effectively stabilized of fugitive dust emissions by using sufficient water or chemical stabilizer/ suppressant.

**2020 LRDP MM AQ-2a:** UC Merced shall implement the following measures to reduce emissions from vehicles:

- Provide pedestrian-enhancing infrastructure to encourage pedestrian activity and discourage vehicle use.
- Provide bicycle facilities to encourage bicycle use instead of driving, such as bicycle parking, bicycle lanes, bicycle lockers; and showers and changing facilities for employees.
- Provide preferential carpool and vanpool parking for non-residential uses.
- Provide transit-enhancing infrastructure to promote the use of public transportation, such as covered bus stops and information kiosks.
- Provide facilities, such as electric car charging stations and a CNG refueling station, to encourage the use of alternative-fuel vehicles.
- Improve traffic flows and congestion by timing of traffic signals at intersections adjacent to the campus to facilitate uninterrupted travel.
- Work with campus transit provider to replace CatTracks buses with either electric buses or buses operated on alternative fuels.
- Work with the City of Merced to establish park and ride lots and provide enhanced transit service between the park and ride lots and the campus.
- Replace campus fleet vehicles with electric vehicles or vehicles that operate on alternative fuels.
- Reduce the number of daily vehicle trips by providing more housing on campus.

**2020 LRDP MM AQ-2b:** UC Merced shall implement the following measures to reduce emissions from area and energy sources, as feasible:

- Utilize low-VOC cleaning supplies and low-VOC paints (100 grams/liter or less) in building maintenance.
- Utilize electric equipment for landscape maintenance.

- Plant low maintenance landscaping.
- Implement a public information program for resident students to minimize the use of personal consumer products that result in ROG emissions, including information on alternate products.
- Instead of natural gas water heaters, install solar water heating systems.

### 6.3 BIOLOGICAL RESOURCES

**2020 LRDP MM BIO-4:** Prior to any new development on previously undisturbed land, and as long as the species is considered a candidate endangered species or in the event that it becomes listed under the California Endangered Species Act, a qualified wildlife biologist shall conduct visual surveys of the development area during the flight season for the Crotch bumble bee (late February through late October). The following methodology shall apply unless the California Department of Fish and Wildlife (CDFW) releases species-specific survey protocol; in this case, CDFW's survey protocol shall apply.

Between two and four evenly spaced presence/absence surveys shall be conducted for the highest detection probability, which, at present time, is the greatest between early spring (late March/early April) and early summer (late June/July). Surveys shall take place when temperatures are above 60°F, preferably on sunny days with low wind speeds (e.g., less than 8 miles per hour) and at least 2 hours after sunrise and 3 hours before sunset. On warm days (e.g., over 85°F), bumble bees will be more active in the mornings and evenings. Surveyors shall conduct transect surveys focusing on detection of foraging bumble bees and underground nests using visual aids such as butterfly binoculars. Even if no Crotch bumble bees are observed, a pre-construction survey shall be conducted within 30 days prior to start of construction. If no Crotch bumble bees or potential Crotch bumble bees are detected during the presence/absence surveys and the pre-construction survey, no further mitigation is required.

If Crotch bumble bees or potential Crotch bumble bees are observed within the development area, a plan to protect Crotch bumble bee nests and individuals shall be developed and implemented in consultation with CDFW. The plan shall include, but not be limited to, the following measures:

- Specifications for construction timing and sequencing requirements (e.g., avoidance of raking, mowing, tilling, or other ground disturbance until late March to protect overwintering queens);
- Preconstruction surveys conducted within 30 days and consistent with any current available CDFW standards prior to the state of ground disturbing activities to identify active nests;
- Establishment of appropriate no-disturbance buffers for nest sites and construction monitoring by a qualified biologist to ensure compliance;
- Restrictions associated with construction practices, equipment, or materials that may harm bumble bees (e.g., avoidance of pesticides/herbicides, BMPs to minimize the spread of invasive plant species);



- Provisions to avoid Crotch bumble bees or potential Crotch bumble bees if observed away from a nest during project activity (e.g., ceasing of project activities until the animal has left the work area on its own volition); and
- Prescription of an appropriate restoration seed mix targeted for the Crotch bumble bee, including native plant species known to be visited by native bumble bee species and containing a mix of flowering plant species with continual floral availability through the entire active season of the Crotch bumble bee (March to October).

**2020 LRDP MM BIO-9a:** Avoid and minimize impacts on native birds protected under the MBTA, including listed species, fully protected species, special-status species of concern, and raptors and passerines.

- Limit ground disturbance activities to the non-breeding season and remove potential unoccupied breeding habitat during the non-breeding season if possible. If breeding season work is required, conduct take avoidance (tree, shrub, and ground) test surveys to identify and avoid active nests.
  - If feasible, UC Merced shall conduct all project-related activities including (but not limited to) tree and shrub removal, other vegetation clearing, grading, or other ground disturbing activities during the non-breeding season (typically between September 16 and February 14).
  - If activities are scheduled to occur during the breeding season (typically between February 15 through September 15), applicable CDFW and/or USFWS permit conditions in the permits issued to the University related to bird surveys must be followed. In addition, a UC Merced approved qualified avian biologist, with knowledge of the species to be surveyed, shall conduct focused nesting surveys within 15 days prior to the start of project or ground-disturbing activities and within the appropriate habitat. The qualified avian biologist shall determine the exact survey duration and location (typically 500 feet around the work area) based on the work conditions and shall take into account existing applicable CDFW or USFWS permit conditions.
  - If an unoccupied nest (without birds or eggs) of a non-listed of fully protected species (as determined by the qualified avian biologist) is found, the nest shall be removed under the direction of the qualified avian biologist.
  - If an active nest is located, a qualified avian biologist shall establish an appropriate no-disturbance buffer around the nest making sure that any buffer width required by the University's permit obligations is followed. A 500-foot buffer is recommended for listed or fully protected nesting birds (or another buffer determined in consultation with CDFW and/or USFWS), a 250-foot buffer around raptors, and a 75-foot buffer around passerines. If work activities cause or contribute to a bird being flushed from a nest, the buffer width shall be adjusted to avoid and minimize impacts to nesting birds.

- A qualified avian biologist shall monitor the nest site regularly during work activities to ensure that the nest site is not disturbed, the buffer is maintained and the success or failure of the nest is documented.
- If UC Merced elects to remove a nest tree, nest trees may only be removed after the qualified avian biologist has determined that the nests are unoccupied.
- If an active nest is causing a safety hazard, CDFW shall be contacted to determine if the nest can be removed.
- Minimize impacts to burrowing owl and compensate for habitat loss. CDFW (2012) recommends that take avoidance (preconstruction) surveys be conducted to locate active burrowing owl burrows in the construction work area and within an approximately 500-foot buffer zone around the construction area. A qualified avian biologist shall conduct take avoidance surveys for active burrows according to the CDFW's Staff Report on Burrowing Owl Mitigation (2012 Staff Report). Surveys shall be conducted no less than 14 days prior to initiating ground disturbance activities and surveillance surveys should be conducted as frequently as recommended in the 2012 Staff Report. If ground-disturbing activities are delayed or suspended for than 30 days after the take avoidance survey, the area shall be resurveyed. If no burrowing owls are detected, no further mitigation is required. If the active burrowing owls are detected, the following additional measures are required:
  - Project implementation shall seasonally and spatially avoid negative impacts and disturbances that could result in the take of burrowing owls, nest or eggs.
  - If burrowing owls and their habitat can be protected in place or adjacent to a construction site, buffer zones, visual screens or other measures shall be used to minimize disturbance impacts while project activities are occurring. To use these minimization measures, a qualified avian biologist shall determine the exact measures following the guidance described in the 2012 Staff Report.
  - If owls must be moved away from the project site during the nonbreeding season, passive relocation techniques (e.g., installing one- way doors at burrow entrances) shall be used instead of trapping, as described in CDFW guidelines. At least 1 week will be necessary to complete passive relocation and allow owls to acclimate to alternate burrows.
  - When destruction of occupied burrows is unavoidable during the nonbreeding season (September 1 to January 31), unsuitable burrows shall be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows) at a ratio of 2:1 on protected lands approved by the CDFW. Newly created burrows shall follow guidelines established by the CDFW.

**2020 LRDP MM BIO-9b:** Structures proposed under the 2020 LRDP shall incorporate bird-safe design practices (e.g., American Bird Conservancy's Bird-Friendly Building Design [2015] or San Francisco Planning Department's Standards for Bird-Safe Buildings [2011]) to minimize the potential

for bird-window collisions. Design elements, including but not limited to the following, shall be considered:

- Create building facades with “visual noise” via cladding or other design features that make it easier for birds to identify buildings and not mistake windows for open sky or trees.
- Incorporate windows that are not clear or reflective into the building or structure designs.
- Use windows that incorporate glass types such as UV-A or fritted glass and windows that incorporate UV-absorbing and UV-reflecting stripe.
- Use grid patterns on windows in locations with the highest potential for bird-window collisions (e.g., windows at the anticipated height of adjacent vegetation at maturity).
- Reduce the proportion of glass to other building materials in new construction.
- Avoid placement of bird-friendly attractants (i.e., vegetated roofs, water features, tall trees) near glass whenever possible.
- Install motion-sensitive lighting in any area visible from the exterior that automatically turn lights off during after-work hours.
- Prior to all individual project approvals, the UC Merced Physical and Environmental Planning Department shall review the final designs of the buildings and structures to ensure that appropriate bird safety designs have been effectively incorporated to reduce potential impacts to birds.

## 6.4 CULTURAL RESOURCES

**2020 LRDP MM CUL-2:** If buried cultural resources, such as chipped or ground stone, historic debris, building foundations, or non-human bone are inadvertently discovered during ground disturbing activities on the campus, work will stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures typically include development of avoidance strategies or mitigation of impacts through data recovery programs such as excavation or detailed documentation. If cultural resources are discovered during construction activities, the construction contractor and lead contractor compliance inspector will verify that work is halted until appropriate treatment measures are implemented in coordination with the USACE and UC Merced.

**2020 LRDP MM CUL-3:** If human remains of Native American origin are discovered during ground disturbing activities, the Campus and/or developer will comply with state laws relating to the disposition of Native American burials, which falls within the jurisdiction of the California Native American Heritage Commission (Public Resources Code Section 5097). If human remains are discovered or recognized in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner of Merced County has been informed and has determined that no

investigation of the cause of death is required; and if the remains are of Native American origin; the descendants from the deceased Native American have made a recommendation to the land owner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and associated grave goods as provided in Public Resources Code Section 5097.98; or the California Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the Commission.

**2020 LRDP MM CUL-4a:** Prior to project construction, construction personnel will be informed of the potential for encountering significant paleontological resources. All construction personnel will be informed of the need to stop work in the vicinity of a potential discovery until a qualified paleontologist has been provided the opportunity to assess the significance of the find and implement appropriate measures to protect or scientifically remove the find. Construction personnel will also be informed of the requirements that unauthorized collection resources are prohibited.

**2020 LRDP MM CUL-4b:** A qualified paleontologist will be intermittently present to inspect exposures of Merhten Formation, North Merced Gravels, and Riverbank Formation during construction operations to ensure that paleontological resources are not destroyed by project construction.

## 6.5 GEOLOGY, SOILS, AND SEISMICITY

**2020 LRDP MM GEO-2:** During project-specific building design, a site-specific geotechnical investigation shall be performed by a Certified Engineering Geologist or Licensed Geotechnical Engineer to assess detailed seismic, geologic, and soil conditions at each construction site. The study shall include an evaluation of liquefaction potential, slope stability, landslide potential, expansive and compressible soils, and other structural characteristics and shall identify specific geotechnical recommendations designed to mitigate for the site hazards. The geotechnical recommendations will be followed.

## 6.6 GREENHOUSE GAS EMISSIONS

**2020 LRDP MM GHG-1a:** UC Merced shall set a goal to reduce or control the increase in its GHG emissions such that the total emissions do not exceed 3,300 MT CO<sub>2e</sub>/year by the end of the year 2030. UC Merced shall monitor GHG emissions each year, monitor upcoming projects for their potential to increase the campus' GHG emissions, and implement project-specific and campus-wide GHG reduction measures to reduce the campus' GHG emissions in accordance with the 3,300 MT CO<sub>2e</sub>/year goal for 2030. In the event that adequate reduction is not achieved by these measures, UC Merced shall purchase renewable energy credits, or other verifiable GHG offsets to keep the net emissions at or below 3,300 MT CO<sub>2e</sub>/year.

**2020 LRDP MM GHG-1b:** UC Merced shall implement LRDP Mitigation Measures AQ-2a and -2b.

**2020 LRDP MM GHG-1c:** UC Merced shall periodically review new technologies that can be implemented to further reduce the campus' GHG emissions.

## 6.7 HAZARDS AND HAZARDOUS MATERIALS

**2020 LRDP MM HAZ-4:** In the event that non-permitted disposal sites, trash burn pits, wells, underground storage devices, or unknown hazardous materials are encountered during construction on the campus site, construction activities would cease until all contaminated areas are identified, and remediated or removed. This process of identification and remediation or removal would be coordinated with the Merced County Division of Environmental Health.

## 6.8 NOISE

**2020 LRDP MM NOI-3:** Prior to initiation of construction on a project that is within 500 feet of off-site residential receptors, UC Merced shall develop and implement a construction noise mitigation program for that project that includes but is not limited to the following:

- Construction activities within 500 feet of any residences shall be restricted to the hours of 7:00 AM and 6:00 PM on weekday and Saturdays with no construction on Sundays and holidays.
- All noise-producing project equipment and vehicles using internal combustion engines shall be equipped where appropriate with exhaust mufflers and air-inlet silencers in good operating condition that meet or exceed original factory specifications.
- Mobile or fixed “package” equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.
- All mobile or fixed noise-producing equipment used on the project that is regulated for noise output by local, state or federal agency shall comply with such regulation while engaged in project-related activities.
- Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where practicable.
- Material stockpiles, mobile equipment staging, construction vehicle parking, and maintenance areas shall be located as far as practicable from noise-sensitive land uses.
- Stationary noise sources such as generators or pumps shall be located away from noise sensitive land uses as feasible.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. No project related public address loudspeaker, two-way radio, or music systems shall be audible at any adjacent noise-sensitive receptor except for emergency use.
- The erection of temporary noise barriers shall be considered where project activity is unavoidably close to noise-sensitive receptors.
- The noisiest construction operations shall be scheduled to occur together to avoid continuing periods of the greatest annoyance, wherever possible.

- Construction vehicle trips shall be routed as far as practical from existing residential uses.
- The loudest campus construction activities, such as demolition, blasting, and pile driving, shall be scheduled during summer, Thanksgiving, winter, and spring breaks when fewer people would be disturbed by construction noise.
- Whenever possible, academic, administrative, and residential areas that will be subject to construction noise shall be informed a week before the start of each construction project.

**2020 LRDP MM NOI-4a:** UC Merced shall avoid impact pile driving where possible in vibration sensitive areas. Drilled piles or the use of vibratory pile driving will be used where geological conditions permit their use. For impact pile driving activities occurring within 50 feet of typical structures, limit groundborne vibration due to construction activities to 0.50 inch/second, ppv (limit of potential for damage to typical structures) in the vertical direction at sensitive receptors. Since in many cases the information available during the preliminary engineering phase would not be sufficient to define specific vibration mitigation measures, UC Merced shall describe and commit to a mitigation plan to minimize construction vibration damage using all feasible means available.

**2020 LRDP MM NOI-4b:** For construction adjacent to highly sensitive uses such as laboratories, UC Merced shall apply additional measures as feasible, including advance notice to occupants of sensitive facilities to ensure that precautions are taken in those facilities to protect ongoing activities from vibration effects.

## 6.9 PUBLIC SERVICES

**2020 LRDP MM PUB-6a:** UC Merced shall work with the County to avoid physical deterioration of existing facilities at Lake Yosemite Regional Park, and/or improve park facilities within the existing park site as necessitated by the increased uses associated with development of the campus.

**2020 LRDP MM PUB-6b:** UC Merced will pay its fair share of the cost of necessary improvements to the regional park. UC Merced's share of funding will be based on the percentage that on-campus residential population represents of the total population in eastern Merced County at the time that an improvement is implemented.

**2020 LRDP MM PUB-6c:** In recognition of the sensitive resources present on lands immediately adjacent to the regional park, all regional park improvement projects that are implemented by the County within 250 feet of the park's eastern boundary pursuant to LRDP Mitigation Measures PUB-6a and PUB-6b above, will implement mitigation measures to avoid and minimize indirect effects on biological resources.

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