

# Fiscal Year 2023-24 Capital Construction Request

Colorado School of Mines  
Campus Infrastructure

## PROGRAM PLAN STATUS

2024-012

Approved Program Plan

Yes

Date Approved:

October 27, 2022

## PRIORITY NUMBERS

Prioritized By	Priority	
CSM	1 of 1	
OSPB	Not Prioritized	Not recommended for funding.

## PRIOR APPROPRIATIONS AND REQUEST INFORMATION

Fund Source	Prior Approp.	FY 2023-24	FY 2024-25	Future Requests	Total Costs
CCF	\$0	\$26,602,767	\$22,303,624	\$0	\$48,906,391
CF	\$0	\$10,000,000	\$10,000,000	\$0	\$20,000,000
<b>Total</b>	<b>\$0</b>	<b>\$36,602,767</b>	<b>\$32,303,624</b>	<b>\$0</b>	<b>\$68,906,391</b>

## ITEMIZED COST INFORMATION

Cost Item	Prior Approp.	FY 2023-24	FY 2024-25	Future Requests	Total Cost
Land Acquisition	\$0	\$0	\$0	\$0	\$0
Professional Services	\$0	\$3,263,700	\$2,845,700	\$0	\$6,109,400
Construction	\$0	\$30,025,568	\$26,545,167	\$0	\$56,570,735
Equipment	\$0	\$0	\$0	\$0	\$0
Miscellaneous	\$0	\$263,268	\$220,787	\$0	\$484,055
Contingency	\$0	\$3,050,231	\$2,691,970	\$0	\$5,742,201
<b>Total</b>	<b>\$0</b>	<b>\$36,602,767</b>	<b>\$32,303,624</b>	<b>\$0</b>	<b>\$68,906,391</b>

## PROJECT STATUS

This is a new, never-before-requested project. 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.

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## PROJECT DESCRIPTION / SCOPE OF WORK

CSM is requesting a combination of state funds and cash funds spending authority for a two-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 the infrastructure upgrades are a necessary component of these projects. Additionally, the project addresses deferred maintenance and utility loads, which are currently at capacity. This year's request for Phase I constructs utility infrastructure for the new Energy Resources and Minerals Facility (ERMF, formerly known as the Subsurface Frontiers Building), and electrical infrastructure for the remainder of the planned 18th Street development, which includes additional research buildings, a parking structure/classroom building, and student housing. Phase II will construct utility infrastructure for the planned Research Building 1, address overall campus infrastructure deficiencies, equip two buildings with photovoltaic panels, and install electric vehicle charging stations across campus. Specific construction in Phase I includes:

- installing two new, 650-ton chillers in Chiller Plant 6 with associated cooling towers and pumping capacity;
- 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 steam infrastructure serving the 18th Street research buildings, including Boiler #3, the condensate pump station, the surge tank, and the condensate polisher and filters;
- replacing existing steam bottleneck piping and extending the piping to 18th Street;
- installing steam loop piping to service the ERMF;
- 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; and
- improving electrical metering and monitoring to better manage power loads.

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 and is exempt from the High Performance Certification Program requirements.

## 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 entering 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 8.9 percent of the project's budget addresses deferred maintenance, including replacing a boiler and multiple chillers.

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.

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## 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 7,421 for Fall 2022, and is projected to grow to 8,439 for Fall 2025.

## PROJECT SCHEDULE

	Start Date	Completion Date
Design	July 2023	March 2026
Construction	May 2024	July 2026
Equipment		
Occupancy		

## 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.

## STAFF QUESTIONS AND ISSUES

1. Why was the utility infrastructure to serve 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.

2. Will any of these projects need to be delayed if this utility infrastructure is not funded in the current capital cycle?

ERMF requires that a significant portion of the Campus Infrastructure project be built. The Classroom and Parking Garage 2 could be separately serviced but would not benefit from the campus utility system or would require an expensive re-working to bring it online to the campus utility system. It should be noted that the ERMF will now be a Federally (USGS) owned building. The Campus Infrastructure project allows Mines to derive utility revenue from the USGS.

3. Will the 6 percent inflation factor in the project's budget be sufficient, considering the current inflationary environment?

Mines will work to absorb the deficiency, but we believe that project budget should be adjusted for inflation to 9% for FY 2022/2023 and FY 2023/2024.