



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105**

January 20, 2009

Ms. Nancy Haley  
U.S. Army Corps of Engineers  
Sacramento District  
1325 J Street, Room 1480  
Sacramento, CA 95814-2922

Subject: Draft Environmental Impact Statement for the University of California at Merced  
Campus and University Project in Merced (CEQ #20080451)

Dear Ms. Haley:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the University of California at Merced (UCM) Campus and University Project (Project) pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act. These comments were also prepared under the authority of, and in accordance with, the provisions of the Federal Guidelines (Guidelines) promulgated at 40 CFR 230 under Section 404(b)(1) of the Clean Water Act (CWA). We appreciate your office's accommodation of our request for additional time to submit our comments. Our detailed comments are enclosed.

Over the past several years, the EPA has coordinated with the Corps and UCM to reduce Project-related impacts to wetlands. Most recently, we have served as a cooperating agency during the development of the DEIS, and provided review and comments for select sections of the administrative DEIS. We appreciate having had the opportunity to coordinate with the Corps and UCM, and to reduce impacts to over 42 acres of wetlands through modification of the original Project footprint that was previously assessed in the withdrawn 2002 DEIS. We also recognize the effort of UCM to collaborate with other federal and state agencies as well as non-governmental organizations during the development of this DEIS. This level of coordination has contributed greatly to the Project and the document. We look forward to continuing this collaborative effort as the Project proceeds towards design and implementation. The EPA also acknowledges the sustainability policies of the 2009 Long Range Development Plan, especially policies intended to protect water and air quality, and promote reduced energy consumption, reduced solid waste production, and green building design.

Based on review of the DEIS we have rated the document EC-2, Environmental Concerns – Insufficient Information (see enclosed EPA Rating Definitions). While we appreciate the responses to our comments on the administrative DEIS, and recognize the efforts to reduce environmental impacts, we remain concerned with impacts to wetlands, groundwater supply, and air quality, and with the anticipated amount of greenhouse gas emissions. We are concerned with direct and indirect impacts to the clay playa, an EPA designated Aquatic Resource of National Importance, and we recommend UCM develop a joint strategy with Merced County to ensure long-term comprehensive protection of this resource. We also recommend UCM and the Corps ensure that the FEIS reflects the commitment to replace vernal pools and swale wetlands in-kind and to develop performance criteria for constructed and restored wetlands based on appropriate reference sites. We recommend the FEIS include an expanded discussion of cumulative impacts to wetlands, taking into account specific past and future projects in the Project vicinity, such as the proposed Yosemite Lake Estates Project. Coordination with the City of Merced to develop an aggressive water conservation program is recommended as a measure to reduce cumulative impacts to ground and surface water supplies.

In recognition of potential impacts on groundwater resources in the Merced Groundwater Basin, we recommend UCM include in the FEIS a discussion of measures that will be implemented to protect wells and surface water features that may be hydrologically connected to the groundwater basin. UCM should commit to long-term monitoring and adaptive management to ensure that adverse impacts are avoided. To further reduce Project water demands, we support the development of wastewater treatment facilities that would provide recycled water for appropriate uses such as irrigation and groundwater recharge. We recommend UCM commit to developing such a facility as a long-term water conservation measure.

To reduce significant impacts to air quality in the San Joaquin Valley Air Basin, the EPA recommends UCM adopt additional emission reduction strategies, especially for reactive organic gasses (ROG) and nitrogen oxides (NO<sub>x</sub>), which are known ozone precursors. We also recommend the FEIS quantify and report emission reduction measures for ROG, NO<sub>x</sub>, and particulate matter smaller than 10 microns (PM<sub>10</sub>). Low and zero emission vehicles are a suggested means to help reduce emissions from the public transportation fleet that would serve the Campus and University Community. The EPA also recommends UCM adopt the same greenhouse gas emission reduction commitments for the University Community as are described for the Campus, where appropriate.

We commend the efforts of UCM and the Corps to plan a contiguous supporting community for the Campus as an alternative to unplanned development. We understand that unplanned development could have greater environmental impacts; however we recommend continued efforts to identify appropriate infill locations for the Project that could accommodate satellite facilities in already developed areas and further reduce impacts at the Project site. We also recommend UCM commit to adopting all appropriate sustainability policies for the University Community, as have been developed for the Campus, and discuss in the FEIS how UCM would ensure they are implemented by University Community developers.

Finally, the EPA is concerned with growth inducing impacts from the proposed Project, and suggests a broader discussion of these impacts be included in the FIES. We recommend the FEIS clarify whether the University Community is capable of accommodating all induced growth effects or not, and include in the discussion of potential impacts the Yosemite Lake Estates Project, the areas adjacent to La Paloma Road, and the foothills east of the Project.

We appreciate the opportunity to review this DEIS and look forward to continued coordination with the Corps and UCM. When the FEIS is published, please send two copies to us at the address above (Mail Code: CED-2). If you have any questions, please contact me at 415-972-3521, or contact Paul Amato, the lead reviewer for this project. Paul can be reached at 415-972-3847 or [amato.paul@epa.gov](mailto:amato.paul@epa.gov).

Sincerely,

/s/

Kathleen M. Goforth, Manager  
Environmental Review Office

Enclosures: Summary of EPA Rating System  
EPA's Detailed Comments

cc: Mr. Brad Samuelson, UC Merced;  
Dr. Jeffrey R. Single, California Department of Fish and Game;  
Ms. Cay Goode, U.S. Fish and Wildlife Service;  
Mr. Dale Harvey, Central Valley Regional Water Quality Control Board;  
Robert Lewis, County of Merced Planning and Community Development

## **Biological Resources**

***We suggest the clay playa be placed in permanent conservation in order to protect this unique aquatic resource.*** For several years, the EPA has worked with the University of California at Merced (UCM), Merced County, the United States Army Corps of Engineers (Corps), and other federal and state agencies to ensure direct, indirect, and secondary impacts to waters are avoided to the maximum extent practicable, in compliance with the Clean Water Act Section 404(b)(1) Guidelines (Guidelines). Of particular concern to the EPA is the clay playa located between the proposed Campus and Lake Yosemite. The EPA has identified this clay playa area as an Aquatic Resource of National Importance. In several meetings with UCM and Merced County, we discussed protection of this special aquatic site since direct or indirect impacts may result in significant degradation. The Guidelines prohibit granting a permit for a project that causes or contributes to significant degradation of aquatic resources (40 CFR 230.10(c)). The EPA believes the highest and best use of this area is conservation of this special aquatic site and preservation of the viewshed that UCM considered a unique attribute during the siting of the campus. The EPA will continue to object to any project that directly or indirectly impacts the clay playa and associated wetlands.

Mitigation measure PUB-6D, which recognizes the sensitivity of the resources present on lands adjacent to Lake Yosemite, is an appropriate step to address potential indirect impacts from regional development induced by the development of the Project. However, until a comprehensive management strategy is in place to ensure protection of the clay playa area, the ecological functions of this area will be vulnerable to degradation.

### ***Recommendation:***

We encourage UCM and Merced County to develop a joint management plan to ensure long term comprehensive protection of these resources. If development of a joint strategy proves infeasible, UCM should examine its policies and management tools to determine what further protections it can provide for the clay playa area. Similarly, EPA will seek to engage Merced County in development of protections for the clay playa that recognize and conserve its unique functions.

***The FEIS should clarify that the Project would replace vernal pools and swale wetlands in-kind.*** The construction of the Campus and Campus Community would result in impacts to 85.05 acres of wetlands. The Compensatory Wetland Mitigation and Monitoring Plan (CWMMP) proposes to compensate for the loss of vernal pools and swale wetlands, in part, with a 1:1 replacement ratio along with an adequate margin of error. Page 5-9 states, "Out-of-kind wetland restoration and/or creation may also be preferable if there is insufficient or inadequate land available to satisfy the requirements to successfully restore or create certain types of wetlands." In previous discussions with the EPA, UCM has already committed to providing in-kind mitigation for vernal pools and swale wetlands, and the FEIS and CWMMP language should reflect this.

*Recommendation:*

The Corps and UCM should modify the CWMMP, and write the FEIS, to reflect the commitment to replace vernal pools and swale wetlands in-kind. This should also be a special condition of the Corps' Clean Water Act Section 404 permit for the Project.

***Performance standards for created mitigation wetlands should be based on appropriate reference sites.*** The CWMMP provides performance standards for constructed and restored wetlands (p 6-1 and 2). To achieve a 1:1 replacement of lost wetland area, certain criteria must be satisfied by constructed and restored mitigation wetlands. The CWMMP includes standards such as, "The plant community within the constructed/restored wetlands must be dominated by species with a wetland indicator status of Facultative, Facultative Wetland, or Obligate (Reed 1998)." EPA does not believe that performance standards such as this will result in the establishment of wetlands with the same functional capacity as those impacted by the proposed Project.

*Recommendation:*

The FEIS should commit to the establishment of performance criteria based on wetlands located within appropriate reference sites. EPA is available to assist UCM and the Corps in the development of appropriate performance standards for compensatory mitigation.

For questions regarding wetland issues, please contact Elizabeth Goldmann, EPA Water Division, at (415) 972-3398, or by email at [Goldmann.elizabeth@epa.gov](mailto:Goldmann.elizabeth@epa.gov).

### **Cumulative Impacts**

***The FEIS should include an expanded discussion of how the Project would contribute to cumulative impacts to vernal pools and other aquatic resources.*** The DEIS considers cumulative impacts in the context of the City of Merced General Plan (MCGP) instead of discussing specific projects as they relate to cumulative impacts. For example, there is no mention of the proposed Yosemite Lake Estates Project, west of Lake Yosemite, that could result in fill of 21.6 to 39.1 acres of wetlands, if approved. Given the severity of wetland impacts in eastern Merced County, UCM and the Corps should discuss the cumulative impacts of the proposed Project, in addition to potential impacts of Yosemite Estates, and other development projects, past and future. The discussion in the DEIS does not currently provide enough information to describe how development trends in the Project vicinity have resulted in fill of wetlands and continue to threaten these resources.

*Recommendation:*

The FEIS should provide more specific information on past and proposed wetlands fill in the Project vicinity. Specific developments like Yosemite Lake Estates should be considered.

***UCM should commit to working with the City of Merced to implement an aggressive water conservation program.*** The DEIS states that, based on projections, the estimated increased water demand for 2030 is, at a minimum, 350 percent greater than 2005 levels in the City of

Merced sphere of influence (p. 5.0-35). This would result in increased groundwater pumping, and associated environmental and economic consequences. Regional growth, including the Project, would result in a significant cumulative impact to groundwater. Mitigation measure HYD-3b suggests the City implement an aggressive water conservation program. While the EPA agrees with the development of aggressive water conservation measures, we are concerned with the adequacy of the specific mitigation measure since it proposes an action that is beyond the control of UCM.

*Recommendation:*

In addition to the policies described in the DEIS, that are applicable to Project water conservation, UCM should commit in the FEIS to working with the City of Merced towards the development of a water conservation program that would reduce significant cumulative impacts to groundwater and surface water supplies. Timelines for developing such a plan should be included.

### **Growth Inducing Impacts**

***The FEIS should include additional information on growth inducing impacts, especially to vernal pools and other aquatic resources.*** The EPA is concerned with the level of impacts that are likely to occur due to induced growth from the Project, particularly to vernal pools and other aquatic resources. The DEIS states that the University Community "...would capture the entire indirect and induced growth effects of UC Merced" and that "...the University Community would be considered "growth accommodating" as a result (p. 6.0-5). The section on induced growth also suggests that the induced employee population that cannot be accommodated by the University Community would find housing and services that are already built or planned for future development. This appears to be a contradiction that should be clarified in the FEIS. We are particularly concerned with the potential impacts from the planned Yosemite Lake Estates Project, mentioned above, and a lack of discussion of potential development that could occur adjacent to La Paloma Road and in the foothills east of the Campus.

Based on the January 2009 Summary Report for the Yosemite Lake Estates Project, "The project is intended to meet the need for additional housing based on recent growth trends in Merced County, particularly growth induced by the nearby UC Merced campus. The nearby UC Merced campus is estimated to generate approximately 42,000 new residents at build-out (2030), which creates a substantial need for off campus housing." This project proposes approximately 1,400 new homes, a school and commercial development on a 730 acres site. These induced growth effects, and the 21.6 to 39.1 acres of wetland impacts that could occur as a result, have not been considered in the DEIS. We also note the absence of any discussion of the April 2003 Kondolf and Foster Report<sup>1</sup> that found vernal pools surrounding the Campus for 1 to 2 miles to be particularly vulnerable to urban growth, and the high concentrations to the west of the Campus, adjacent to La Paloma Road, to be distinctive to east Merced County. The authors also concluded that "...steps should be taken to protect those vernal pool areas likely to be impacted by leap-frogging development to the west (La Paloma Road) and east (Black Rascal Creek)."

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<sup>1</sup> EPA funded the April 2003 report, *Anticipating and Accommodating Land-Use Changes in Northeastern San Joaquin Valley: Options for Conserving Wetlands and Other Natural Communities Within the Valley Floor and Foothill Eco-Regions*, by Professor Mathias Kondolf and Howard Foster, Ph.D.

*Recommendations:*

The FEIS should clarify whether the University Community is growth accommodating and capable of capturing all induced growth effects of UC Merced.

Induced growth impacts that would result from the Project should be should be the subject of an expanded discussion in the FEIS. Special consideration should be given to development west of Yosemite Lake (Yosemite Lake Estates Project) and the areas adjacent to La Paloma Road and in the foothills east of the campus.

## **Hydrology and Water Quality**

***The FEIS should discuss environmental commitments that will prevent a negative impact on groundwater and connected surface water features.*** As stated in the DEIS, the Merced groundwater basin has been operating under overdraft conditions for many years due to limited surface water supplies and the amount of pumping exceeding recharge (p. 4.8-9). Consequently, the average water level in the subbasin has declined an estimated 30 feet over the past several years. This decline has been attributed to population growth and urban expansion, and increased groundwater demands from farmers. The groundwater study conducted for the Project concluded that campus and campus community water demand could result in an additional decline of the local water table by 25 to 35 feet over a 100 year period. Various efforts are cited that are intended to protect the Merced Groundwater Basin, including UCM's own 2009 Long Range Development Plan (LRDP), but it is not clear that the Project would not have a negative impact on groundwater supply for local wells or surface water features that may depend on the local groundwater sources. Further discussion of the relationship between groundwater and surface water features should be included in the FEIS.

*Recommendation:*

The FEIS should discuss environmental commitments that UCM will implement to ensure that groundwater demand from the Project will not reduce water levels and negatively affect local water supply and surface water features that may rely on groundwater sources. Long-term monitoring and adaptive management should also be discussed, including monitoring of groundwater levels, and whether it would be appropriate to monitor local surface water bodies, such as Black Rascal, Cottonwood, and Bear Creeks, that may be negatively affected by declining groundwater levels.

***The EPA strongly encourages UCM to plan and develop alternative wastewater treatment facilities in order to increase water conservation.*** Section 2.0, Project Description, discusses the potential consideration of alternative wastewater treatment and disposal methods in the event that the campus and supporting community are not annexed by the City of Merced and serviced by municipal wastewater treatment facilities. In this situation, UCM would explore construction of a tertiary treatment facility that would pump effluent for irrigation of nearby agricultural fields or to be used for Project irrigation and recharge of the local aquifer. The DEIS also describes modular small-scale treatment systems and a zero liquid discharge system that would eliminate the need to discharge to land or surface waters. The EPA supports the development of on-site wastewater treatment and recycling to reduce demands on local groundwater and surface water supply.

*Recommendation:*

UCM should commit in the FEIS to including on-site wastewater treatment and recycling as part of the proposed Project and as a ground and surface water conservation measure.

## **Air Quality**

The discussion of combined yearly Campus and Campus Community construction emission estimates (p. 4.3-42) states that NO<sub>x</sub> would exceed thresholds from 2010 to 2020, while Table 4.3-9 shows this exceedance would occur from 2010 to 2029. The FEIS should be updated to correctly reflect NO<sub>x</sub> emissions from construction. The DEIS also states that particulate matter less than 10 microns (PM<sub>10</sub>) is designated Nonattainment by EPA for the San Joaquin Valley Air Basin (Basin) when it has been reclassified as Maintenance.

***Additional construction emissions reduction measures should be adopted.*** The DEIS states that after mitigation, construction-related emissions would result in significant and unavoidable impacts to levels of reactive organic gasses (ROG) and nitrogen oxides (NO<sub>x</sub>). As stated in the document, the EPA has rated the Basin as serious nonattainment for 8-hour ozone. ROG and NO<sub>x</sub> are both ozone precursors and should be reduced to the maximum extent practicable, beyond emission reductions from Mitigation Measure AQ-1c. We note that the EPA is currently reviewing the San Joaquin Valley Air Pollution Control District (SJVAPCD) request to designate the Basin Extreme for 8-hour ozone.

*Recommendation:*

The FEIS should commit to additional construction emission reduction measures, such as requiring contractors to comply with EPA engine standards, use of California Air Resources Board (CARB) certified Level 3 diesel emissions control devices, and limiting idling time to 5 minutes. The EPA recommends UCM coordinate with the SJVAPCD to identify all feasible construction emission reduction measures.

***Quantifiable emissions reduction measures should be identified and their results reported in the FEIS.*** Based on Table 4.3.13, campus and community operations would result in emissions that exceed SJVAPCD significance thresholds for ROG, NO<sub>x</sub>, and particulate matter smaller than 10 microns (PM<sub>10</sub>). Specifically, ROG emissions would be 245.3 tons per year (threshold = 10 tons/yr), NO<sub>x</sub> emissions would be 118.6 tons per year (threshold = 10 tons/yr), and PM<sub>10</sub> would be 123.14 tons per year (threshold = 15 tons/yr but should be revised to 100 tons/yr based on the Maintenance classification). UCM and the Corps provide mitigation measures, but their effectiveness has not been quantified. Given the Basin is designated Serious Nonattainment, and under review for Extreme Nonattainment designation, for 8-hr ozone, and Maintenance for PM<sub>10</sub>, the FEIS should provide additional mitigation measures and quantify their effectiveness towards reducing annual emissions of these criteria pollutants.

*Recommendation:*

The FEIS should commit to additional mitigation measures to reduce operational emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub>. Mitigation effectiveness should be quantified and reported.



## **Transportation and Traffic**

***Public transit serving the campus and campus communities should use low or zero emission vehicles.*** UCM has committed to implementing a range of Travel Demand Management (TDM) measures to reduce on- and off-campus vehicle trips, including increased transit and shuttle service. The EPA supports increased public transportation services to reduce congestion and encourages UCM to commit to using low and zero emission vehicles to also avoid increased air pollution in the Basin.

### ***Recommendation:***

The FEIS should discuss the benefits of using low and zero emission vehicles for public transportation and commit to maximizing their use in the expansion of the public transportation fleet that would service the Project.

## **Climate Change**

***UCM should discuss the potential to increase greenhouse gas reduction measures for the University Community.*** The DEIS section on global climate change includes an inventory of annual greenhouse gas emissions from construction and operation of the Campus and the University Community. According to this discussion, operation of the Campus would account for approximately 151,515 metric tons carbon dioxide equivalent (CO<sub>2</sub>E) per year and the University Community would account for approximately 300,789 metric tons CO<sub>2</sub>E per year. Based on the estimated total of 452,303 metric tons CO<sub>2</sub>E emissions per year, the Project would result in emissions equivalent to 275,552 additional cars on the road per year, of which 183,247 could be attributed to the University Community.<sup>2</sup>

Several mitigation measures are described that would reduce emissions of greenhouse gasses from the Project. Table 4.16-9 and Table 4.16-11 include several mitigation measures recommended by the California State Attorney General's Office and the Office of Planning and Research (OPR), respectively. Many of these measures are included or planned for the Campus, while many are not for the University Community. Measures such as GCC-1-5, "Install energy efficient heating and cooling systems, appliances and equipment" and GCC-1-6, "Use LED lights for outdoor lighting" and GCC-1-34, "Use low or zero-emission vehicles" are among several measures that would be appropriate for the Campus Community.

### ***Recommendation:***

The FEIS should consider implementing additional commitments to reduce greenhouse gasses as part of the construction and operations of the University Community. OPR recommendations that are already included as environmental commitments for the Campus should be considered for the University Community as well. Measures to offset greenhouse gas emissions that cannot be eliminated should also be considered

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<sup>2</sup> Based on the EPA Greenhouse Gas Equivalencies Calculator found at <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>

## **Alternatives**

***Infill opportunities should be considered throughout the design and construction of the campus.*** UCM and the Corps should continue to pursue all viable infill opportunities as Project planning and development proceeds. The EPA recommended the inclusion of an infill alternative, during discussions leading up to the DEIS, in order to assess whether it was possible to locate some facilities off site and further avoid fill of aquatic resources in the Project footprint. We appreciate the discussion in Section 3.0, Alternatives, examining infill as a way to meet some of the campus facility requirements; however we disagree with the approach taken. As we have previously discussed, the infill alternative discussed in the DEIS does not meet the EPA's intent to identify feasible infill opportunities, and instead removes 266 acres of proposed Campus and 66 acres of Community North to avoid high quality, intact vernal pool complexes. As a result, relocating this significant amount of acreage for infill would substantially increase project costs and would not meet the goal of a contiguous campus and supporting community, thus making this infill alternative impracticable to UCM and the Corps.

*Recommendation:*

UCM and the Corps should continue to assess whether there are appropriate infill opportunities in the City of Merced that could accommodate satellite facilities and services off-site and further reduce the Project footprint and impacts to high quality aquatic resources.

***Strong sustainability practices should be adopted for the supporting community, similar to those identified for the campus.*** The EPA supports UCM's commitment to creating and maintaining a campus using sustainable practices and we suggest the adoption of similar practices for the design and construction of the Campus Community. Twelve sustainability policies from the LRDP are provided as commitments for the Campus. These policies are intended to address green building practices to promote energy and water use efficiency, planting of native vegetation, and protection of water quality. We also support the adoption of goals to reduce solid waste and energy consumption and the plans too install a solar panel facility and low impact development (LID) features. While we recognize that UCM may have more control over integrating and maintaining these policies into the Campus than the Campus Community, we consider implementing them in the Campus Community, where applicable, to be an important environmental commitment to reduce direct and indirect environmental impacts.

*Recommendation:*

The FEIS should commit to adopting Campus sustainability policies and goals for the Campus Community, where applicable. UCM should determine, and discuss in the FEIS, whether there is a legal instrument that would ensure developers of the proposed Campus Community implement these policies as part of design and construction.