UNIVERSITY OF CALIFORNIA

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SANTA BARBARA • SANTA CRUZ

EXECUTIVE VICE PRESIDENT—
CHIEF FINANCIAL OFFICER

OFFICE OF THE PRESIDENT
1111 Franklin Street, 6th Floor
Oakland, California 94607-5200
Phone 510/987-9029

November 13, 2015

The Honorable Mark Leno
Chair, Joint Legislative Budget Committee
State Capitol, Room 5100
Sacramento, CA 95814

Mr. Michael Cohen
Director of Finance
State Capitol, Room 1145
Sacramento, CA 95814

Dear Senator Leno and Director Cohen:

The University of California is requesting your consideration to approve a revised Project Planning Guide (PPG) for the *Merced State 2020 Project*, requesting funding in the 2016-17 fiscal year. The revised PPG, attached, includes the following changes from what was submitted on September 1, 2015:

- Revised budget *from* $400 million being funded with State General Funds and $127.3 million being funded with external financing *to* $400 million being funded with University external financing and $127.3 million being funded with Developer funding. State General Funds will be used to service the debt on the University financing and the availability payments made to repay the Developer, subject to the provisions of Section 92493, *et seq.* of the Education Code.

- Modification to the sequences in project implementation, from two delivery sequences to three. This three-sequenced delivery approach was added based on feedback during the Industry Review Process, which prompted the campus to make changes to the delivery schedule in order to allow sufficient time for research facilities, given their complex nature, to be implemented.

- Provide an additional 1,400 assignable square feet of research and teaching space.

The revised PPG is consistent with two Regents' item that will be presented at the November meeting. Those two items are the (J1) **Approval of Budget and Commercial Terms of the 2020 Project Agreement and Related Actions** and (J2) **Approval of University of California 2016-2017 Budget for State Capital Improvements.**

Your consideration and support of the University's 2016-17 Capital Outlay Proposal is appreciated and I look forward to discussing this proposal with you. Please let me know if you have any questions.

Sincerely,

Nathan Brostrom
Executive Vice President – Chief Financial Officer

Attachment

cc: President Napolitano *(electronic attachment only)*
Deputy Chief of Staff Jones *(electronic attachment only)*
Associate Vice President Kim *(folder and electronic attachment)*
Associate Vice President Wylie *(folder and electronic attachment)*
Associate Vice President Obley *(electronic attachment only)*
Associate Vice President Juarez *(folder and electronic attachment only)*
Executive Advisor Sato *(folder and electronic attachment)*
Director Santa Cruz *(folder and electronic attachment)*
DirectorYin *(folder and electronic attachment)*
Manager Kennedy *(folder and electronic attachment)*
Budget Analyst Olmos *(electronic attachment only)*
Ms. Karen Finn, Department of Finance *(electronic attachment only)*
Ms. Sally Lukenbill, Department of Finance *(folder and electronic attachment)*
Ms. Raghda Nassar, Department of Finance *(folder and electronic attachment)*
Mr. Christian Osmena, Department of Finance *(electronic attachment only)*
Mr. Jason Constantouros, Legislative Analyst's Office *(folder and electronic attachment)*
Ms. Peggy Collins, Joint Legislative Budget Committee *(folder and electronic attachment)*
Ms. Anita Lee, Senate Budget and Fiscal Review Committee *(folder and electronic attachment)*
Mr. Seren Taylor, Senate Republican Fiscal Office *(folder and electronic attachment)*
Mr. Mark Martin, Assembly Budget Committee *(folder and electronic attachment)*
Ms. Amy Rutschow, Assembly Republican Fiscal Office *(folder and electronic attachment)*

STATE OF CALIFORNIA	**DEPARTMENT OF FINANCE**
CAPITAL OUTLAY	**915 L Street**
BUDGET CHANGE PROPOSAL (COBCP)	**Sacramento, CA 95814**
COVER PAGE (REV 06/15)	**IMS Mail Code: A15**

BUDGET YEAR 2016-17

BUSINESS UNIT: 6440 COBCP NO. _____ PRIORITY: ____ PROJECT ID: 99.11.095
(15 digits; for new projects, leave blank)

DEPARTMENT: University of California

PROJECT TITLE: Merced – State 2020 Project

TOTAL REQUEST (DOLLARS IN THOUSANDS): $527,300 MAJOR/MINOR: MA

PHASE(S) TO BE FUNDED: PWCE PROJ CAT: ECP CCCI/EPI: 6392 / 3277

SUMMARY OF PROPOSAL:

The Merced State 2020 Project includes approximately 415,800 ASF, consisting of the following: instructional, research, and academic office Space (374,000 ASF); Enrollment Center (22,800 ASF); and campus operations (19,000 ASF). The project also includes infrastructure proportionate to the State eligible space. This project is part of the larger 918,900 Assignable Square Feet (ASF) comprehensive Merced 2020 Project that will accommodate enrollment growth from the current 6,200 students to 10,000 students by the year 2020.

Preliminary plans, working drawing, construction, and equipment funds of $527,300,000 is requested to be funded with University external financing ($400,000,000) and Developer funding ($127,300,000). State General Funds will be used to service the debt on the University financing and will be the source of repayment of the availability payments made to the Developer, subject to the provisions of with Section 92493, et seq., of the Education Code.

HAS A BUDGET PACKAGE BEEN COMPLETED FOR THIS PROJECT? (E/U/N/?): E

REQUIRES LEGISLATION (Y/N): N IF YES, LIST CODE SECTIONS: _____

REQUIRES PROVISIONAL LANGUAGE (Y/N) N

IMPACT ON SUPPORT BUDGET: ONE-TIME COSTS (Y/N): N FUTURE COSTS (Y/N): N

FUTURE SAVINGS (Y/N):N REVENUE (Y/N): N

DOES THE PROPOSAL AFFECT ANOTHER DEPARTMENT (Y/N): N IF YES, ATTACH COMMENTS OF AFFECTED DEPARTMENT SIGNED BY ITS DIRECTOR OR DESIGNEE.

SIGNATURE APPROVALS:

PREPARED BY DATE	REVIEWED BY DATE
SEE ATTACHED PPG	
CAMPUS OFFICIAL DATE	UNIVERSITY OF CALIFORNIA DATE

****

DOF ANALYST USE

DOF ISSUE #_____ PROGRAM CAT:____ PROJECT CAT:_____ BUDG PACK STATUS:____
ADDED REVIEW: SUPPORT:____OCIO:____ FSCU/ITCU:____ OSAE:___ CALSTARS: ____

University of California, Merced

PROJECT PLANNING GUIDE

STATE 2020 PROJECT

August 2015
Revised: October 2015

University of California, Merced
State 2020 Project

APPROVAL OF PROJECT PLANNING GUIDE:

10/23/15
Date

Veronica Mendez
Assistant Vice Chancellor for Planning and Budget
University of California, Merced

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APPENDICES

CAPITAL IMPROVEMENT PROGRAM BUDGET
BUDGET DATA - GFF PROJECTS

UNIVERSITY OF CALIFORNIA
Merced
Campus

Project Title	Campus Reference	Asset No.	Cost Indexes
Merced, State 2020 Project			CCCI: 6392
			EPI: 3277

A. FUNDING SCHEDULE ($000)

Totals	Per Prefunded	CLP, dated 9/1/2015 2016-17
$P 18,857		P 18,857 PR
W 43,999		W 43,999 PR
C 428,343		C 400,000 EF
E 36,101		C 28,343 PR
		E 36,101 PR
527,300 (Tot. Proj.)		527,300

B. FUNDING REFERENCES

	Column (1)	(2)	(3)		(4) Total All Sources
Account No.					
Source					

C. COSTS

	Research Space	Instructional Space	Office Space and Enrollment Center	Campus Operations	TOTAL	%
0. Site Clearance	$ 806,000	$ 230,000	$ 325,000	$ 55,000	$ 1,416,000	0.3
1. Building Construction	206,544,000	59,142,000	83,391,000	14,046,000	$ 363,123,000	73.9
2. Exterior Utilities	26,976,000	7,725,000	10,892,000	1,834,000	$ 47,427,000	9.7
4. Site Development	9,315,000	2,667,000	3,761,000	633,000	$ 16,376,000	3.3
5. A&E Fees	23,360,000	6,689,000	9,431,000	1,589,000	$ 41,069,000	8.4
6. Campus Administration	$ 12,393,000	$ 3,549,000	$ 5,003,000	$ 843,000	$ 21,788,000	4.4
7. Surveys/Tests/Plans & Specifications						
8. Special Items						-
SUBTOTAL	$ 279,394,000	$ 80,002,000	$ 112,803,000	$ 19,000,000	$ 491,199,000	100.0
9. Const Contingency						
TOTAL P-W-C	$ 279,394,000	$ 80,002,000	$ 112,803,000	$ 19,000,000	$ 491,199,000	100.0
3. Group 2&3 Equipment	20,534,000	5,880,000	8,290,000	1,397,000	$ 36,101,000	
TOTAL PROJECT	$ 299,928,000	$ 85,882,000	$ 121,093,000	$ 20,397,000	$ 527,300,000	
Available Funding					527,300,000	
Anticipated Surplus (Deficit)					$ -	

D. FUNDING SOURCE

PR	Developer Funding (Supported by State General Funds)	$ 127,300,000
EF	University External Financing (Supported by State General Funds)	$ 400,000,000
	TOTAL	$ 527,300,000

E. STATUS OF PROJECT:

Revision of Project Planning Guide

Campus	Name: Veronica Mendez		Signature:	Budget No.	1
	Title: Asst. Vice Chancellor, Planning & Budget		Title: Asst. Vice Chancellor, Planning & Budget	Issue Date	9/1/15
	Prepared by: Richard Cummings		Approved for Campus, Date: 10/23/15	Revised	10/23/15
AVP-PPC	Program:	Fiscal:	Signature:	Revised	
			Title:	Revised	
	Cost:		Approved for AVP-PPC, Date:	Revised	

Form - CIB Budget Data 2/14
FDC Job #

CAPITAL IMPROVEMENT PROGRAM BUDGET
BUDGET DATA

UNIVERSITY OF CALIFORNIA
Merced
Campus

Merced, State 2020 Project			CCCI: #	6392
			EPI: #	3277
Project Title	Campus Reference	Asset No.	Cost Indexes	

F. ANALYTICAL DATA

	Research Space	Instructional Space	Office Space and Enrollment Center	Campus Operations	TOTAL
ASF per PPG	181,500	69,900	145,400	19,000	415,800 ASF
ASF Current	181,500	69,900	145,400	19,000	415,800 ASF
GSF	301,700	116,300	222,500	27,200	667,700 OGSF
Ratio (ASF Current/OGSF)	0.60 to 1.00	0.60 to 1.00	0.65 to 1.00	0.70 to 1.00	0.62 to 1.00
Bldg Construction Cost per ASF	$1,137.98 /ASF	$ 846.09 /ASF	$ 406.75 /ASF	$ 739.26 /ASF	$ 873.31 /ASF
Bldg Construction Cost per GSF	$ 684.60 /GSF	$ 508.53 /GSF	$ 265.81 /GSF	$ 516.40 /GSF	$ 543.84 /GSF
Total P-W-C Cost per ASF	$1,539.36 /ASF	$ 1,144.52 /ASF	$ 550.22 /ASF	$ 1,000.00 /ASF	$ 1,181.33 /ASF
Total P-W-C Cost per GSF	$ 926.07 /GSF	$ 687.89 /GSF	$ 359.56 /GSF	$ 698.53 /GSF	$ 735.66 /GSF
Gr. 2&3 Equip Cost per ASF	$ 113.13 /ASF	$ 84.12 /ASF	$ 40.44 /ASF	$ 73.53 /ASF	$ 86.82 /ASF

H. NOTES:

Budget No.	1
Issue Date	9/1/15
Revised	10/23/15
Revised	
Revised	
Revised	

Prepared by:

I. EXECUTIVE SUMMARY

A key element of the University of California enrollment plan, as agreed upon by the Legislature, is the growth at UC Merced, the youngest campus in the UC system. Growth at the Merced campus will provide for increased access for first-generation college students, students from underserved communities, and California students who are qualified to attend a University of California campus.

UC Merced has established a goal of creating facilities for a comprehensive 10,000-student campus by 2020. At that size, the campus will be able to attain self-sufficiency and function effectively as a world-class, but highly focused, research university. The campus is currently operating at more than capacity and further enrollment growth beyond Fall 2016 is severely constrained by lack of both State-eligible and non-State eligible space. In addition, an underlying issue for all additional facilities is the lack of the most basic infrastructure on its undeveloped, greenfield site. As such, the lack of preexisting connection points or capacity to provide water, power, or sewer services limits the ability of new facilities (State-eligible or non-eligible) to be individually built to support future growth.

The Merced campus proposes the development of the 2020 Project in order to simultaneously expand infrastructure and capital facilities across a broad range of categories to accommodate enrollment growth to approximately 10,000 students. The 2020 Project would be constructed adjacent to the existing campus, on Regents-owned land, and would deliver 918,900 assignable square feet (ASF) of new academic, research, residential, support and infrastructure facilities in an adaptable, multi-building, joint-use physical environment that can accommodate programs emanating from the campus' academic plan. The Project would benefit all academic units and this Project Planning Guide outlines the instruction and academic-related portions of the project that would be funded in part with State sources.

In order to provide the critically needed facilities and infrastructure, and to meet enrollment targets by 2020, the campus is proposing a proven delivery model to address the need in an efficient timeframe. The 2020 Project would be delivered as a comprehensive development that includes the design, construction, financing, operation, and maintenance, referred to as a design-build-finance-operate-maintain ("DBFOM") procurement model. The procurement process is currently ongoing, and will entail the eventual selection of a Developer in May 2016. The Developer will be responsible for the design, construction, and operation of the Project. The Developer would receive availability payments for (i) the capital component they funded and (ii) the costs associated with the Developer's maintenance, operation, and renewal obligations.

Revised Project Planning Guide: This Project Planning Guide (PPG) is a revised version of what was submitted in August 2015. This PPG clarifies how the $527.3 million budget is being funded. The Capital Improvement Budget (CIB) included in the August 2015 PPG identifies $400 million being funded with State General Funds and $127.3 million being funded with external financing. The CIB included in this PPG, as well as the text in Section V, specifies that the budget includes $400 million being funded by University external financing and $127.3 million being funded with Developer funding. State General Funds will be used to service the debt on the University financing and State General Funds will be the source of repayment for the capital component of the availability payments made to the Developer, subject to the provisions of Section 92493, *et seq.* of the Education Code.

This revised version of the PPG also reflects a modification to the sequences in project implementation, from two delivery sequences to three. As envisioned, the delivery of facilities would occur as follows: first delivery by Fall 2018, second delivery prior to Fall 2019, and final delivery (or "substantial completion") prior to Fall 2020. This three-sequenced delivery approach was added based on feedback during the Industry Review Process currently being held with the three proposing teams. The feedback prompted the campus to make changes to the delivery schedule in order to allow sufficient time for research facilities, given their complex nature, to be implemented. This change will not impact the goal of the project, which is to relieve space needs across campus while enabling growth.

The last significant change is that the ASF has been slightly increased to provide an additional 1,400 ASF in research and teaching space. The breakdown is as follows:

Table 1 2020 Project Program (State eligible and non-eligible)

Category	Revised ASF (Oct. 2015)	Original ASF (Aug. 2015)	Change	Type of Space
Academic	396,800 ASF	395,400 ASF	**1,400 ASF**	Research, Classrooms and Office facilities
Housing	380,500 ASF	380,500 ASF	-	1,700 beds
Student Life	122,600 ASF	122,600 ASF	-	Dining, Wellness and Recreation
Campus Operations	19,000 ASF	19,000 ASF	-	Public Safety and Environmental Health
TOTAL	**918,900 ASF**	**917,500 ASF**	**1,400 ASF**	

II. STATEMENT OF NEED AND 2020 PROJECT GOALS

The University of California, Merced is a research university located in heart of the San Joaquin Valley, an agriculturally-rich area stretching from Stockton to Bakersfield. As of 2015, 4.1 million people and more than 100 ethnic groups live in the San Joaquin Valley. As a region, however, the San Joaquin Valley's population has the lowest level of college attainment in the State, the highest levels of young people under age 18 living in poverty, and among the highest unemployment in the United States.

By 2055, the Department of Finance projects the region's population will increase to 7 million people, a 68 percent increase that is twice as fast as the State's growth rate – making it one of the State's fastest growing regions.

To prepare for and influence the character of this growth, the Regents of the University of California selected an undeveloped 2,000 acre site in Merced County for its tenth campus in order to expand access to the University of California for qualified California students, increase college-going rates in the historically under-served San Joaquin Valley, and stimulate economic growth and diversification in a region struggling with chronic unemployment and poverty.

Ground breaking on the initial 104-acre portion of the campus occurred in 2002 and the campus opened for classes in 2005 with 875 students.

As of the Fall 2014, the campus has grown to over 6,200 students, 1,400 staff, and 212 ladder rank faculty on a footprint of 900,000 assignable square feet. Of the student population, 93 percent are undergraduates, 99 percent are Californian, 46 percent are Latino, more than 60 percent are the first in their families to attend a four-year university, and 60 percent come from low-income families. Approximately 55 percent of students are majoring in science, technology, engineering, and math (STEM) disciplines.

As the first new UC campus since 1965, UC Merced has a rare opportunity to become an extraordinary institution as it builds on the UC system's heritage of distinction and legacy of excellence. Faculty, staff, and administrators have been drawn to Merced by the challenge of building and sustaining a unique institution in a traditionally underserved area of California. The collective energy and enthusiasm of Merced's students, faculty and staff has resulted in the promise that the campus will emerge as a world-class center of research, knowledge, and intellectual relevance and significance.

Statement of Need

Because UC degrees have been shown to have transformative and upwardly mobile economic impacts, the demand for access to the UC system among low-income, first generation students continues to increase notwithstanding the leveling off of high school graduates in the State. In 2015, UC Merced received 19,932 undergraduate applications for Fall 2015, the campus's largest pool of applicants in its first 10 years and a 14 percent increase over the previous year's total of 17,469. Among transfer student applications, the campus surpassed its target of 2,000 by 5.3 percent, receiving 2,321 applications for Fall 2015 compared with 2,205 last year.

While increasing the campus' enrollment is critical to the University's ability to continue to provide access to eligible students, the campus is faced with a growing gap between strong student demand and the campus' limited capacity to provide the facilities necessary to support that demand. The Merced campus has been and is currently operating over capacity. Without a significant financial investment from the system in its future development, the campus will be unable to accept additional students after Fall 2016. The net impact of limiting growth at Merced will be to deny access to the UC system from qualified students across the State.

The campus has established a goal of creating facilities that will accommodate 10,000 students by 2020. At that size, the campus will be able to attain self-sufficiency and function effectively as a world-class, but highly focused, research university. If the Merced campus is to grow, it must do so in a manner that suits the unique needs of the campus. UC Merced cannot grow in the ways its sister campuses did in the previous century.

2020 Project Goals and Definition

The Merced campus proposes the development of the 2020 Project in order to expand infrastructure and capital facilities across a broad range of categories to accommodate enrollment growth at 10,000. The 2020 Project would be constructed adjacent to the existing campus on Regents-owned land.

UC Merced has developed the following goals for the 2020 Project:

- Deliver approximately 273,800 ASF by Fall 2018 ("First Delivery") based on critical academic, teaching and support needs

- Deliver an additional 83,100 ASF prior to Fall 2019 ("Second Delivery"), to allow completion of laboratories and certain recreational facilities
- Deliver an additional 562,000 ASF of new facilities prior to Fall 2020 (Third Delivery or "Substantial Completion") that will enable the campus to accommodate 10,000 students
- Develop advising and support facilities to facilitate student success
- Provide an inspiring, mixed-use and dynamic living and learning environment

In total, UC Merced has planned the 2020 Project to deliver 918,900 ASF of new academic, research, residential, support and infrastructure facilities in an adaptable, multi-building, joint-use physical environment that can accommodate programs emanating from the campus' academic plan.

The State-funded 2020 Project ("State 2020 Project") portion of the program is designed to ensure State-eligible spaces are integrated in a thoughtful, cost-effective manner.

Project Site

The project site is a 219-acre parcel of land in Merced County that is owned by the Regents and that includes the existing developed campus. 136 acres of the parcel is undeveloped, grazing land. This undeveloped portion will be the primary focus for the addition of new facilities and infrastructure.

Please see Appendix 1 for an Aerial Campus Map of the site.

III. PROJECT DRIVERS

UC Merced Space Shortage and High Rate of Space Utilization

The campus is operating at more than capacity and further enrollment growth beyond Fall 2016 is severely constrained by lack of both State-eligible and non-State eligible space. Currently, through optimization of space and class scheduling the campus has achieved high rates of space utilization in its existing facilities. Classroom utilization, expressed as hours per week per room, is significantly higher than the standards established by the California Postsecondary Education Commission (CPEC), which have been used by the State of California in approving State funding for new academic buildings.

The campus has been able to accommodate growth beyond design capacity only by scheduling instructional classes from 7 am to 10:50 pm, locating new faculty at a decommissioned air force base five miles from campus, moving more than 50 percent of administrative staff to leased off-campus spaces within the community, and reconfiguring residential units designed for two beds into three to four bedroom spaces. As a stopgap measure, the campus is supplying limited office space for approximately 100 lecturers in trailers on campus (the Academic Office Annex or "AOA").

Campus residence halls, which contain 1,896 designed beds, are currently housing 2,138 students through tripling of double rooms, enabling the campus to house all first year students and 23 percent of the sophomore class. The dining facility is serving 4,750 meals per day out of 21,500 ASF and revenue is constrained by the inability to serve more meals per day because the facilities are undersized to meet demand. The sole dining facility has seats for 500 – yet with a daily population of more than 7,500 people, overflow options have required the installation of temporary food carts with prepackaged food throughout the campus. Outdoor recreation facilities for the entire student body consists of one large non-regulation sized soccer field.

For students living off campus, the lack of parking has led to the development of unsanctioned park and ride lots throughout the city and the unsanctioned creation of undesirable 'parking lots' on vacant third party-owned farmland adjacent to the University.

In addition, an underlying issue for all additional facilities is the lack of the most basic infrastructure. As an undeveloped, greenfield site, the lack of preexisting connection points or capacity to provide water, power or sewer services limits the ability of new facilities (State-eligible or non-eligible) to be built to support future growth.

UC Merced's space need is across both State-eligible (e.g. instruction and academic facilities) and non-State eligible facilities (e.g. housing, parking, recreation etc.). Appendix 2 includes additional information on space utilization and infrastructure needs.

Strategic Academic Focusing Initiative

UC Merced's instructional model is that of a small, intimate research university. The 2015 Strategic Academic Focusing Initiative provides the intellectual and programmatic foundation for the next decade of UC Merced's growth.

The Strategic Academic Focusing Initiative acts as the critical element of the effort to fulfill UC Merced's teaching, research and public service mission. The Strategic Academic Focusing Initiative has set a target

of adding 140 new ladder rank faculty by 2020. These targets, have in turn shaped UC Merced's space needs.

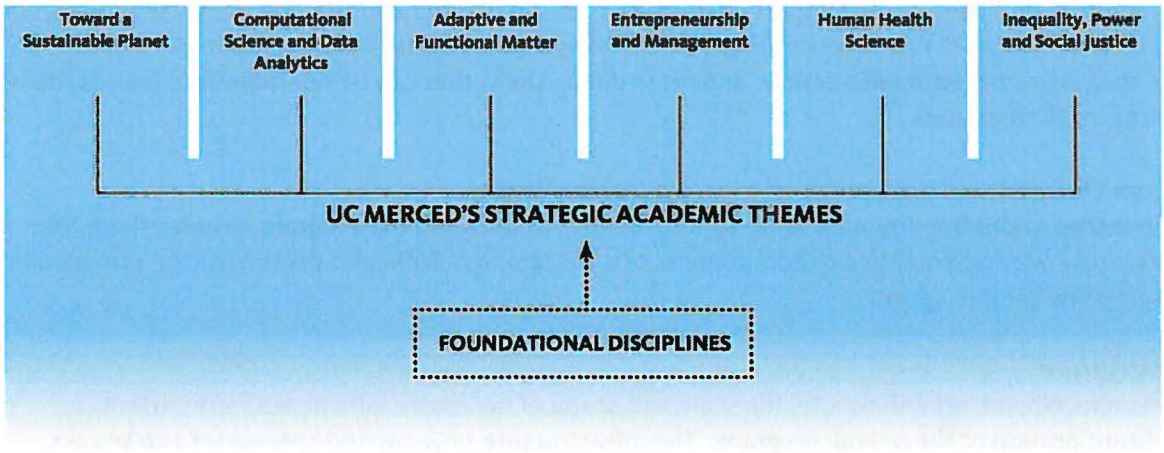
The Initiative is a faculty-led product to provide focus for UC Merced's three schools: the School of Engineering (ENG), the School of Natural Sciences (NS), and the School of Social Sciences, Humanities and Arts (SSHA). Undergraduates can choose from 21 majors and 22 minors, while graduate students can choose to join one of the 12 graduate groups composed of more than 200 full-time faculty members. The campus also has many talented visiting professors and lecturers who come from leading universities across the nation. As of Fall 2014, the campus has 212 ladder rank and 145 non-ladder rank faculty.

The Strategic Academic Focusing Initiative, which also included collaboration with campus stakeholders, resulted in the identification of six signature themes that will be the focus of UC Merced's expansion and space requirements for the next decade.

Those six areas of academic focus are:

- Towards a Sustainable Planet
- Computational Science and Data Analytics
- Adaptive and Functional Matter
- Entrepreneurship and Management
- Human Health Science
- Inequality, Power and Social Justice

Figure 1
The Strategic Academic Focusing Initiative has developed six thematic areas that will guide UC Merced's academic trajectory



IV. 2020 PROJECT PROGRAM

Traditionally, space at institutions of higher education has segregated space uses by building: a chemistry building, a social sciences classroom building, a student union, a residence hall. The 2020 Project Program, however, seeks to create a more holistic campus where living and learning occur 24 hours a day regardless of where students are at any given time and where student-faculty interactions and faculty interdisciplinary interactions occur spontaneously. The 2020 Project will deliver a flexible and adaptable joint-use physical environment that can accommodate the innovative educational themes and interdisciplinary nature of the programs emanating from the campus' strategic academic initiative. Upon substantial completion, the project will enable the campus to nurture its intimate academic environment, sustain its focus and respond to emerging areas of research. Within the program, the two largest types of space (by ASF) are Academic Space (43 percent) and Student Housing (41 percent) followed by Student Life/Athletics (13 percent) and Campus Operations (2 percent). Due to the undeveloped nature of the site, 136 acres will have to be prepared with infrastructure.

Academic Facilities: 43% of proposed program (State Eligible)
The academic space program is topically divided into research space, instructional space and academic office space. The amounts and types of space are tied to anticipated distribution of faculty among disciplines, classroom utilization, and a modular approach to office-space needs.

Student Housing: 41% of proposed program (Non-State Eligible)
As a campus with a high proportion of first-generation students and a remote location, on-campus housing has been shown to be inextricably linked to academic performance and matriculation. The 2020 Project program is designed to house one third of the 2020 student body and 100 percent of all freshmen.

Student Life/Athletics: 13% of proposed program (Non-State Eligible)
The Student Life program for the Project includes health, childcare, enrollment, dining, and athletic facilities that are necessary to support, attract, and retain students and that are integrated throughout the campus. The 2020 Project encourages innovations that facilitate shared student-life spaces, one-stop, student-centered service center, and retail dining shells that can be operated by students, dining services, or third parties.

Campus Operations: 2% of proposed program (State-Eligible)
Campus Operations are intended to be co-located for optimization the program includes the public safety, and environmental-health components of a UC campus. Sufficient parking will be provided in phases as the campus grows.

Infrastructure
As an undeveloped, greenfield site, the scale and scope of necessary infrastructure represents a significant portion of the overall program. The infrastructure program includes water and sewers, power and emergency power, gas infrastructure, storm water management, information technology and telecommunications. Both State and non-State eligible facilities will be beneficiaries of the infrastructure planned for the 2020 Project. As such, the State eligible share of the cost of the infrastructure will be prorated to reflect only those facilities that are State eligible.

Appendix 3 provides additional detail on the 2020 Project Program.

V. PROJECT COST AND FINANCIAL FEASIBILITY

The State took action to pass legislation in 2013-14, Assembly Bill No. 94, Chapter 50, Section 8 (AB 94) that added, among other provisions, sections 92493 et seq. to the Education Code. Specifically, with this legislation, the University is able to use its State General Fund allocation with certain conditions to finance the design, construction and equipment of academic facilities to address seismic and life safety needs, enrollment growth, modernization of out-of-date facilities, or renewal or expansion of infrastructure to serve academic programs.

Subsequent to the passage of AB 94, Senate Bill 81 (SB 81) amended sections 92493, 92495, and 92495.5 of the Education Code to expand the eligible uses of funds to include "availability payments, lease payments, installment payments, and other similar or related payments for capital expenditures".

SB 81 also has a specific condition to the Merced campus' 2020 Project requiring that "all work traditionally performed by persons with University of California Service Unit job classifications is performed only be employees of the University of California".

The total cost for the capital improvements associated with the 2020 Project is estimated to be $900 million (2014 dollars). Additional owner fit out costs and contingency bring total design and construction costs to just under $1.06 billion (2014 dollars).

The State supportable portion of the project consists of approximately 415,800 ASF academic and campus operations and the infrastructure that is proportionate to the State eligible space. This is estimated to cost $527 million (year of expenditure dollars). Of that total, $400 million is expected to be funded with University external financing and the remaining $127.3 million is expected to be funded by the Developer. State General Funds would be used to service the debt on the University financing. With respect to the Developer funding, State General Funds would be the source of repayment for the capital component of the availability payments made to the Developer, subject to the provisions of Section 92493, *et seq.* of the Education Code. All non-State eligible costs will be funded using non-State resources.

VI. DELIVERY STRATEGY: DESIGN-BUILD-FINANCE-OPERATE-MAINTAIN

In order to cost-effectively build and maintain the proposed facilities, the delivery strategy is to develop the project using the familiar Design-Build methodology and to supplement it with a long-term maintenance agreement. This will enable the campus to properly plan for lifecycle needs over time while preserving the value of University ownership of the facilities.

This development structure is also referred to as a "design-build-finance-operate-maintain" (DBFOM) procurement model and is modeled from other successfully implemented infrastructure and public building projects mainly internationally and some in the United States. The DBFOM approach creates private-sector competition for a contract that links the cost of long-term maintenance and operation of the facilities to their initial design and construction.

As implemented, the University would enter into a long-term contract with a private-sector partner (Developer) that would design and construct all infrastructure and facilities, secure a portion of the financing, and perform lifecycle maintenance and management for the facilities.

The University would make payments (also known as "Milestone Payments") when the facilities are initially delivered. This would be followed by a predetermined schedule of payments over the course of thirty-five years to cover maintenance, capital renewal, and the amortization of any remaining amounts used to build the capital facilities, (also known as "Availability Payments").

In delivering the 2020 Project, the campus will be seeking a Developer with the expertise and innovation in design, construction, and management, and the ability to deliver the facilities in a cost-effective manner.

The proposed scope and strategy for the Project, its operational and financial considerations, and a proposed delivery timeline have received extensive modeling and evaluation, and the analysis indicates that the proposed DBFOM delivery method could provide:

- An advantage in time to delivery of up to four years
- Efficient and cost-effective pricing of lifecycle design, construction, and facilities management
- Increased long term budgetary certainty for facilities maintenance and operations
- Transfer of significant construction related risks from the campus to the Developer

The DBFOM approach allows the University to maintain ownership of the land and buildings throughout the project while giving the private developer significant incentive and flexibility to meet or exceed performance requirements and schedules built into the contract. Equally important, it allows the University to focus on its teaching, research and public-service mission while the Developer handles project implementation and management.

VII. PAYMENT STRUCTURE

To implement the Project, the University will issue financing for a large portion of the capital cost and the remainder of the funding will come from financing and equity through the Developer. The campus will pay debt service on the milestone payments. Payments by the campus to the Developer for its capital borrowing and equity in the form of availability payments will provide the Developer with funds needed to fund its facilities management responsibilities under the contract, repay its borrowed financing, and provide equity return.

The current plan of finance for the Project has been modeled as a "hybrid" version of an availability payment DBFOM contract. The total design and construction cost estimate under the DBFOM approach has been assumed to be approximately $900 million in 2014 dollars. Additional owner fit out costs and contingency bring total design and construction costs to just under $1.06 billion (2014 dollars).

The University would borrow approximately 50-75 percent of the total project construction cost using a combination of its own General Revenue and Limited Project Revenue Bonds. The Developer would provide funding for the remainder of construction costs plus any financing and other transaction costs through a combination of equity and private debt. The Developer's financing will be repaid over time through availability payments.

General Revenue Bonds (GRBs) and Limited Project Revenue Bonds (LPRBs) are planned to fund the three milestone payments totaling $600 million. The milestone payments will only be made to the Developer if specific conditions are satisfied and will not pay for the entire capital cost of the Project.

A summary of the funding for the $600 million in expected milestone payments is a follows:

Milestone Payment 1 (Mid-2017)

- $50 million
- Funded from existing Century Bond proceeds (non-State eligible)
- Payable upon the completion of $100 million in construction work

Milestone Payment 2 (Mid-2018)

- $175 million
- Funded with new GRBs (State-eligible) and/or LPRBs (non-State eligible)
- Payable upon completion of all First Delivery Facilities

Milestone Payment 3 (Mid-2019)

- $75 million
- Funded with new GRBs (State-eligible) and/or LPRBs (non-State eligible)
- Payable upon completion of all Second Delivery Facilities

Final Acceptance Payment (Mid-2020)

- $300 million
- Funded with new GRBs (State-eligible) and LPRBs (non-State eligible)
- Payable upon completion of entire 2020 Project

In the event of delay or any other problem precluding timely completion of the facilities, these milestone payments will not be made unless and until all of the required facilities are completed in full.

The annual cash flow requirement to fulfill all of UC Merced's 2020 Project obligations is estimated to be $105 million. The campus anticipates financing its payment obligations from several different sources, including revenue generated by campus auxiliaries, other campus revenue and fee sources, and AB 94 funds, exclusively for State-eligible facilities.

In the proposed transaction structure, there is no lease to the Developer and the Regents will own the underlying land and buildings. Payments under the Project Agreement can be reduced if the Developer fails to perform its obligations under the contract. The transaction structure is designed to include a financial incentive for the Developer to design efficient facilities on the agreed-upon time schedule and properly maintain them.

In addition, the transaction is structured to require the Developer to establish monetary reserves for capital renewal/compliance work and for work related to handback requirements at the end of the agreement term. These reserves ensure a funding source to return the buildings in a state of good repair, per the standards specified in the Project Agreement.

VIII. ALTERNATIVES

To meet the campus' goals, UC Merced analyzed a range of existing capital delivery models including:

- Design-Bid-Build Contracts
- Design-Build Contracts

Design-Bid-Build

Design-Bid-Build is a procurement methodology that has been utilized to deliver new campuses in the past. In this process, the campus would hold all responsibility, including the financial and performance risks, associated with the development of the master plan, the procurement of design services and the procurement of construction services.

In a Design-Bid-Build model, the design and construction costs are budgeted on a project-by-project basis. The cost of the design and construction is amortized over the term of a bond financing and interest costs associated with those bonds represent the financing costs. The University would make payments for the cost of the building as construction proceeds, and in full, upon completion of construction.

The nature of the sequential procurement methodology, including the need to develop infrastructure based on a selected master plan before procurement of buildings, elongates the delivery time for the facilities. The campus estimates that the fastest possible time to deliver the 2020 Project infrastructure, and all of the needed facilities to be a minimum of eight years (2024). As a result, the design and construction costs are higher due to construction inflation and the separation of the projects through several separately managed phases. The campus estimates that the annual cash flow required to develop and maintain under this model would cost $119 million per year.

The Design-Bid-Build strategy also has limitations on the warranties provided by each contractor. These limitations concentrate performance risk for the developed facilities on the University. Over time, the University would need to contract for capital renewal projects on a scheduled or deferred basis. The pricing of capital renewal projects would be subject to unknown future construction market conditions. In the event that buildings do not perform as designed and/or maintenance of capital renewal work is deferred, costs can become unpredictable and escalate rapidly.

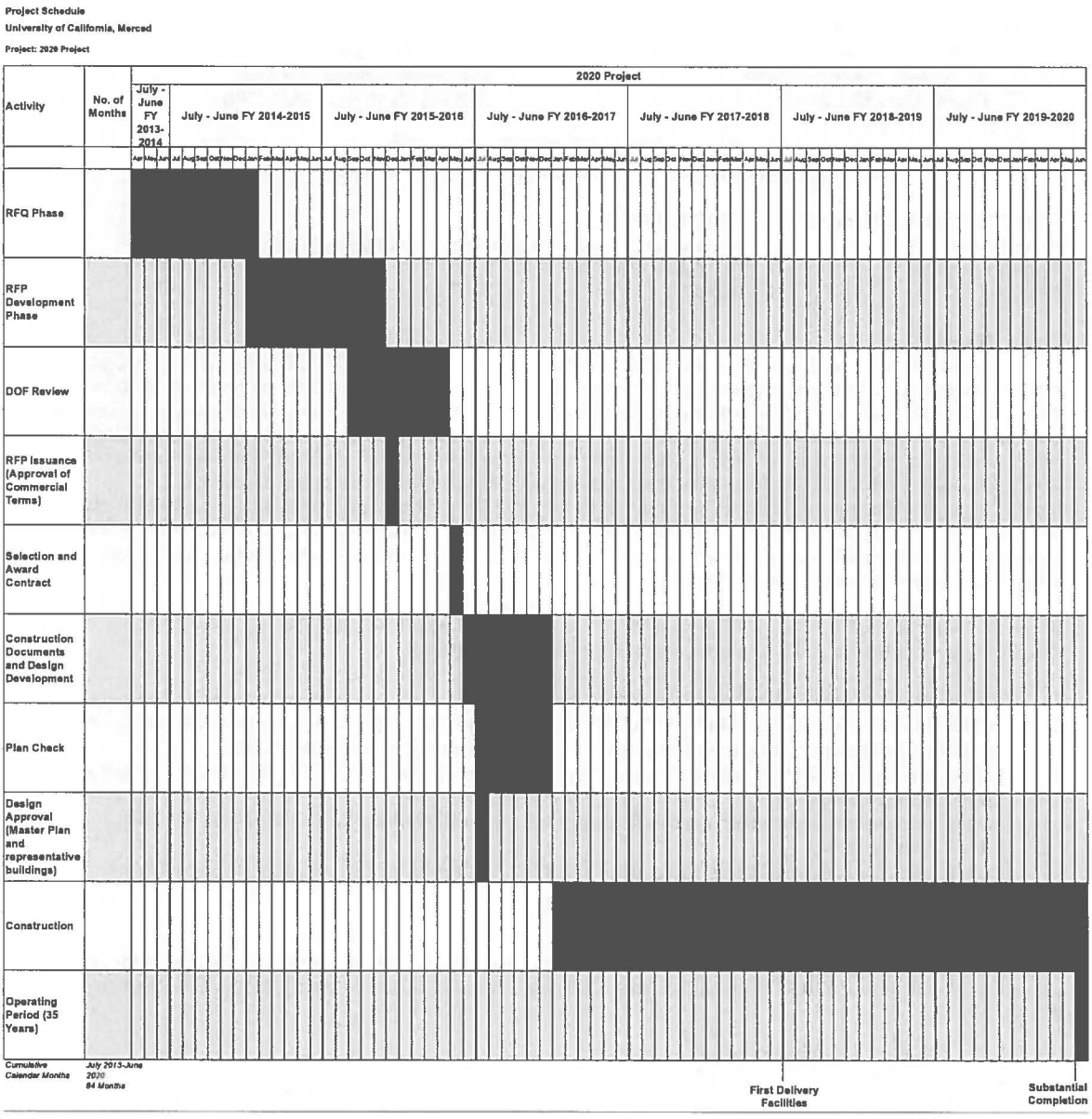
Design-Build

Design-Build is characterized by a single point of responsibility for both design and construction activities. Design-Build is often chosen to transfer risk and coordination responsibility to one contracting party to ensure a higher level of coordination for these two critical components of project delivery. Utilization of a Design-Build strategy would enable development of the supporting infrastructure for the Project at the same time as the buildings, thereby streamlining design and construction of the facilities.

In a Design-Build model, the design and construction costs are budgeted as a capital project. The cost of the design and construction is amortized over the term of a bond financing and interest costs associated with those bonds represent the financing costs. The University would make payment for the cost of the building as construction proceeds, and in full, upon completion of construction.

While faster than Design-Bid-Build, the Design-Build strategy has identical limitations on the value of the warranties provided by each contractor. Over time, the University would need to contract for capital renewal projects on a scheduled or deferred basis. The pricing of capital renewal projects would be subject to unknown future construction market conditions. In the event that buildings do not perform as designed and/or maintenance of capital renewal work is deferred, costs can become unpredictable and escalate rapidly. The campus estimates that the annual cash flow required to develop and maintain under this model would be no less than the $105 million estimated under DBFOM. The $105 million was set to ensure that the DBFOM delivery approach is both affordable and economically equivalent or better than the Design-Build approach.

IX. PROJECT SCHEDULE



X. NOTICE OF DETERMINATION

Notice of Determination Appendix D

To: ☒ Office of Planning and Research
PO Box 3044, 1400 Tenth Street, Room 222
Sacramento, CA 95812-3044
☐ County Clerk County of _____

From: University of California
Physical & Environmental Planning
1111 Franklin Street, 6th Floor
Oakland, California 94607-5200

Subject: Filing of Notice of Determination in Compliance with Section 21108 or 21152 of the Public Resource Code.

State Clearinghouse Number: 2008041009
Project Title: Amendment of Long Range Development Plan for Revised 2020 Project
Project Location: UC Merced Campus
County: Merced

Project Description:
LRDP Amendment No. 1, which is part of the UCM 2020 Project, revises the 2009 LRDP text and graphics to reflect a new campus mixed use land use designation on the portion of the campus site within which the proposed UCM 2020 Project would be located. The Project redefines campus districts and neighborhoods to create a better planning framework and identify a new Central Campus District within which the revised UCM 2020 Project would be developed. The LRDP amendment also defines areas on the existing campus that will be maintained as student housing and passive and active open space, and provides for a new local access road and a transportation buffer to ensure later transportation improvements to existing access roads are not impacted by the UCM 2020 Project. The new land use designation would provide the flexibility to locate different land uses as necessary within that portion of the campus, and allow the area to be developed at higher densities than previously envisioned. Approval of LRDP Amendment No. 1 constitutes the first discretionary approval for the UCM 2020 Project.

This is to advise that the University of California (☒ Lead Agency ☐ Responsible Agency) has approved the above-described project on May 15, 2013 and has made the following determinations:

1. The project ☒ will have a significant effect on the environment.
2. Addendum #6 to Volume 3 of the 2009 LRDP EIS/EIR has been prepared to document that no further environmental review is required for approval of the proposed LRDP amendment No.1.
3. Mitigation measures ☒ were made a condition of the approval of the 2009 LRDP EIR, no additional mitigation measures are necessary.
4. A mitigation reporting or monitoring plan ☒ was adopted for the 2009 LRDP EIR, no additional mitigation measures are necessary
5. A Statement of Overriding Considerations was adopted for the 2009 LRDP EIR, no additional Statement of Overriding Considerations is necessary
6. Findings ☒ were made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval is available to the general public at University of California, Physical Planning, 5320 North Lake Rd, Merced, CA 95340 Attn: Gene Barrera (209) 724-4333

Signature: Charlotte Strem
Title: Assistant Director, Physical and Environmental Planning
Date: May 17, 2013

RECEIVED
MAY 20 2013
STATE CLEARING HOUSE

Dated Received for filing at OPR:

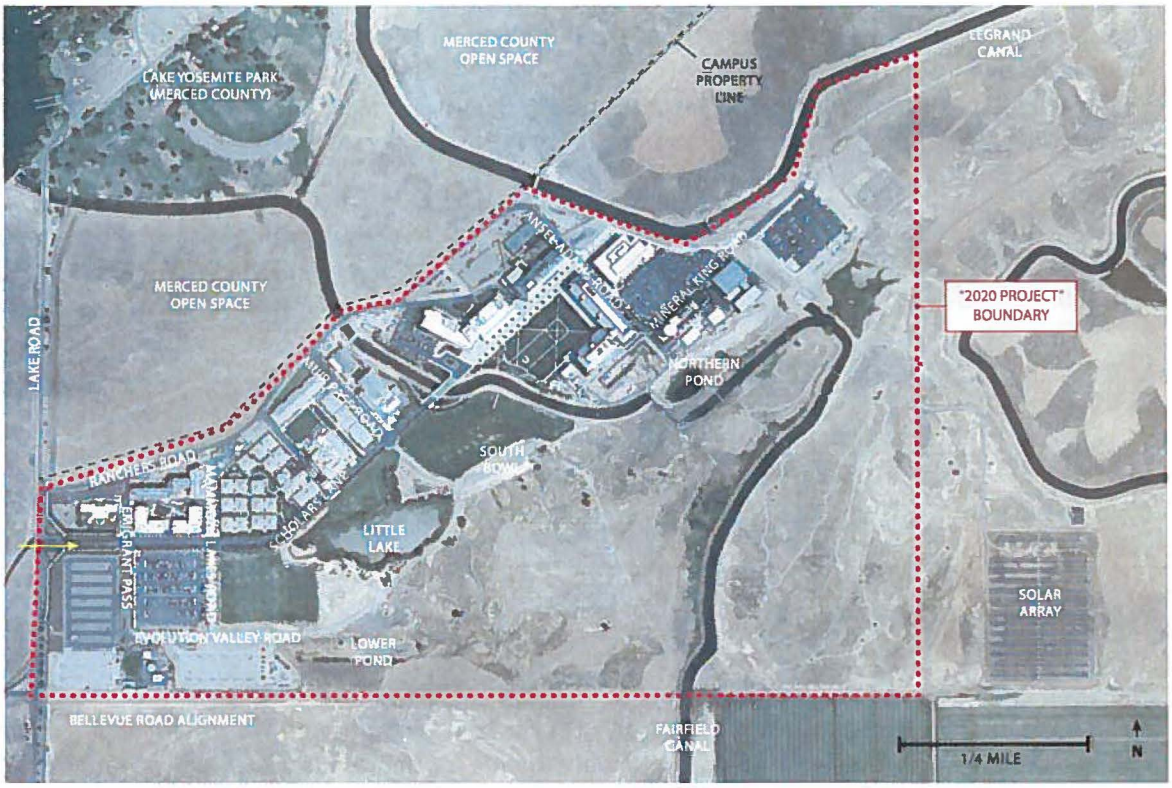
Authority cited: Sections 21083 and 21087, Public Resources Code
Reference: Sections 21000-21174, Public Resources Code

Revised 2004

APPENDIX 1

PROJECT SITE, CAMPUS MAP-AERIAL PHOTO

UC MERCED
2020 PROJECT BOUNDARY



SPACE UTILIZATION AND INFRASTRUCTURE NEEDS

UC Merced's space need is across both State-eligible (e.g. instruction and research) facilities and non-State eligible facilities (e.g. housing, parking, recreation etc.). The campus also has critical infrastructure needs.

Space Utilization: Academic Space

The campus has achieved high rates of space utilization in its existing facilities. Classroom utilization, expressed as hours per week per room, is 10 hours higher than the standards established by the California Postsecondary Education Commission (CPEC) with a median and average usage by room (median/average of the 'average utilization by room') of 71.5 percent and 71.4 percent respectively.

Space Utilization, Fall [2014] Data

Room Type	Capacity	Total Hours	Number of Rooms	UCM Weekly Room Hours	CPEC Weekly Room Hours
Seminar/Small Class	< 30 seats	895	20	44.7	42.0
Classroom	30 > 75 seats	952	18	52.9	42.0
Lecture Hall	> 75 seats	405	9	45.0	42.0
Dry Teaching Lab	Dry	607	17	35.7	25.0
Wet Teaching Lab	Wet	380	13	29.2	25.0

Space Utilization: Research Program

The CPEC standard for research space for ladder rank faculty (LRF), graduate students (GS) including post-docs (PD) is listed in the table below. However, to maximize space efficiency, a research team planning module approach has been utilized in program allotments for the research area of laboratories. This approach is reflected in the program allotments for laboratory support space as well as adjacent graduate student and academic office. For example, a "Humanities: Large" research team laboratory would provide sufficient space for a large group of multidisciplinary disciplines working on a joint project, while a "Humanities: Small" laboratory would provide computational space for a small project. As can be seen in the table below, this approach results in lower total space need that what the CPEC approach would have generated.

Space Allocation for Labs, using Modular Approach (SF)

	Research Team Approach	CPEC Approach		
		LRF	*GS*	*PD*
Science: ENG/NS	880	500	250	250
Science: SSHA	715	350	175	175
Humanities: Large	440	150	100	100
Humanities: Small	220	50	100	100

Space Utilization: Non-State Space

Residential

UC Merced currently provides housing for undergraduate students only. Existing residential housing consists of four non-State funded facilities totaling 1,896 beds. The residence halls, as designed, contain bed capacity that enables the campus to house all first year students but only 23 percent of the sophomore class. The Long Range Development Plan (LRDP) has also outlined a commitment to house 50 percent of the undergraduate student body.

Student Life

The need for student life, mentoring and support facilities is tied to the positive role it plays in academic success and the complete educational experience that defines what a UC-quality education consists of. At present time, UC Merced has one, non-regulation size soccer field that is shared for both athletics and casual recreation among 6,268 students. UC Merced has joined the NAIA California Pacific conference in Men's Basketball, Women's Volleyball, and Men's and Women's Cross Country. Future sports include women's basketball and men's and women's soccer. Expansion of athletic and recreational programs will require additional facilities.

Infrastructure Needs

Any expansion beyond the current 104-acre developed portion of campus requires the extension of basic infrastructure at significant up front cost. The lack of adequate and safe infrastructure for the current campus and the cost of expanding on-site infrastructure to support future growth, compete for funding with the development of new facilities. Incremental building-by-building infrastructure development has proven to be inefficient in both first costs and long-term operations.

Given its geographic location and climate, infrastructure at UC Merced is focused primarily on providing cooling to campus buildings. The campus Central Plant provides cooling to the entire campus using a Thermal Energy Storage tank system that chills water in the evening when energy costs are lower. In addition, the Central Plant provides power, emergency power and information technology connectivity. With the 2016 completion of the Central Plant and Telecommunications Reliability Upgrade Project the campus will have sufficient capacity to address infrastructure needs for the existing campus only.

The campus also is limited by possessing only one ingress and egress roadway into the campus. This has created a dangerous dead-end condition that could be problematic in the event of an emergency.

While transit and transportation demand strategies have been adopted, because of its isolated location, private vehicles represent a significant share of on campus traffic. The LRDP has set of target of 0.62 spaces per student FTE. Parking on the campus is comprised of 2,240 spaces located exclusively on surface lots funded with external sources. Given the current inventory, the campus would need approximately 2,000 additional spaces to meet the current ratio for 10,000 students.

2020 PROJECT PROGRAM DETAIL

As part of its goal to encourage interdisciplinary research, UC Merced intentionally does not have traditional departments, and therefore does not want entire buildings assigned or identified with a particular department. As a point of example, UC Merced's three schools are only loosely associated with particular buildings, more as a reaction to, and encouraging, the type of research activities their faculty engage in than a desire to formally allocate space to particular schools.

Rather than prescribing specific buildings based on traditional higher education approaches to space assignments, adjacencies, and groupings, the programing process was geared to create a program of spaces – not buildings - that the campus will need to carry out its mission and growth plan.

The 2020 Project program is a reflection of this process and is focused on creating mixed-use academic and student-focused space on campus. The campus has sought ways to continue patterns of efficiency and seek out models for flexible, adaptable spaces. The goal of the program is to extend the current campus to support new approaches to multi-disciplinary learning and research, consistent with the campus' recently completed Strategic Academic Focusing Initiative. To achieve that goal, the Project will develop adaptable joint- and mixed-use facilities that can accommodate the interdisciplinary nature of the campus' programs.

ACADEMIC SPACE PROGRAM (ASF)	First Delivery	Second Delivery	Substantial Completion	Total 2020 Project
INSTRUCTIONAL SPACE				
Classroom & Living/Learning Space	14,600	-	18,800	33,400
Class Laboratories	-	15,900	10,600	26,500
Colloquy Space		5,000	5,000	10,000
Total Instructional Space *(see Appendix 3-A)*	**14,600**	**20,900**	**34,400**	**69,900**
RESEARCH SPACE				
Wet Laboratories	-	24,700	51,500	76,200
Dry Laboratories	-	20,500	32,200	52,700
Computational Laboratories	-	9,200	9,200	18,400
Performance/Studio Laboratories	-	3,300	700	4,000
Core Laboratories	-	-	15,000	15,000
Laboratory Support and Maintenance Space	-	9,500	5,700	15,200
Total Research Space *(see Appendix 3-B)*	**0**	**67,300**	**114,200**	**181,500**
OFFICE SPACE				
Academic Office	-	62,200	50,600	112,800
Academic Leadership Office	-	-	9,800	9,800
Enrollment Center	-	-	22,800	22,800
Total Office Space *(See Appendix 3-C)*	**-**	**62,200**	**83,200**	**145,400**
TOTAL ACADEMIC PROGRAM	**14,600**	**150,300**	**231,900**	**396,800**

HOUSING (ASF)	First Delivery	Second Delivery	Substantial Completion	Total 2020 Project
Residence Hall	109,000	-	151,300	260,300
Graduate Apartments	-	73,500	-	73,500
Staff/Faculty in Residence	-	-	24,000	24,000
Housing Administration/Community	10,100	-	5,500	15,600
Housing Support and Maintenance	4,800	-	2,300	7,100
TOTAL HOUSING *(See Appendix 3-D)*	**123,900**	**73,500**	**183,100**	**380,500**

STUDENT LIFE AND ATHLETICS (ASF)	First Delivery	Second Delivery	Substantial Completion	Total 2020 Project
Dining Services	28,000	-	-	28,000
Student Activity	-	-	50,100	50,100
Wellness Center	-	-	16,700	16,700
Early Childhood Education Center	-	-	10,100	10,100
Aquatic Center	-	-	9,900	9,900
Athletic Fields	-	-	7,800	7,800
TOTAL STUDENT LIFE AND ATHLETICS *(See Appendix 3-D)*	**28,000**	**0**	**94,600**	**122,600**

CAMPUS OPERATIONS (ASF)	First Delivery	Second Delivery	Substantial Completion	Total 2020 Project
Public Safety	-	-	15,600	15,600
Environmental Health and Safety	-	-	3,400	3,400
TOTAL CAMPUS OPERATIONS *(See Appendix 3-D)*	**0**	**0**	**19,000**	**19,000**

SITE AND INFRASTRUCTURE (SF)	First Delivery	Second Delivery	Substantial Completion	Total 2020 Project
Site Development	2,748,200		207,500	2,955,700
Infrastructure	4,894,100		207,500	5,101,600
Parking	969,200	-	969,200	1,938,400

INSTRUCTIONAL SPACE PROGRAM

At UC, instructional programs at the undergraduate level transmit knowledge and skills to students. At the graduate level, students experience with their instructors the processes of developing and testing new hypotheses and fresh interpretations of knowledge.

In all cases, the academic program was calculated by developing the total need, based on UC Merced's Long Range Enrollment Plan (LREP) and faculty and staff hiring, and deducting existing space. In this respect it captures the deficiencies of existing campus space and ensures that the total built space will match the total program need.

Instructional Space Program (ASF)	First Delivery	Second Delivery	Substantial Completion	Total 2020 Project
Classroom & Living/Learning Space	14,600	-	18,800	33,400
Class Laboratories	-	15,900	10,600	26,500
Colloquy Space		5,000	5,000	10,000
Total Instructional Space	**14,600**	**20,900**	**34,400**	**69,900**

Classrooms and Class Laboratories

Classroom and class laboratory demand was calculated based on classroom and laboratory utilization for the Fall 2014 semester. The Fall 2014 room class and room data was broken down by room size, class type and utilization to establish number of rooms of each size and typical hours of utilization for the student population. In Fall 2016, the currently under construction Classroom and Office Building 2 will open and will resolve some of the deficiencies experienced by the campus, as such, the 2020 Program has been sized to address post-2016 utilization.

Many traditional space analysis methods, including CPEC, assign an area (ASF) per student contact hour in order to generate a total classroom space demand, without regard to room count. However, this approach in effect assumes that it is possible to have five different classes going on in a single large lecture hall, when in point of fact the need is by room count. Although there is a trend for universities to build more large lecture halls in order to increase the number of students served with less space, due to the goal of promoting student success among a primarily first generation student body, *the UC Merced instructional model is that of a small, intimate research university*.

For the 2020 Project analysis, the number of students per class was not considered, since the analysis was to identify demand for rooms, based on classes taught, regardless of size. The existing classroom distribution/utilization was analyzed by size, producing data showing classroom utilization by size. That was extrapolated to derive a forecast of classroom need by size, which was validated by the campus registrar.

In addition, the demographics of UC Merced's student body necessitate smaller classes than are traditionally found at many publicly funded universities: 62 percent of the student body are the first member of their family to attend college, and they require more assistance and direct professorial

contact than the lower division students of other campuses in the UC system. Thus the greatest need on the UC Merced campus is for seminar rooms and 30-seat classrooms.

Room Type		Average Hour per week	
		Current (Fall 2014)	Planned (post-2020)
Seminar Room	< 30 seats	44.73	45
Classroom	30 > 75 seats	52.91	45
Lecture Space	> 75 seats	45.00	45
Dry Teaching Lab	Dry	35.69	30
Wet Teaching Lab	Wet	29.23	30

These data were extrapolated using the enrollment projections with one adjustment to reduce weekly hours of use. The adjustment brings the utilization down closer to established CPEC classroom availability hours per week, and provides a degree of flexibility for future growth.

Using this approach of linear extrapolation includes an implicit assumption that class sizes do not change as the student population grows, and a 50 percent increase in students leads to a 50 percent increase in classes, and hence room demand. It also contains the assumption that the class and laboratory mix remains largely unchanged.

7 percent of total classroom space and 10 percent of class laboratory space is assigned to storage and service space. The service space includes classroom and laboratory preparation workspace.

Colloquy Space

Colloquy Space has a primary use by both students and faculty for unscheduled study, the exchange of ideas among disciplines, academic discussion activities and is often adjacent to research laboratories, research studios, or research offices. These spaces are areas can enable both casual and more formal interdisciplinary interactions (e.g. institutes, research centers) amongst the research and academic populations. They are key to the collaborative experience that the 2020 Project seeks to create.

Summary: Instructional Space Program Intent

Adaptability - Classrooms should be easily reconfigured to adapt to ever-changing pedagogical methods and techniques, themselves often occasioned by changes in technology.

Living/Learning – The vision for the campus is to be a place where students live where they learn and learn where they live; the distribution of classroom space should reflect this goal.

RESEARCH SPACE PROGRAM

The amount and types of research laboratory space required are a direct result of the anticipated distribution of the faculty among disciplines. The ladder rank faculty of UC Merced will, upon completion of the Project, be distributed among the School of Natural Sciences, the School of Social Sciences and Humanities and School of Engineering as follows:

Academic Space Distribution (ASF)		
Natural Sciences	40%	72,400
Social Sciences, Humanities and Arts	35%	63,400
Engineering	25%	45,200
Total		**181,000**

This distribution is a primary driver of the research space requirements for the campus. The amount of wet, dry, computational and performance/studio laboratory space needed was projected by applying the current distribution of the disciplines comprised by these Schools to the projected numbers of future faculty and students that will be in the Schools at the end of the project.

Research Space Program (ASF)	First Delivery	Second Delivery	Substantial Completion	Total 2020 Project
Wet Laboratories	-	24,700	51,500	76,200
Dry Laboratories	-	20,500	32,200	52,700
Computational Laboratories	-	9,200	9,200	18,400
Performance/Studio Laboratories	-	3,300	700	4,000
Core Laboratories	-	-	15,000	15,000
Laboratory Support and Maintenance Space	-	9,500	5,700	15,200
Total Research Space	**0**	**67,300**	**114,200**	**181,500**

The research facilities program outlines the general space requirements for the 2020 Project and is categorized according to six general types - wet labs, dry labs, computational labs, studio labs, core labs and laboratory support space.

Given the high proportion of UC Merced undergraduates – most of whom are first generation – studying in Science, Technology, Engineering and Math fields, hands-on labs offer the opportunity for undergraduates to work alongside faculty and graduate student researchers.

Brief definitions of the laboratory types are as follows:

Wet Laboratories - Spaces intended to support the use of chemical or other biological material and equipped with the full complement of lab bench space and piped services from various qualities of water to compressed air and gases.

Dry Laboratories - Spaces specific to work with dry stored materials electronics, and large instruments and provided with bench space similar to wet labs but without the need for wet piped services.

Computational Laboratories - Spaces intended to support electronic computing and data manipulation and provided with office type ergonomic workstations and widely distributed broadband high speed data transmission capabilities.

Performance/Studio Laboratories - Flexible space for the work of anthropologists, sociologists, performance and visual artists and equipped with a range of technical support features similar to dance or theatrical spaces.

Core Laboratories - Wet, dry or specialized spaces intended to be available to the entire research community and generally requiring staffing by specially trained technicians for particular pieces of equipment or operations. The Core Lab spaces planned for the 2020 Project include a vivarium, biosafety Level 3 laboratory, clean rooms, and a greenhouse.

Laboratory Support Space - Wet or dry spaces adjacent to and contiguous with the research space intended to house equipment such as microscopes and imaging instruments, refrigerators and freezers, and special operations such as cell culture and environmental rooms.

The ratio of laboratory space to support space varies according to the type. A building or facility- wide category of space, entitled "Support and Maintenance" includes research spaces accessible to the entire research facility but that are not specifically "Core Labs". These spaces include central MRI and imaging rooms, chemical storage rooms, engineering machine shop, and general laboratory storage.

CPEC Approach for Allocating Space for Research Laboratories

Traditionally research labs have been sized by allocating a fixed number of square feet to each ladder rank faculty member, including office space for graduate students within the laboratories. The California Postsecondary Education Commission (CPEC) took this approach.

However, modern safety best practices dictate that graduate student office space be located outside the laboratory. In addition, major research institutions no longer grant research space in perpetuity to faculty members or their affiliated researchers, but size the allocation in accordance with the funding the faculty member has obtained to support his or her research and hence the number of researchers the Principal Investigator (PI) can support. The productivity of this funding can be expressed as a ratio of graduate students per Principal Investigator ("GS:PI"), and in many established research universities this ratio can rise to as high as 10:1.

2020 Project Approach for Allocating Space for Research Laboratories

The research lab program for the 2020 Project was based on assigning lab arrays or suites which include both laboratory and lab support space to ladder-rank faculty in their roles as research Principal Investigators, and an allowance for graduate student research bench space at a fixed ratio of five graduate students to one Principal Investigator.

UC Merced's GS:PI ratio was 2.5:1 in Fall 2014 and is anticipated to rise to 3:1 by the completion of the 2020 Project. However, as part of UC Merced's goal to advance its research goals, it is critical to provide additional space to enable PI productivity to continue to rise after the completion of the Project, so the 2020 Program provides for an end-state GS:PI ratio of 5:1 in the laboratories – essentially doubling the

the space for productive research. While more mature universities are currently operating at a 10:1 ratio, the 2020 Project ratio provides a modest and realistic approach to growth for a young campus.

For space efficiency, a planning module of 10'-6" by 31'-6" (1 module by 3 modules) has been utilized in the program allotments for the research area of the laboratories. This module then is reflected in the program allotments for laboratory support space as well as adjacent graduate student and academic offices. Standard practice in research facility design then results in a structural bay of 21'-0" by 31'6" in the long span areas of the lab where vibration sensitivity is low and a shorter span area corresponding to lab support space where vibration sensitive equipment and operations can be located.

The arrays are based on multiples of a 110 SF 'module'. The characteristics of laboratory buildings naturally lead to standard dimensions of both the laboratory and the furniture, fixtures, and equipment that go in them. A standard 10x11 foot (110 ASF) module is an optimal size for laboratory uses as it permits buildings with large, open floor plates and accommodates the dimensions of standard lab fittings designed to go in them. The end result of the program is that the 2020 Project aims to minimize costs by focusing on space efficiency when compared to CPEC standards.

Summary: Comparison of Approaches

Space allocation (ASF) variation based on disciplines	PI	GS	Support	Total
Complex Wet or Dry Laboratories (CPEC Category I)	330	275	275	880
Wet or Dry Laboratories requiring fewer serviced (CPEC Category II)	220	275	220	715
Computational Lab (CPEC Category V)	165	275	0	440
Performance Space/Studio (CPEC Category III)	330	0	0	330

Space Allocation for Labs, using Modular Approach (SF)

	Research Team Approach	CPEC		
		LRF	*PD*	*GS*
Science: ENG/NS	880	500	250	250
Science: SSHA	715	350	175	175
Humanities: Large[1]	440	150	100	100
Humanities: Small	220	50	100	100

Note that in the CPEC version, the space allocated for post-docs and graduate students is also their office space. In the approach taken by UC Merced, office workspace is calculated separately at 65 asf per

[1] A "Humanities: Large" research team laboratory would provide sufficient space for a large group of multidisciplinary disciplines working on a joint project, while a "Humanities: Small" laboratory would provide computational space for a small project

student and is included in the Academic Office section of the program.

Laboratory Support and Maintenance Methodology

		ASF/each
Core lab components: Glass wash, central preparation, common equipment	1 per 50,000 ASF	1,500
Research Server Room	1 per 50,000 ASF of wet/dry lab	500
Chemical Storage	1 per 25,000 ASF of wet lab	500
Lab Storage	1 per 50,000 ASF	1,000
Engineering Machine Shop	1 per 25,000 ASF of dry lab	1,500
Recycling/Trash	1 per 35,000 ASF	250
Loading Dock	1 per 35,000 ASF	250

Summary: Research Program Intent

Flexibility – Laboratory spaces need to be as flexible as possible to permit allocation of additional space to growing research programs without major renovations and co-location or relocation of similar laboratory programs as they arise to encourage collaboration and interdisciplinary research.

Modularity – Due to the rapidly changing nature of research methods and techniques, the laboratories need to be as modular as possible, particularly in terms of HVAC design, gas delivery, specialized systems and structural loading to make reconfiguration and adaptation of lab space easy and (relatively) inexpensive. Lab organization should be by similar research methods and techniques rather than by discipline.

Adaptability – It is impossible to foresee how research will evolve in the years ahead. Thus research space needs to be able to be adapted to changing needs with a minimum of structural involvement or costly renovations.

Interdisciplinary – Ground-breaking research is increasingly accomplished through teamwork among researchers in different foundational disciplines and casual interaction among faculty and students that sparks new ideas for research. Research space needs to facilitate that interaction and transdisciplinary thought.

Shared Services – Services which can be shared centrally, such as autoclaves, vivaria, and other facilities should be organized in such a way that they are accessible to all researchers who need to use them.

OFFICE SPACE PROGRAM

Office Space Program (ASF)	First Delivery	Second Delivery	Substantial Completion	Total 2020 Project
Academic Office	-	62,200	50,600	112,800
Academic Leadership Office	-	-	9,800	9,800
Enrollment Center	-	-	22,800	22,800
Total Office Space	-	**62,200**	**50,600**	**145,400**

Office Space Module (ASF)	
Enclosed Office	130.00
Reception	6.00
Conference Room	27.50
Administrative Office	7.25
Copy Room	12.50
Storage/Filing	7.75
Break Room	4.00
Total	**195.00**

Academic office space was projected based on a modular approach to academic office space needs similar to that used in CPEC. The CPEC factor for ladder rank faculty is also 195 ASF, to include associated administrative spaces.

Academic Office Program Intent

Interdisciplinary - Academic office space and support areas should be designed to support the campus' goal of promoting interdisciplinary exploration and research, the intimate learning experience resulting from close collaboration among faculty and students that is a hallmark of a UC Merced education, and a twenty-four hour learning environment.

Adjacency - Faculty offices should be as near as practicable to their research laboratories/studios without compromising the modularity and flexibility of the laboratory space and the location should encourage faculty/student interaction. Adjacencies should encourage interdisciplinary interaction and spontaneous intellectual exchanges.

Adaptability – An element that is constant in higher education is continuous reconfiguration of the physical space in which the institution operates. This "churn" is both time consuming and expensive. Academic office space should, like commercial office space, be easily reconfigured and adapted without requiring structural changes or major reconfiguration of utilities or the building core.

NON-ACADEMIC SPACE PROGRAM

Housing

Over 60 percent of the student body belongs to a family where neither parent holds a four-year college degree, and they require more assistance and support. Research, shows that, particularly in the case of students who have no family tradition of attending college, students who live on campus for their first year perform much better than those who do not.

HOUSING (ASF)	First Delivery	Second Delivery	Substantial Completion	Total 2020 Project
Residence Hall	109,000 (712 beds)	-	151,200 (988 beds)	260,200 (1,700 beds)
Graduate Apartments	-	73,500 (200 beds)	-	73,500 (200 beds)
Staff/Faculty in Residence		-	24,000	24,000
Housing Administration/Community	10,100	-	5,500	15,600
Housing Support and Maintenance	4,800	-	2,300	7,100
TOTAL HOUSING	**160,700**	**0**	**219,800**	**380,500**

UC Merced currently has approximately 1,896 beds. One key to the housing program will be the ability to build double occupancy rooms which can be converted to triples in order to maintain sufficient housing on campus. The program will provide the capacity to house up to 50 percent of enrolled students on campus, anticipating that approximately 40 percent will be housed on campus at the completion of the 2020 Project, with the master-planned capacity to construct more units to achieve 50 percent housing.

Student Life and Athletics

The overall intent of student life and athletics program is to integrate living and learning into a unified whole.

STUDENT LIFE AND ATHLETICS (ASF)	First Delivery	Second Delivery	Substantial Completion	Total 2020 Project
Dining Services	28,000	-	-	28,000
Student Activity	-	-	50,100	50,100
Wellness Center	-	-	16,700	16,700
Early Childhood Education Center	-	-	10,100	10,100
Aquatic Center	-	-	9,900	9,900
Athletic Fields	-	-	7,800	7,800
TOTAL STUDENT LIFE AND ATHLETICS	**28,000**	**0**	**94,600**	**122,600**

An integral part of the UC student experience are opportunities for active learning through student participation in leadership, civic engagement, cultural and teamwork oriented activities. These elements have been shown to positively benefit retention rates and student success. Student activity and athletic facilities have lagged behind overall campus since its inception. In general, student life space needs reflect needs for a student body of 10,000 students and space for staff proportionately increased from Fall 2014 to cover the 2020 Project student population. From dining facilities that can be used for small student events to athletic venues that can be used for ceremonial occasions, this is a portion of the program where mixed use and flexible space can be used to effectively create more space than can be achieved with space dedicated to a single use. The existence of facilities with this flexible character will provide additional support to accommodate undergraduate success.

Campus Operations

The Public Safety and Environmental Health and Safety (EH&S) Programs were developed from the Workforce Plan developed in the 2014-15 academic year, which determined the project size of Public Safety and EHS staff size for a campus of 10,000 students. The layout and program of the facility will comply with all applicable statutes, regulations and UC police. Essential Facilities will account for approximately 25 percent of the space. Public Safety and Environmental Health & Safety (EH&S) are housed together for synergy and optimal space utilization.

CAMPUS OPERATIONS (ASF)	First Delivery	Second Delivery	Substantial Completion	Total 2020 Project
Public Safety	-	-	15,600	15,600
Environmental Health and Safety	-	-	3,400	3,400
TOTAL CAMPUS OPERATIONS	**0**	**0**	**19,000**	**19,000**

Infrastructure

The 2020 Project will be developed on an entirely undeveloped site without any preexisting infrastructure, as such, the scale and scope of necessary infrastructure represents a significant portion of the overall program and are vital to the ability of UC Merced to meets its academic objectives. As a "greenfield" campus, expansion requires significant investment in infrastructure to extend basic services to prepare future sites for development and campus wide investments for storm water management. Infrastructure needed to support safe use of the Project will cover approximately 136 acres of undeveloped land and includes water and sewers, power and emergency power, gas infrastructure, storm water management, information technology and telecommunications.

The methodology for developing the infrastructure program was based on discrete per linear foot, square foot and capacity cost calculations for each individual infrastructure component. Given that both State and non-State eligible facilities will be beneficiaries of the infrastructure planned for the 2020 Project, the State eligible share of the cost of the infrastructure will be prorated to reflect only those facilities that are State eligible.

SITE AND INFRASTRUCTURE (SF)	First Delivery	Second Delivery	Substantial Completion	Total 2020 Project
Site Development	2,748,200 sf		207,500 sf	2,955,700 sf
Infrastructure	4,894,100 sf		207,500 sf	5,101,600 sf
Parking	969,200 sf	-	969,200 sf	1,938,400 sf

MERCED 2020 PROJECT BUDGET

US$ in millions	State Eligible									Non State-Eligible									Total Project								
	ASF	GSF	Site Prep	Site Development	Infrastructure	Construction	FF&E	Soft Costs	Total State Eligible	ASF	GSF	Site Prep	Site Development	Infrastructure	Construction	FF&E	Soft Costs	Total Non State Eligible	Total ASF	Total GSF	Site Prep	Site Development	Infrastructure	Construction	FF&E	Soft Costs	Total Project Cost
Academic Space																											
Research Laboratory	181,660	301,700	0.75	8.64	25.01	191.47	19.04	33.14	278.04	-	-	-	-	-	-	-	-	-	181,660	301,700	0.75	8.64	25.01	191.47	19.04	33.14	278.04
Academic Office	112,790	172,400	0.24	2.78	8.05	61.61	6.12	10.66	89.46	-	-	-	-	-	-	-	-	-	112,790	172,400	0.24	2.78	8.05	61.61	6.12	10.66	89.46
Classrooms	33,360	38,900	0.10	1.10	3.20	24.46	2.43	4.23	35.52	-	-	-	-	-	-	-	-	-	33,360	38,900	0.10	1.10	3.20	24.46	2.43	4.23	35.52
Classroom Laboratory	26,445	60,700	0.09	1.04	3.01	23.03	2.29	3.99	33.44	-	-	-	-	-	-	-	-	-	26,445	60,700	0.09	1.04	3.01	23.03	2.29	3.99	33.44
Academic Leadership Office	9,769	15,000	0.02	0.19	0.54	4.13	0.41	0.72	6.00	-	-	-	-	-	-	-	-	-	9,769	15,000	0.02	0.19	0.54	4.13	0.41	0.72	6.00
Colloquy Space	10,000	16,700	0.03	0.33	0.96	7.33	0.73	1.27	10.65	-	-	-	-	-	-	-	-	-	10,000	16,700	0.03	0.33	0.96	7.33	0.73	1.27	10.65
Enrollment Center	22,785	35,100	0.05	0.52	1.51	11.57	1.15	2.00	16.80	-	-	-	-	-	-	-	-	-	22,785	35,100	0.05	0.52	1.51	11.57	1.15	2.00	16.80
Campus Operations	19,020	27,200	0.05	0.59	1.70	13.02	1.29	2.25	18.91	-	-	-	-	-	-	-	-	-	19,020	27,200	0.05	0.59	1.70	13.02	1.29	2.25	18.91
Student Housing	-	-	-	-	-	-	-	-	-	380,453	505,900	1.19	9.80	21.35	163.45	14.72	28.26	238.76	380,453	505,900	1.19	9.80	21.35	163.45	14.72	28.26	238.76
Student Activity	-	-	-	-	-	-	-	-	-	122,630	193,000	0.75	6.18	13.47	103.17	9.29	17.76	150.62	122,630	193,000	0.75	6.18	13.47	103.17	9.29	17.76	150.62
Parking	-	-	-	-	-	-	-	-	-	-	-	2.13	18.44	-	-	0.08	3.50	24.16	-	-	2.13	18.44	-	-	0.08	3.50	24.16
Owner Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88.34	88.34	-	-	-	-	-	-	-	88.34	88.34
Contingency	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68.75	68.75	-	-	-	-	-	-	-	68.75	68.75
Total ($2014)	415,829	667,700	1.31	15.18	43.97	336.62	33.47	58.27	488.82	503,083	698,900	4.07	34.42	34.82	266.62	24.09	206.61	570.63	918,912	1,366,600	5.38	49.61	78.79	603.24	57.56	264.88	1,059.45
Total (YOE)	415,829	667,700	1.42	16.38	47.43	363.12	36.10	62.86	527.30	503,083	698,900	4.39	37.13	37.56	287.61	25.99	222.87	615.55	918,912	1,366,600	5.81	53.51	84.99	650.73	62.09	285.73	1,142.85