

Fiscal Year 2020-21 Capital Construction Request

Colorado School of Mines

Subsurface Frontiers Building

PROGRAM PLAN STATUS

2020-030

Approved Program Plan? Yes

Date Approved:

PRIORITY NUMBERS

Prioritized By	Priority	
DeptInst	1 of 3	
CCHE	5 of 39	
OSPB	1 of 14	Recommended by OSPB for funding from cash sources rather than from state funds as requested.

PRIOR APPROPRIATION AND REQUEST INFORMATION

Fund Source	Prior Approp.	FY 2020-21	FY 2021-22	Future Requests	Total Cost
CCF	\$1,856,741	\$18,143,259	\$0	\$0	\$20,000,000
CF	\$9,369,018	\$110,630,982	\$0	\$0	\$120,000,000
Total	\$11,225,759	\$128,774,241	\$0	\$0	\$140,000,000

ITEMIZED COST INFORMATION

Cost Item	Prior Approp.	FY 2020-21	FY 2021-22	Future Requests	Total Cost
Land Acquisition	\$0	\$0	\$0	\$0	\$0
Professional Services	\$11,225,759	\$0	\$0	\$0	\$11,225,759
Construction	\$0	\$118,646,765	\$0	\$0	\$118,646,765
Equipment	\$0	\$3,274,180	\$0	\$0	\$3,274,180
Miscellaneous	\$0	\$200,000	\$0	\$0	\$200,000
Contingency	\$0	\$6,653,296	\$0	\$0	\$6,653,296
Software Acquisition	\$0	\$0	\$0	\$0	\$0
Total	\$11,225,759	\$128,774,241	\$0	\$0	\$140,000,000

PROJECT STATUS

This is a continuation project. It received capital construction funds and cash funds spending authority for Phase I in FY 2019-20, including \$9.4 million in cash funds spending authority that was granted through the two-year cash process. Though this project was requested for a combination of state funds and cash funds spending authority, the Office of State Planning and Budgeting recommends it be funded solely with cash funds.

PROJECT DESCRIPTION / SCOPE OF WORK

Colorado School of Mines (Mines) is requesting state funds and cash funds spending authority for the second phase of a two-phase project to construct an interdisciplinary research facility called the Subsurface Frontiers Building. In partnership with the United States Geological Survey (USGS), the building will house both organizations' mineral exploration and subsurface mineral economics programs, in order to advance worldwide knowledge of the Earth's energy and mineral resources.

The project will construct a new 180,189-GSF, five story building to house research laboratories, imaging labs, classrooms, conference rooms, offices and associated spaces. About one-third of the space will be occupied by the

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Colorado School of Mines

Subsurface Frontiers Building

university and two-thirds will be occupied by USGS. Building organization for the project will focus on colocation of disciplines by common research themes. Each of the five floors will be integrated, with collocated administrative and laboratory space for the five centers of excellence (Geophysics, Mineral Resources, Microanalysis and Sample Characterization, High-Performance Computing and Visualization Lab, and Isotope Chemistry). The program net assignable square footage (ASF) will consist of laboratory and laboratory support spaces (48,816 ASF), administrative and office spaces (24,239 ASF), support and shell spaces (15,243 ASF), public spaces (7,033 ASF), conference rooms and classrooms (10,032 ASF), and shop space and storage space (9,255 ASF). Last year's request for Phase I provided design services; this year's request for Phase II constructs and equips the building.

The building will include space for electron microscopes, vibration sensitive equipment, sample receiving and preparation, and laboratory typologies including imaging, general chemistry, isotope, advanced instrumentation, and clean labs. Laboratories in the Subsurface Frontiers Building will include a substantial amount of specialized research equipment for sample preparation (mills, grinders, saws, polishers, scales, thin section samplers), analysis (mass spectrometry, electron microscopes, X-ray crystallography, optical scopes), remote sensing, and data visualization. The project will also include a high performance computing and visualization suite with significant computing resources and support equipment.

Public-facing space will include a showcase for unique equipment and research, a shared auditorium, meeting spaces, and the High-Performance Computing and Visualization Center, which will provide 3D and immersive technologies (augmented reality and virtual reality) to support both Mines' and USGS' emerging requirements for data visualization.

Cost assumption. The cost assumption was determined by a third-party consultant, from comparative data using recent similar lab-intensive projects. The cost per GSF is \$777. The project accounts for inflation costs at 8.0 percent, projected to the mid-point of construction. The project meets the Art in Public Places and High Performance Certification Program requirements.

PROJECT JUSTIFICATION

According to the university, the project will become the nation's premiere destination for earth sciences research, due to the colocation of the university's geosciences programs with USGS, and will provide a unique opportunity to increase knowledge about earth sciences. This is a time-sensitive opportunity arising out of USGS's need to replace its aging existing facilities at the Denver Federal Center. The project will also give students employment and internship opportunities with USGS.

The university did not identify any project alternatives.

PROGRAM INFORMATION

Founded in 1874, Mines is a public teaching and research university devoted to engineering and applied science. The university's strategic plan anticipates a 1,200-student enrollment increase by 2020, and an increase in research expenditures from \$60 million to \$100 million. The majority of the student increase will be graduate students that support the research increase.

PROJECT SCHEDULE

	Start Date	Completion Date
Design	N/A	N/A
Construction	November 2019	May 2022
Equipment	May 2022	June 2022
Occupancy		June 2022

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SOURCE OF CASH FUNDS

The source of cash funds for this project is federal funds (\$3.0 million), institutional reserves (\$4.1 million), and bond financing (\$131.0 million), including excess cash revenue from an existing student construction fee approved in 2006 (\$18.2 million). According to the university, the use of the excess revenue was approved by students.

OPERATING BUDGET

Operating expenses are paid from institutional sources. According to the university, the operating costs for the finishing building are expected to be \$1.0 million per year, of which two-thirds will be funded through USGS rental payments. The remainder will be funded through the university's general fund.

STAFF QUESTIONS AND ISSUES

All responses to staff questions were incorporated into the project write-up.

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Colorado School of Mines

Arthur Lakes Library Renovation

PROGRAM PLAN STATUS

2011-007

Approved Program Plan? Yes

Date Approved:

PRIORITY NUMBERS

Prioritized By	Priority	
DeptInst	2 of 3	
CCHE	19 of 39	
OSPB	45 of 47	Not recommended for funding.

PRIOR APPROPRIATION AND REQUEST INFORMATION

Fund Source	Prior Approp.	FY 2020-21	FY 2021-22	Future Requests	Total Cost
CCF	\$0	\$10,000,000	\$0	\$0	\$10,000,000
CF	\$0	\$3,000,000	\$0	\$0	\$3,000,000
Total	\$0	\$13,000,000	\$0	\$0	\$13,000,000

ITEMIZED COST INFORMATION

Cost Item	Prior Approp.	FY 2020-21	FY 2021-22	Future Requests	Total Cost
Land Acquisition	\$0	\$0	\$0	\$0	\$0
Professional Services	\$0	\$1,322,825	\$0	\$0	\$1,322,825
Construction	\$0	\$9,499,925	\$0	\$0	\$9,499,925
Equipment	\$0	\$1,125,000	\$0	\$0	\$1,125,000
Miscellaneous	\$0	\$102,250	\$0	\$0	\$102,250
Contingency	\$0	\$950,000	\$0	\$0	\$950,000
Software Acquisition	\$0	\$0	\$0	\$0	\$0
Total	\$0	\$13,000,000	\$0	\$0	\$13,000,000

PROJECT STATUS

This project was first requested for funding in FY 2019-20; however, the project also appeared on the university's five-year projection of need between FY 2010-11 and FY 2013-14.

PROJECT DESCRIPTION / SCOPE OF WORK

Colorado School of Mines (Mines) is requesting \$13,000,000 in state funds and cash funds spending authority to renovate the Arthur Lakes Library. The project will update and modernize the 76,719-GSF library, focusing on increasing student study and resource spaces, while consolidating staff workspace and the library's collections to eliminate the need to increase the building's existing footprint. The university plans to do this by:

- building a new accessible entry;
- creating a new grand staircase that will connect the levels of the library; and
- improving user space for group collaboration and individual study.

The new accessible entrance will accommodate universal access at a shared primary entry located on the most

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Arthur Lakes Library Renovation

student-trafficked side of the library and will include outdoor study spaces and a connection to the Mines Parking Garage. The project removes a center portion of the floor structure at the two mezzanines and the second floor, which currently provides limited use as a result of low-clearance floor height. The new grand staircase will improve visibility and wayfinding between the floors of the library.

The library will seat over 960 users at a time and will include ample power outlets and computer stations throughout the building. The building will also include a multipurpose room for various programming events, Center for Academic Services Advising and Applied Mathematics and Statistics tutoring space, and an interactive classroom with seating to accommodate 40 students, or 82 percent of Mines classes.

Cost assumption. The cost assumption was determined by a third-party consultant. The cost per GSF is \$170. The project accounts for future inflation at a rate of 4.0%. The project meets the Art in Public Places and High Performance Certification Program requirements.

PROJECT JUSTIFICATION

According to the university, the existing building does not meet the needs of the campus due to a shortage of space, inadequate handicapped accessible access, and inadequate wayfinding. Mines asserts that the library's current layout does not meet today's student and staff needs, and there are inadequate spaces for students to use for study or collaborative work.

Currently library users requiring an accessible entrance may only enter at a bridge to a door on the library's second level, which is locked at all times and can only be accessed after ringing a door bell and waiting for a staff member to unlock the door.

The university explains that a building physical condition audit conducted by the university in January 2014 rated the Facility Condition Index (FCI) as 73.3. The FCI is a measure of the cost of remedying building deficiencies compared to a building's current replacement value, and the state architect's target FCI for all buildings is 85.

Project alternatives. The university considered other alternatives, including postponing renovations, at an estimated cost escalation of 4.0 percent per year, and constructing a new building, at an estimated cost of \$30.7 million.

PROGRAM INFORMATION

Founded in 1874, Mines is a public teaching and research university devoted to engineering and applied science. Current enrollment of 6,607 students is expected to increase by 1,200 students by 2020.

Arthur Lakes Library was originally constructed in 1955 and last expanded in 1979. Highlights of its collections include an extensive map collection, the Tell Ertle Oil Shale Repository, the Mining History Archive, and the Information Center for Ropeway Studies, which provides information on the history, theory, design, and operation of ropeway systems.

PROJECT SCHEDULE

	Start Date	Completion Date
Design	October 2019	April 2020
Construction	June 2020	January 2022
Equipment	January 2022	January 2022
Occupancy		January 2022

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Colorado School of Mines

Arthur Lakes Library Renovation

SOURCE OF CASH FUNDS

The source of cash funds for this project is anticipated donor contributions.

OPERATING BUDGET

Operating expenses are paid from institutional sources. According to the university, this project will have no impact on or may potentially decrease its operating budget, due to efficiency gains in its floor plan and HVAC systems.

STAFF QUESTIONS AND ISSUES

All responses to staff questions have been incorporated into the project write-up.