J1

Office of the President

TO THE MEMBERS OF THE COMMITTEES ON GROUNDS AND BUILDINGS AND FINANCE:

ACTION ITEM

For Meeting of July 21, 2016

AMENDMENT OF THE BUDGET, AMENDMENT OF THE SCOPE, APPROVAL OF REVISION OF THE COMMERCIAL TERMS OF THE PROJECT AGREEMENT AND RELATED ACTIONS, APPROVAL OF EXTERNAL FINANCING, AMENDMENT OF THE LONG RANGE DEVELOPMENT PLAN, AND APPROVAL OF DESIGN FOLLOWING ACTION PURSUANT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, 2020 PROJECT, MERCED CAMPUS

EXECUTIVE SUMMARY

The goal of the 2020 Project is to build, operate, and maintain the infrastructure and capital facilities needed to accommodate UC Merced's enrollment growth to approximately 10,000 students. After the Regents approved the budget, commercial terms, and major elements of the delivery model in November 2015, UC Merced released a Request for Proposals (RFP). The two proposals received in April 2016 contained financial bids that exceeded the maximum availability payment (the "upset limit") for the project, and the campus requested revised proposals.

The revised RFP changed technical requirements that were determined to exceed campus needs, consolidated use of space to gain efficiencies, and adjusted the financial structure to reduce capitalized financing costs. None of the changes affected the overall nature of the 2020 Project, or the ability of the campus to accommodate 10,000 students after its completion.

Under a "best and final offer" process, the winning bidder for the 2020 Project, Plenary Properties Merced (PPM – the "Developer") produced a compact, environmentally sensitive design, with creative application of mixed-use environments and buildings intended for multiple uses. Construction would take place adjacent to the existing campus, providing new academic, research, residential, support, and infrastructure facilities in an adaptable, multi-building, joint-use physical environment that can accommodate programs emanating from UC Merced's academic plan. The bid was awarded in June 2016. Pending further action by the Regents, the campus anticipates that the Project Agreement will be executed in August 2016.

As a result of changes made during the RFP process – including the project scope, increased funding by the Developer for capital costs, and changes in commercial terms – the revised

overall budget of $1,338.48 million for capital costs is $195.63 million higher than the budget of $1,142.85 million approved by the Regents in November 2015. The Developer will be funding this cost increase by allocating $204.59 million more of its own resources to design and construction, with less funding allocated to financing. The campus will reduce the campus funds allocated to this project by $8.96 million. The amount of University financing remains unchanged. A budget amendment conforming to this increase is requested.

The scope of construction has decreased from 918,000 assignable square feet to approximately 790,000 assignable square feet. The revised scope of the 2020 Project encompasses efficient space utilization that blends well with the existing campus, facilitates UC Merced's emphasis on interdisciplinary learning and research, and provides flexibility for future changes in building usage. In reducing the assignable square footage, the campus was able to eliminate space when it found better solutions to design challenges and resource limitations. For example, rather than include a new public safety building in the plan, the campus decided to renovate existing facilities and to distribute public safety officers throughout other buildings.

Importantly, these changes have not impacted the campus's commitment to its sustainability goals. All buildings delivered as part of the Project will achieve at least a LEED Gold certification.

The Regents are being asked to: (1) amend the project budget; (2) amend the project scope; (3) amend the commercial terms of the Project Agreement; (4) approve external financing; (5) amend the Long Range Development Plan; (6) certify the environmental documentation under the California Environmental Quality Act; and (7) approve the design of the 2020 Project.

RECOMMENDATION

1. The President of the University recommends that the Committees on Grounds and Buildings and Finance recommend to the Regents that:

   A. The 2016-17 Budget for Capital Improvements and the Capital Improvement Program be amended to include the following project:

      From: Merced, 2020 Project (2020 Project) –$1,142,850,000 to be funded from external financing ($600 million), Developer funding ($385.76 million), and campus funds ($157.09 million).

      To: Merced, 2020 Project (2020 Project) – $1,338,480,000 to be funded from external financing ($600 million), Developer funding ($590.35 million), and campus funds ($148.13 million).

   B. The project scope of the 2020 Project be amended as follows:

From: Construction of approximately 918,900 assignable square feet of academic, administrative, research, recreational, undergraduate and graduate residence, staff/faculty residence, and student services buildings, as well as infrastructure, outdoor recreation facilities and open space, landscaping, roadways, and parking.

To: Construction of approximately 789,892 assignable square feet of academic, administrative, research, recreational, undergraduate residence, staff/faculty residence, and student services buildings, as well as infrastructure, outdoor recreation facilities and open space, landscaping, roadways, and parking.

C. The revised commercial terms of the 2020 Project Agreement be approved as summarized in Attachment 5.

D. The President be authorized to obtain external financing supported by the general revenues of the Merced campus in an amount not to exceed $550 million (financing to be issued), plus related financing costs. The President be authorized to utilize already obtained external financing in an amount not to exceed $50 million (previously issued Century Bonds). The President shall require that:

(1) Interest only, based on the amount drawn down, shall be paid on the outstanding balance during the construction period.

(2) For the $200 million associated with non-State supportable space, as long as the debt is outstanding, the general revenues of the Merced campus shall be maintained in amounts sufficient to pay the debt service and to meet the requirements of the authorized financing.

(3) For the $400 million associated with State supportable space, the primary source of repayment for the external financing shall be from State General Fund appropriations, pursuant to the Education Code section 92495 et seq. Should State General Fund appropriation funds not be available, the President shall have the authority to use any legally available funds to make debt service payments.

(4) The general credit of the Regents shall not be pledged.

2. The President of the University recommends that, following review and consideration of the environmental consequences of the proposed 2020 Project, as required by the California Environmental Quality Act (CEQA), including any written information addressing this item received by the Office of the Secretary and Chief of Staff no less than 24 hours in advance of the beginning of this Regents meeting, testimony or written

materials presented to the Regents during the scheduled public comment period, and the item presentation, the Committee on Grounds and Buildings:

A. Determine that the environmental consequences of proposed Long Range Development Plan (LRDP) Amendment are adequately analyzed in the certified 2009 LRDP Environmental Impact Report as updated in Addenda #6 and #7.

B. Having reviewed and considered the UC Merced 2009 LRDP Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) and Addendum #7 thereto, adopt the attached CEQA Findings.

C. Amend the 2009 LRDP to re-designate 27.55 acres as Campus Mixed Use, amend the boundaries of the 2020 Project Site, and make other conforming changes to the 2009 LRDP.

D. Approve the design of the 2020 Project, Merced Campus.

BACKGROUND

Current Proposal

The Merced 2020 Project (Project) would be to cost-effectively build, operate, and maintain 789,892 assignable square feet (ASF) of critically needed facilities by 2020. This will provide the campus with the physical capacity to accommodate enrollment growth to 10,000 students, as called for in the campus's Long Range Development Plan (LRDP) adopted by the Regents in 2009. Among the 2020 Project's key advantages is the ability to deliver facilities efficiently, nearly twice as quickly as capital projects of this magnitude under a traditional delivery. The Project also includes phasing the delivery of facilities, including providing 161,035 ASF by fall 2018 (first delivery facilities), 150,820 ASF by fall 2019 (second delivery facilities), and the remaining 478,037 ASF in fall 2020 (substantial completion). Attachment 3 provides an overview of the types of facilities, their associated square footage, and projected delivery date.

November 2015 Regents' Action

In November 2015, the Regents: (1) approved the budget for $1,142.85 million in capital costs; (2) approved the scope to be a minimum of 918,900 ASF of academic and residential space; (3) determined that procuring the Project under a Design-Build-Finance-Operate-Maintain (DBFOM) transaction structure is in the best interests of the University; (4) approved the commercial terms of a proposed Project Agreement; and (5) authorized the release of a Request for Proposals (RFP) to a short list of development teams previously qualified and selected through the procurement process.

Progress Subsequent to the November 2015 Action

The RFP was released in January 2016 and the Merced campus received two proposals in April 2016. The proposals were evaluated in accordance with the published standards set forth in the Instructions to Proposers. The technical elements of the proposals were found to comply with the requirements of the RFP, but the proposals could not provide the Regents' approved minimum scope within the Regents' approved budget.

After evaluation of the proposals, the University determined to proceed with a "best and final offer" process. Pursuant to procedures set forth in a Revised RFP, the campus established a competitive range for proposals that had a reasonable chance of award based on the scores determined in the evaluation process.

After discussion with the Developer whose proposal fell within the competitive range, the campus modified certain technical requirements that were determined to be in excess of campus needs, consolidated space to gain efficiencies while still maintaining the academic mission, eliminated certain types of program space, and adjusted the financial structure to reduce cost. The resulting changes to the Project Agreement do not affect the overall goal of the Project, which is to enable the campus accommodate 10,000 students by the year 2020.

In May 2016, the campus requested a best and final offer from the Developer whose proposal was determined to fall within the competitive range and received a bid below the upset limit. On this basis, the successful Developer was selected in June 2016.

Early Works Agreement and Project Agreement

The Early Works Agreement, referred to as an Interim Services Agreement in the November 2015 Regents' item, allows the Developer to start preliminary design and early construction work prior to the execution of the Project Agreement and financial close.

The Early Works Agreement compensates the Developer for the following: completing the master planning documents; producing the design for the first delivery facilities, and schematic design for the second delivery facilities; mobilizing construction trailers and equipment to the site; conducting early grading and earthwork; and installing temporary utilities.

In May 2016, the campus received approval, via an interim Regents' action item, to change the amount and fund source for the Early Works Agreement from those described in the background section of the November 2015 Regents' item. The November 2015 item stated the cost would not exceed $25 million and would be completely funded with campus funds. The campus requested an additional $10 million to accommodate early advancement of grading and earthwork needed in order to maintain schedule, and to use a portion of the proceeds from a previously issued Century Bond in lieu of campus funds. Using proceeds from the Century Bond allowed campus funds to be available for other campus needs.

In June 2016, immediately following selection of the Developer, the campus entered into an Early Works Agreement. The Developer will reimburse the campus the full amount of $35 million once the Project Agreement is executed. If the Project Agreement is not executed, the Developer would keep the funds, with all work completed under the Early Works Agreement remaining as property of the campus. Activities identified in the Early Works Agreement will be authorized through multiple notices to proceed to ensure that ground-disturbing activities would not commence until the Regents make a determination pursuant to the California Environmental Quality Act (CEQA), to be considered in this action.

The campus anticipates that the Project Agreement will be executed in August 2016.

REQUESTED ACTIONS

Amendment of Budget

The University's ability to afford the project was determined based on a holistic long-range financial model. The model included an estimate of design and construction costs as well as preventative maintenance lifecycle costs.

The approved project budget is $1,142.85 million. Of that amount: (i) $600 million was anticipated to be from University external financing, with $400 million of that financing supported by State General Funds pursuant to the Education Code section 92495 et seq.; (ii) $385.76 million anticipated from Developer funding, of which $127.3 million will be supported by State General Funds as allowed under Senate Bill 81 (2015); and (iii) $157.09 million anticipated from campus funds.

The Developer has opted to allocate significantly more of its own resources, for a total of $590.35 million, to design and construction than originally anticipated, with fewer dollars required for financing. This strategy reflects the Developer's ability to drive its financing costs lower.

A budget amendment is proposed to reflect only this increased investment by the Developer. This does not impact the campus' overall ability to afford the project as envisioned by the long-range financial model. The annual cash flow requirement to fulfill all of the 2020 Project's obligations – including operations and maintenance of major building systems – was estimated to be $105 million. Within that model, a maximum availability payment threshold – or upset limit – of $51 million per year was set to ensure the project would be affordable and to establish a benchmark within the project budget. The financial bid submitted by the Developer resulted in the Project's availability payments falling below the $51 million per year upset limit.

The amended project budget is $1,338.48 million. Of that amount: (i) $600 million is anticipated to be from University external financing, with $400 million of that financing supported by State General Funds under the Assembly Bill 94 funding mechanism; (ii) $590.35 million is anticipated from Developer funding, of which $127.3 million will be supported by State General

Funds as allowed under Senate Bill 81 (2015); and (iii) $148.13 million is anticipated from campus funds. For a breakdown of all fund sources, and the associated annualized costs, refer to Attachment 6.

Payment Structure as Approved in November 2015

The base case plan of finance for the Project has been modeled as a hybrid version of an availability-payment DBFOM contract. As envisioned in the base case, the campus would borrow $600 million of the total project construction cost using a combination of University-financed General Revenue and Limited Project Revenue Bonds. As stated in the November 2015 Regents' item, this financing would be used to make milestone payments under the Project Agreement. In addition to the milestone payments, the campus would contribute approximately $160 million of its resources. The Developer would be responsible for the remaining design and construction costs.

The Developer's financing would be repaid over time through availability payments. The campus' requirement to make availability payments would be an unsecured contractual obligation of The Regents under the Project Agreement.

Update of Payment Structure, 100 Percent Payment and Performance Bonds Required

Originally, and as discussed at the November 2015 Regents meeting, the three Milestone Payments from the University to the Developer were to take place in 2017, 2018, and 2019; and a Final Acceptance Payment was to be made upon substantial completion in 2020.

Under the revised structure, the Milestone Payments and the Final Acceptance Payment are replaced by Monthly Progress Payments in an amount equal to approximately 50 percent of the Design and Construction work completed, up to an aggregate amount of $585 million. In addition, the University would provide for an allowance of up to $15 million to fund improvements to the Central Plant and for certain information technology equipment.

- The University's payments will not commence until at least $150 million in Design and Construction work has been completed. This is an increase from the previous $100 million threshold, albeit the previous $100 million was associated with actual construction of first delivery facilities.
- The progress payments will be disbursed on a pro rata basis, proportional to the amount of work completed, as determined by the Lenders' Technical Advisor.
- In addition, the contractor will be required to post a payment and performance bond for 100 percent of construction costs. This is an increase from the previous $600 million performance bond.

This transition from Milestone Payments to Monthly Progress Payments is a temporal revision that will smooth out the payment structure during construction in a manner that enables the Developer to eliminate short-term debt but still ensures that the Developer retains risk

throughout construction. During construction, the Developer will have almost the same amount of capital at risk at every single point, as originally envisioned. Similar to the structure outlined in the Milestone Payment structure, the Monthly Progress Payment structure retains a similar implicit contingency and accountability against contractor default or failure to pay subcontractors or suppliers. The result of this effective retention is that it allows the University to offset losses, if they were to occur, before payment to the contractor, as opposed to trying to recover losses afterwards.

Under this plan, the University anticipates, depending on market access, that it would finance the Monthly Progress Payments from the University's commercial paper program. In order to manage the capacity of the commercial paper program, the commercial paper would be refinanced into long-term General Revenue Bonds and/or Limited Project Revenue Bonds as needed, depending on market conditions.

One of the key elements of this Project has been to delineate clearly who bears risk, between the campus and the Developer, at various stages during the construction and operations of the Project. The 2020 Project approach is designed to minimize the University's financial exposure at the most vulnerable points during the construction process, protect the system's ability to meet its other financial obligations, and incentivize high-quality performance.

Amendment of the Scope

The RFP was released to the competing teams based on a program consisting of 918,900 ASF that was designed to further the campus' academic goals, to meet a fixed delivery schedule, and to maximize the amount of potential facilities that could accommodate 10,000 students. The program for the RFP was developed based on the aggregate total of individual program area requests. After receiving the bids, the campus conducted a post-submittal scope refinement process in order to bring the project within budget. This process enabled the campus to strategically consolidate some space elements to gain efficiencies, eliminate duplicated space, and make program adjustments. In total, these adjustments reduced the scope by 129,020 ASF. In every case, the choices of where to consolidate space were made strategically based on the goals of the Project. These changes do not affect the overall nature of the Project, or the campus's ability to accommodate 10,000 students.

<u>Academic – Reduction of 635 ASF</u>

The minor reduction in academic space is primarily associated with the consolidation of break rooms and copy rooms in the academic offices, and the elimination of duplicated storage space in laboratory support and maintenance. These space modifications will allow the campus to receive 1,025 ASF of additional core lab space and 200 ASF of additional classroom space. Overall, the reduction in ASF in this category is less than two-tenths of one percent.

Housing – Reduction of 90,875 ASF

The initial RFP included 1,700 on-campus undergraduate beds and 200 on-campus graduate student apartments. Since release of the RFP, the University received a significant philanthropic gift of off-campus land in close proximity to the campus, and well suited for the development of graduate student and family housing as a separate future project.

In light of this gift, the majority of the adjustment of housing space is associated with the campus deferring development of graduate student housing, consisting of 200 beds and 73,500 asf, to a future master plan campus project. The undergraduate housing, consisting of 1,700 beds, remains. However, the project will cluster lounges, study rooms, and support space in the undergraduate housing to enable further efficiencies. The project has also eliminated duplicated custodial space in the support and maintenance category. Overall, the reduction in ASF in the Housing category is approximately 24 percent.

Student Life – Reduction of 29,895 ASF

The opportunity provided by the philanthropic gift of land described above also provides sufficient space for the programming of an expanded child care facility within an off-campus graduate student/family housing project. As such, the proposal will expand the existing child care center facility rather than build an entirely new facility as reflected in the initial RFP program.

Within recreation, the program to support the competition swimming pool and the competition field initially included elements such as a concession stand, athletic training rooms, and a field house. This program request resulted in the initial proposal of multiple small buildings. As part of the efficiency review, the most critical support elements for the pool and the field, such as restrooms and changing rooms, were maintained and then blended into the adjacent wellness center. Within the wellness center, the number of exam rooms was reduced and it was determined that the pharmacy space could be accommodated elsewhere on campus. The flexibility to add ancillary elements in the future, such as the field house, will be preserved by maintaining their presence on the master plan. Overall the reduction in ASF is approximately 21 percent in the Student Life category.

Campus Operations – Relocation of Facilities, Reduction of 7,615 ASF

Since release of the RFP, the campus has explored the adoption of a distributed policing model, which will enable public safety functions to be integrated throughout the campus. To that end, the submitted proposal consolidated 19,020 ASF of Public Safety and Environmental Health and Safety (EH&S) programs into 11,405 ASF of temporary facilities on the existing campus but funded within the project budget. The temporary facilities are standard trailers located on the existing campus and are currently being used as offices for a range of academic and administrative staff. Budgeted Project funds will be used to fund reconfiguration of the space so that it is appropriate for use by campus police and EH&S services. The reconfigured space is

approximately 40 percent less than the initial request and will be accommodated by working with the users to identify the optimal use of the available space while continuing to provide the necessary functionality for the newly expanded campus. The location of a permanent facility for these uses has been identified within the 2020 Project master plan.

A detailed table identifying the changes to the program is in Attachment 3.

Amendment to the Commercial Terms

The commercial terms of the Project Agreement were accepted by the Regents in November 2015 and specify the scope, maximum price, and the Project's funding/financing structure. A Revised Commercial Terms Summary (Attachment 5) reflects the amendments. Key commercial term amendments include:

- As mentioned above, the Milestone Payments and the Final Acceptance Payment are replaced by Monthly Progress Payments, in an amount equal to approximately 50 percent of Design and Construction work completed, which will total in the aggregate up to $585 million.

- The Monthly Progress Payments will not commence until at least $150 million in Design and Construction work has been completed.

- The Monthly Progress Payments will be equal to the value of the Design and Construction Work completed by certified copies of Developer's draw requests approved by the Lenders' technical advisor, design-build contractor's approved invoices, and other required supporting documentation.

- The required amount of the Performance Bond and the Payment Bond is increased to equal the entire Design and Construction Contract Amount.

- Occupancy Readiness for First Delivery has been extended by one month.

- LEED Liquidated Damages have been replaced with a Developer Default for failure to achieve LEED Gold.

- A provision was added to allow the Developer to bond around stop notices, in lieu of delivering unconditional waivers and releases from Contractors as a condition precedent to Project Final Acceptance.

- The removal of an "Unavailable but Used" concept from the payment mechanism.

Amendment to the 2009 Long Range Development Plan

To implement the 2020 Project plan as proposed, the campus requests a conforming amendment of the Long Range Development Plan's (LRDP) land-use plan. The proposed LRDP amendment would revise the boundaries of the Project Site to include 27.65 acres south of Bellevue Road and eliminate 28.66 acres east of the Fairfield Canal. To accommodate the proposed site plan and organization of the buildings on the Project Site, the following areas would be re-designated to *Campus Mixed Use:* Athletics (8.46 acres), Passive Open Space (6.44 acres), Academic/Laboratory (11.93 acres), High Density Residential (0.72 acres). In addition, there are proposed LRDP text revisions to update technical information in the 2013 LRDP to achieve consistency with the proposed 2020 Project (Attachment 8).

California Environmental Quality Act Compliance

Pursuant to State law and the campus procedures for implementation of CEQA, the potential environmental impacts of the 2020 Project were analyzed in the Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) for the UC Merced 2009 LRDP, which was certified by the Regents in November 2009 (State Clearinghouse # 2008041009). Volumes 1 and 2 of the LRDP EIS/EIR assessed the potential environmental effects of implementation of the LRDP, identified means to eliminate or reduce potential adverse impacts, and evaluated a reasonable range of alternatives to the LRDP. Volume 3 of the LRDP EIS/EIR analyzed the project-level environmental impacts associated with the several projects on the UC Merced campus including the 2020 Project.

In 2013, Addendum #6 to Volume 3 of the 2009 LRDP EIS/EIR was prepared to document that no further environmental review is required prior to approval of an LRDP amendment to facilitate a revised 2020 Project through the development of a new land use category, *Campus Mixed Use*. Addendum #7 has been prepared to document that no further environmental review is required to evaluate the additional changes to the Project reflected in the proposed design. The revised 2020 Project includes the same total square footage of development as originally envisioned in the 2009 LRDP EIS/EIR, but on a smaller and slightly reconfigured land area. Addendum #7 also analyzes the effects of the proposed redesignation of approximately 38.23 acres to *Campus Mixed Use* that would be included in the LRDP Amendment. The 2009 LRDP EIS/EIR mitigation measures will be implemented as part of the revised 2020 Project.

A Mitigation Monitoring and Reporting Program was prepared to ensure mitigation measures would be implemented to reduce significant impacts. Monitoring the implementation of mitigation measures will be conducted in conjunction with the 2009 LRDP Mitigation Monitoring Program.

Approval of Design

As described below, the Regents are being asked to approve the design of facilities within the 2020 Project based on building typologies that have been developed for academic, residential, and student life uses.

Project Site

The Project Site area is currently occupied by three parking lots, an informal recreation field and undeveloped grazing land located in Merced County. As shown in the Project Graphics, the project will be located south and directly adjacent to the existing Merced campus.

Topography

The Project Site is approximately 25 feet below the existing campus and slopes to the southwest toward Lake Road. Two unlined, gravity-fed agricultural irrigation canals operated by the Merced Irrigation District, pursuant to an easement, border and transect the Project Site.

Services

The existing campus currently receives water, sewer, and other urban services from the City of Merced subject to an agreement executed in 2003. To provide urban services to the 2020 Project Site area, the City and the campus have amended the agreement to expand the provision of urban services to include the 2020 Project area. The City and the campus have also executed a revised Agreement, like the original agreement, to annex the expanded campus property.

The Project Site will be served by a comprehensive set of utilities. Water for the entire campus enters near the intersection of Bellevue and Lake Roads and is diverted through a pump house and storage tank that will remain. An electricity line serving the entire campus also enters the campus near the intersection of Bellevue and Lake.

Site Plan

Consistent with the planning and design principles articulated in the 2015 Physical Design Framework, the site plan uses building arrangement and programming to facilitate the development of dynamic, mixed-use academic and student-focused spaces that support the campus' goals of promoting interaction and collaboration across disciplines.

As illustrated in the Project Graphics, the plan's noteworthy strategies include:

- Building siting, structures and materials that actively respond to Merced's climate by creating shade as well as following precedents established by existing campus buildings
- A network of open spaces and a series of outdoor venues designed to support outdoor eating, meetings, conversation, and group study opportunities

- A mixed-use layout that provides opportunities for dining, student life, as well as support for a variety of collaborative activities and unplanned casual interactions
- A circulation network that enables bike paths, transit, pedestrians, and vehicles to coexist while also connecting to the existing campus
- A site grading approach that uses berms and longitudinal pathways to adapt for elevation changes
- A configuration approach that minimizes interference with the site's natural drainage patterns
- Landscape design that blends with the existing campus and the natural landscape surrounding the campus.

The Developer submitted a Master Planning Study that includes approximately 264,055 ASF of program that is not part of the 2020 Project. This planning effort has incorporated post-2020 Project facilities into the site plan to allow for an integrated approach when funds become available to advance future projects.

Design Overview

The overarching design approach for the 2020 Project is one of mixed-use programming to promote a living-learning environment and flexibility that will enable the facilities to be adapted to changing academic needs. The design is also intended to minimize long-term maintenance costs.

The conceptual design of the facilities was based on a rigorous set of functional and performance-based criteria developed by campus stakeholders and experts. Aesthetically, a key factor for all facilities during the design process is application of a consistent and cohesive approach to color, materials, and architectural expression – which also connects new facilities to the existing campus.

Taken collectively, the exterior perspective of the proposed facilities has been oriented to reduce urban heat effects and ensure user comfort. Both the fenestration and selected materials illustrate strategies to reduce solar glare in or on buildings, streets, and pedestrian walkways, yet still allow natural light into the building interiors. Service access areas have also been arranged to minimize their impact on circulation and prevent unsafe conflicts with pedestrians.

Within the 2020 Project's facilities, vertical circulation elements have been deliberately used to enhance academic and social activity. To promote a lively environment, engaging and high-traffic programming elements are located at the ground level with direct accessibility to outdoor circulation.

Among all conceptual floor plan layouts, the unifying theme – as aligned with the Physical Design Framework – is a focus on flexibility and the adaptability of the design for multiple concurrent uses in order to minimize the cost of future changes in programmatic uses and

configuration. This is accomplished by careful attention to the orientation of walls, columns, doors, windows, openings, and major built-in equipment.

The buildings will utilize durable materials consistent with the Project Agreement's design requirements and the existing campus. Responding to the surrounding built environment, exterior colors will be of a mostly neutral palette with color accents, and durable, low-maintenance materials including cement plaster, precast concrete, and glass.

Design: Teaching and Research

Teaching and research facilities account for 373,389 ASF of the Project, in buildings ranging in height from three to four stories based on complementary typology that uses similar materials, massing, and color.

The wet/dry laboratories will anchor the Academic Quad at the northeastern end of the 2020 Project, bridging the existing campus with a new academic quad that acts as the new heart of the campus. This will be accomplished through a flexible plan that accommodates a multitude of laboratory configurations; an arrangement of program and circulation elements that encourages a sense of community; and a robust, durable, and efficient superstructure.

Primary exterior building materials are designed to be cost effective and durable, in keeping with architectural expression of the research laboratories from UC Merced's original four academic and infrastructure buildings.

As in those initial buildings, the materials are familiar to the largely agrarian Central Valley, but are employed in service of the functional needs of the building. The primary identity of each laboratory comes from an expression of its concrete structure. Flat plate slabs and fin-like perimeter shear walls form frames along the broad faces of the buildings that are infilled with systems of variable degrees of opacity. The materials of cast-in-place concrete, cement plaster, aluminum storefront, and metal panel all have strong ties to colors, textures, and aesthetics currently on campus.

The basis of design for a typical floor plan in each wet/dry laboratory is a reconfigurable laboratory and laboratory-support module set within an industry-standard sized structural grid. These dimensions not only allow for standard benching and circulation clearances within the laboratories, but also limit structural spans to help meet required vibration criteria.

Class laboratories will occupy a greater proportion of the floor plate at the plaza level, bringing the student population to the building and helping to activate adjacent plazas and promenades. At building entries, large colloquy spaces – informal learning environments – create multifunction lobbies for students and researchers.

Design: Housing and Dining

The Project includes approximately 1,700 undergraduate beds distributed among four residential buildings, as well as a dining facility in a mixed-use format.

Taken together, each of the residential facilities similarly uses glazed glass areas to create a building identity that straddles the relationship between residential and academic functions. Simple punched windows bring bedrooms behind, while larger expanses of window wall bring social program to the exterior. This expression creates a composed, cohesive identity to the elevations.

The materials used for the housing facility typologies are a continuation of those on the existing campus: primarily stucco, glass, and concrete. In the "wings" of the buildings, contrasting colors are used to facilitate way-finding and reduce the perceived scale of the buildings. Accent colors are also used on exterior stairs to encourage their use while exposed concrete columns act as an accent material and utilize the building's structure as an exterior material.

In the spirit of the Central Valley's architectural character, the dining facility reinterprets the traditional "industrial shed," utilizing simple materials and a long-span steel structural system to create an expansive interior dining space with strong connections to the rest of the campus. The lakeside window wall of the dining facility engages the surrounding natural environment by opening to Little Lake and acting as an iconic and inviting addition to the campus. At night, the glow from the façade illuminates as a featured student life element within the larger campus.

Design: Recreation Facilities

A competition-level pool and competition fields anchor the athletics and recreation district. The Competition Field anchors the western edge of the site. Positioning the field here provides direct access to parking, and to a shared plaza with the competition pool. The natural grade change along the length of the field provides for a dynamic approach to the field. The Competition Fields and the adjacent pool are designed in accordance with NCAA Division II standards. Space is provided adjacent to the fields to enable bleacher seating for 3,000 seats.

Sustainability

The campus' dedication to advancing environmental sustainability is maintained through the Project. In addition to meeting the targets established by the University's Policy on Sustainable Practices, the 2020 Project's siting principles and operations during construction respond to Merced's climate, topography, hydrology, and ecological systems.

To address thermal comfort for pedestrians, the primary pedestrian pathways through campus are shaded by buildings, covered arcades, and maturing shade trees. Additionally, paving will either be light colored or shaded to minimize urban heat island effect and provide a comfortable pedestrian environment throughout campus.

The majority of the site's landscape is comprised of native and adaptive planting. Drought-tolerant species selection in combination with subsurface drip irrigation with evapotranspiration controllers will result in at least a 50 percent reduction in irrigation demand. In addition, the installation of "purple pipes," which carry recycled water, throughout the 2020 site means that all irrigation can be served by a future non-potable water source, when it becomes available.

Peak cooling is the primary energy concern for the UC Merced campus. Within each building, high outdoor air temperature and high levels of incident solar radiation contribute to building cooling demand. As a result, the proposal maintains physical continuity with the existing campus grid while also minimizing southwest- and west-facing façades. Where possible, building adjacencies have been designed so that, in the afternoon, one building may shade the southwest facade of an adjacent building.

For the buildings, massing and interior organization have been designed to prioritize daylight access throughout the building. This strategy reduces lighting energy use, reduces internal cooling loads and provides occupants with a connection to the outdoors. As a result, the buildings being delivered as part of the Project will demonstrate a minimum energy performance level 20 percent better than a Title 24 baseline building and achieve at least a LEED Gold certification.

All buildings will have LED lighting installed throughout. This, in combination with usable daylight, will minimize the buildings' energy demand from electric lighting. Buildings' plumbing fixtures will be low flow and designed to achieve at least a 40 percent domestic water savings over a LEED baseline case.

The proposed buildings will be connected to the existing central plant which utilizes a 30,000 ton hour Thermal Energy Storage (TES) Tank for campus cooling. The TES plays an important role in reducing operational carbon emissions because it shifts the campus cooling electricity demand to off-peak times when the cleanest grid electricity supplies are available.

During construction, the project has committed to achieving at least 75 percent waste diversion from landfill. The project will also use at least 20 percent recycled materials, 10 percent regional materials and Forest Stewardship Council certified wood. During operations, the Developer will implement a proactive Preventive Maintenance Program and will replace building components in a manner that is supportive of the campus' utility conservation and water reduction policies.

Utilities and Stormwater

Utilities within the 2020 Project site will build on the foundation provided by the existing campus' infrastructure network. Chilled water will be distributed to the new facilities from the existing Central Plant in order to provide building cooling. Water and wastewater systems will be expanded based on existing systems. Gas will continue to be supplied from off site.

The stormwater conveyance system is capable of conveying the ten-year, 24-hour storm. The proposed strategy achieves a high degree of sustainability as it eliminates underground detention systems and minimizes pipes while maximizing natural stormwater management. Given that both the existing and proposed portions of campus are urban and dense, the sustainable stormwater management strategy will be integrated with the landscape design.

The site plan for the 2020 Project concentrates new buildings contiguous with existing facilities to maintain a compact campus. In doing so, the historic lowland riparian corridor, formerly known as Cottonwood Creek, is preserved and adapted to provide substantial on-site stormwater management capacity. In larger storm events, water will be collected in inlets and routed to Cottonwood "Meadow" where the campus' runoff will be retained and detained until it has fully evaporated or infiltrated.

Landscape Design

The landscape design plan of the 2020 Project includes an outdoor environment designed for public activity and connectivity with the existing campus using a mixture of drought-tolerant shrubs, landscaped trees, and ground cover. The Project's tree and plant palette and arrangement are influenced by existing and established campus patterns – but with a focus on water conservation. The planting variety and form at the campus entrance are combined with the circulation system to create a welcoming entry experience to the campus.

The primary landscape features includes the "Academic Quad." As the largest plaza and public gathering space within the proposal, it is designed as a dynamic multifunctional space and important social gathering space for both formal and informal events. The Academic Quad uses a series of landscape islands composed primarily of native trees and shrubs, judicious use of water, and two large zones of stabilized decomposed granite characteristic of an arid environment.

Along the residential corridor, the "Academic Walk" continues the strategy of a dry open ground plane. It is punctuated by long linear islands and seating that is integrated with the planters to collect surface stormwater runoff.

The existing "Little Lake" will be reconfigured into a much more sustainable system by removal of invasive species around the perimeter and introduction of native riparian plants. Several pathways that provide access down to the lake and a perimeter walk around the lake will tie into the larger campus circulation system.

Circulation

Circulation patterns within the 2020 Project site are designed to accommodate the full range of transportation modes, with a particular emphasis on bicycles, transit, and pedestrians. A special focus has been paid to ensure connectivity with the circulation patterns of the existing campus.

The Project's pedestrian and bicycle network provides comprehensive connectivity. The primary connective corridor, Academic Walk, is exclusively dedicated to pedestrian activity, and located in the most central area of the project site with the closest proximity to the campus's prime buildings and facilities.

On-road bicycle lanes along with exclusively dedicated bicycle paths are provided within the project site and strategically located to enable safe and convenient bicycle access to all parts of the campus. Bicycle paths and pedestrian paths will be separated to minimize conflicts.

Transit will be accommodated through the development of a transit center near the campus entrance that will provide layover space for eight buses serving the campus. The Transit Center will include transit rider amenities. Bus drop-off areas will also be provided to the nearby Competitive Athletic Fields.

The Project includes 1,570 new parking spaces distributed on the southern edge of the site to create a pedestrian-oriented campus core. The bulk of parking is located adjacent to the site and south of Bellevue Road. Charging infrastructure will be provided for all planned electronic vehicle stalls onsite, at a minimum equating to 2.5 percent of total Personal Occupancy Vehicle spaces to be added.

Project Schedule

The 2020 Project construction schedule is aggressive and facilities will be delivered in three phases. It will result in substantial completion by 2020 of 789,892 ASF of new academic space for teaching and research, housing, dining, student life, athletics, campus operations, and associated infrastructure necessary to accommodate 10,000 students. It is estimated that groundbreaking will occur in fall 2016, with delivery of the first set of facilities (161,035 ASF) by fall 2018; delivery of the second set of facilities (150,820 ASF) by fall 2019; and substantial completion of the balance (478,037 ASF) by fall 2020.

Key to Acronyms

ASF	assignable square feet
DBFOM	Design-Build-Finance-Operate-Maintain
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EH&S	Environmental Health and Safety
ITP	Instruction to Proposers
LLC	Limited Liability Company
LRDP	Long Range Development Plan
RFP	Request for Proposals
TES	Thermal Energy Storage
UCLC	University Community Land Company

ATTACHMENTS:

Attachment 1:	Revised Project Site Map
Attachment 2:	Revised Merced 2020 Project Budget
Attachment 3:	Revised Merced 2020 Project Program Detail
Attachment 4:	Summary of Financial Feasibility
Attachment 5:	Revised Commercial Terms Summary
Attachment 6:	Projected Funding Breakdown
Attachment 7:	Policy Compliance
Attachment 8:	LRDP Amendment
Attachment 9:	2009 LRDP EIR and Mitigation Monitoring Reporting Program (http://2020project.ucmerced.edu/resources/environmental-documents)
Attachment 10:	Addendum #7 to 2009 LRDP
Attachment 11:	CEQA Findings
Attachment 12:	Project Graphics