Fiscal Year 2024-25 Capital Construction Request

Colorado School of Mines
Campus Infrastructure

PROGRAM PLAN STATUS

2024-012

Approved Program Plan Yes **Date Approved:** October 31, 2023

PRIORITY NUMBERS

Prioritized By	Priority	
CSM	1 of 2	
CCHE	7 of 29	
OSPB	52 of 62	Not recommended for funding.

PRIOR APPROPRIATIONS AND REQUEST INFORMATION

Fund Source	Prior Approp.	FY 2024-25	FY 2025-26	Future Requests	Total Costs
CCF	$0	$31,917,260	$0	$0	$31,917,260
CF	$0	$10,639,087	$0	$0	$10,639,087
Total	$0	$42,556,347	$0	$0	$42,556,347

ITEMIZED COST INFORMATION

Cost Item	Prior Approp.	FY 2024-25	FY 2025-26	Future Requests	Total Cost
Land Acquisition	$0	$0	$0	$0	$0
Professional Services	$0	$3,225,379	$0	$0	$3,225,379
Construction	$0	$35,105,080	$0	$0	$35,105,080
Equipment	$0	$0	$0	$0	$0
Miscellaneous	$0	$316,797	$0	$0	$316,797
Contingency	$0	$3,909,091	$0	$0	$3,909,091
Total	$0	$42,556,347	$0	$0	$42,556,347

PROJECT STATUS

This project was requested for funding in FY 2023-24; this is the second request for funding. The Colorado School of Mines (CSM) received cash funds spending authority to increase the capacity of steam and chilled-water infrastructure serving its South Campus. The school subsequently requested state funding for these improvements for FY 2018-19, but did not receive funding and made the improvements with the previously approved cash funding. CSM received additional cash funds spending authority in July 2019 to extend steam, chilled-water, and power services for new buildings along 18th Street. The FY 2023-24 request was a two-phase project, while this year's request is one phase with a reduced scope.

Prepared by Legislative Council Staff

Fiscal Year 2024-25 Capital Construction Request

Colorado School of Mines
Campus Infrastructure

PROJECT DESCRIPTION / SCOPE OF WORK

CSM is requesting a combination of state funds and cash funds spending authority for a one-phase project to upgrade chilled-water, steam, and electrical infrastructure serving existing and planned buildings. The school is constructing new buildings to address enrollment growth, and infrastructure upgrades are a necessary component of these projects. Additionally, the project addresses deferred maintenance and utility loads, which are currently at capacity.

The project will construct utility infrastructure for the new Research Building (anticipated construction in 2026); electrical infrastructure for the remainder of the planned 18th Street development, which includes additional research buildings, a parking structure/classroom building, and student housing; address overall campus infrastructure deficiencies; equip two buildings with photovoltaic panels; and install electric vehicle charging stations across campus.

Specific construction includes:
• installing two new 538-ton chillers and pumps in Chiller Plant 4 and making electrical and control upgrades;
• installing chilled water infrastructure at buildings to be serviced by the chilled water system;
• removing glycol;
• installing direct-bury piping for the chilled water system;
• replacing and building out Chiller Plant 5 with a new plant with three 750-ton chillers, electrical and controls upgrades, extended square footage, and extended buried piping;
• extending piping to 18th Street Research Building sites;
• replacing steam infrastructure serving the 18th Street research buildings, including Boiler #3, the condensate pump station, the surge tank, and the condensate polisher and filters;
• extending existing power and communications utilities to accommodate the planned new buildings;
• laying new communications cable;
• extending and integrating the two campus voltage loops to better manage power loads, emergency back-up power, and redundancy;
• adding solar panels to the Beck Venture Center and the Classroom Building and parking garage; and
• adding approximately 50 Level 2 electric vehicle chargers to existing parking areas.

Cost assumption. CSM completed two independent construction estimates for the project based on bids received for comparable work. Inflation is factored at 6.0 percent with additional change covered by the project contingency. The project meets the Art in Public Places Program requirements. The project is exempt from the High Performance Certification Program requirements, but the university says that all of the new buildings that will be served by this project will conform to the program requirements.

Fiscal Year 2024-25 Capital Construction Request

Colorado School of Mines
Campus Infrastructure

PROJECT JUSTIFICATION

CSM is constructing several new research, classroom, and residential buildings to accommodate enrollment growth, and the utility infrastructure provided by the project is required for these buildings to be functional. The school says it is increasing enrollment to meet workplace demand for STEM-educated graduates, which is compounding an existing shortage of classroom and research space. CSM struggles to schedule additional classes due to this space shortage, and classes are being scheduled late into the evening and overbooked. Increased enrollment also drives additional faculty hires, requiring additional offices. The new classroom building will help alleviate this space deficit. Research at CSM has already outpaced projections. The school recently received a Carnegie R1 designation, recognizing high-volume research activity, which will attract more tenure-track faculty. CSM says research space is already stressed beyond capacity, leaving many faculty without labs for years. Two research buildings are in the planning stages to address these needs. The school connects student retention and success with on-campus living, and has an on-campus living requirement for freshman students. CSM plans to create a sophomore on-campus living requirement by 2025, with a sophomore housing project that entered the design phase in Fall 2022.

In addition to providing utility infrastructure for the new buildings that support campus growth, CSM notes that the project also reduces its deferred maintenance backlog. The school says that the project will allow them to remove almost $3.2 million in upcoming deferred maintenance and replacement costs.

Project alternatives. CSM says not funding the project puts the cost burden for utilities on each new building. For instance, for the chilled-water systems, small, lower-efficiency chiller plants would be required for each new building, requiring more maintenance staff and additional equipment. For the steam system, the scope could be limited while keeping the existing Boiler #3, resulting in increased long-term energy costs, additional staffing needs, and reduced reliability. For the electrical system, the scope could be limited to support only buildings that are in design and defer the scope for future buildings planned along 18th Street.

PROGRAM INFORMATION

Founded in 1874, CSM is a public teaching and research university dedicated to engineering and applied science, with a strategic goal to be "the go-to place for use-inspired research and innovation needed for challenges facing industry and society." Total enrollment for undergraduate and graduate students is 7,608 for Fall 2023, and is projected to grow to 8,439 for Fall 2025.

PROJECT SCHEDULE

	Start Date	Completion Date
Design	July 2024	April 2025
Construction	June 2025	January 2026
Equipment	January 2027	February 2027
Occupancy	February 2027	

SOURCE OF CASH FUNDS

The source of cash funds for the project is the issuance of tax-exempt university revenue bonds.

OPERATING BUDGET

Operating costs are paid through institutional sources. CSM says the project will not impact its operating budget.

Fiscal Year 2024-25 Capital Construction Request

Colorado School of Mines
Campus Infrastructure

STAFF QUESTIONS AND ISSUES

1. Why was the utility infrastructure to serve Energy Resources and Minerals Facility (ERMF) under this project not included within the scope of the ERMF project? Similarly, why was utility infrastructure not included within the scope of the other planned buildings to be served by this project?

The Campus Infrastructure project is consistent with the Mines Master Plan and provides campuswide infrastructure improvements beyond the ERMF and other future buildings in this area. The project cannot be built efficiently by separating it into phases, as individual building requirements dictate.

(This question and response were provided during the FY 2023-24 cycle.)

Fiscal Year 2024-25 Capital Construction Request

Colorado School of Mines
Arthur Lakes Library Renovation

PROGRAM PLAN STATUS

2011-007

Approved Program Plan No **Date Approved:**

PRIORITY NUMBERS

Prioritized By	Priority	
CSM	2 of 2	
CCHE	8 of 29	
OSPB	55 of 62	Not recommended for funding.

PRIOR APPROPRIATIONS AND REQUEST INFORMATION

Fund Source	Prior Approp.	FY 2024-25	FY 2025-26	Future Requests	Total Costs
CCF	$0	$18,789,171	$0	$0	$18,789,171
CF	$0	$6,263,057	$0	$0	$6,263,057
Total	$0	$25,052,228	$0	$0	$25,052,228

ITEMIZED COST INFORMATION

Cost Item	Prior Approp.	FY 2024-25	FY 2025-26	Future Requests	Total Cost
Land Acquisition	$0	$0	$0	$0	$0
Professional Services	$0	$2,176,307	$0	$0	$2,176,307
Construction	$0	$18,376,092	$0	$0	$18,376,092
Equipment	$0	$2,006,000	$0	$0	$2,006,000
Miscellaneous	$0	$216,354	$0	$0	$216,354
Contingency	$0	$2,277,475	$0	$0	$2,277,475
Total	$0	$25,052,228	$0	$0	$25,052,228

PROJECT STATUS

This is the project's fifth request for funding; it was last requested in FY 2022-23. The project also appeared on the university's five-year projection of need between FY 2010-11 and FY 2013-14.

Prepared by Legislative Council Staff

Fiscal Year 2024-25 Capital Construction Request

Colorado School of Mines
Arthur Lakes Library Renovation

PROJECT DESCRIPTION / SCOPE OF WORK

Colorado School of Mines (CSM) is requesting a combination of state funds and cash funds spending authority to renovate the 76,719-GSF Arthur Lakes Library. The project will update and modernize the 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 ADA-accessible entry;
- creating a new grand staircase that will connect the levels of the library; and
- improving user space for group collaboration, individual study, and technology access.

The new entrance will accommodate universal access at a shared primary entry located on the most 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 is currently of limited use as a result of low-clearance ceiling 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, the Center for Academic Services Advising and Applied Mathematics and Statistics tutoring space, and an interactive classroom with seating for 40 students, which accommodates 82 percent of CSM' classes.

Cost assumption. The cost assumption was determined with assistance from a third-party consultant based on previous projects. The cost per GSF is $327, up from $196 in the FY 2022-23 request. The project accounts for inflation based on a 6.0 percent inflation factor. The project meets the Art in Public Places Program 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 ADA accessibility, 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. In addition, the library does not meet accessibility code standards for bathrooms, stair handrails, and elevators.

Reconfiguration of the library will more than double the amount of space usable by patrons, from 25 percent of the library to 55 percent, while maintaining the existing footprint. The remaining space is dedicated to library collections and administration. This increase in user space will help to accommodate a growing student population, and collaborative spaces are included in the new design. The new grand stairway connecting four of the library's five levels will serve as a wayfinding device, helping library patrons to navigate the multiple floors.

As of May 2023, the building's Facility Condition Index (FCI) is 66, which the university says indicates a needed remodel. 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. Mines explains that the building's lighting, mechanical systems, equipment, and finishes are near or past their life expectancy.

Project alternatives. The university considered other alternatives, including postponing renovations until other fund sources become available, either from the state or via donations. The university states that no significant donations have been identified.

Fiscal Year 2024-25 Capital Construction Request

Colorado School of Mines
Arthur Lakes Library Renovation

PROGRAM INFORMATION

Founded in 1874, Mines is a public teaching and research university devoted to engineering and applied science. Total enrollment for undergraduate and graduate students is 7,608 for Fall 2023, and is projected to grow to 8,439 for Fall 2025.

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	July 2024	April 2025
Construction	June 2025	January 2027
Equipment	January 2027	February 2027
Occupancy	February 2027	

SOURCE OF CASH FUNDS

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

OPERATING BUDGET

According to the school, this project will have no impact on state operating costs, and may decrease the university's operating budget due to efficiency gains from a new floor plan and HVAC systems.

STAFF QUESTIONS AND ISSUES

None.

Prepared by Legislative Council Staff