

Fiscal Year 2020-21 Capital Construction Request

University of Northern Colorado

Heating Plant Boiler #3 Replacement (Capital Renewal)

PROGRAM PLAN STATUS

2015-126

Approved Program Plan?

Date Approved:

PRIORITY NUMBERS

Prioritized By	Priority	
DeptInst	1 of 2	
CCHE	12 of 39	
OSPB	18 of 47	Recommended for funding.

PRIOR APPROPRIATION AND REQUEST INFORMATION

Fund Source	Prior Approp.	FY 2020-21	FY 2021-22	Future Requests	Total Cost
CCF	\$0	\$3,779,372	\$0	\$0	\$3,779,372
CF	\$0	\$46,800	\$0	\$0	\$46,800
Total	\$0	\$3,826,172	\$0	\$0	\$3,826,172

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	\$332,960	\$0	\$0	\$332,960
Construction	\$0	\$3,145,378	\$0	\$0	\$3,145,378
Equipment	\$0	\$0	\$0	\$0	\$0
Miscellaneous	\$0	\$0	\$0	\$0	\$0
Contingency	\$0	\$347,834	\$0	\$0	\$347,834
Software Acquisition	\$0	\$0	\$0	\$0	\$0
Total	\$0	\$3,826,172	\$0	\$0	\$3,826,172

PROJECT STATUS

This is the fourth request for funding. Funding was requested on behalf of the project from FY 2014-15 to FY 2016-17 through the controlled maintenance process.

PROJECT DESCRIPTION / SCOPE OF WORK

The University of Northern Colorado (UNC) is requesting state funds for a capital renewal project to replace an aging boiler in order to provide redundancy for the two main campus boilers. The capital renewal approach focuses on upgrading building systems, infrastructure, and the basic building components within existing academic buildings on a building-by-building basis, rather than project by project. The existing #3 boiler is a high-temperature hot water generator that the university says has exceeded its useful life. The replacement boiler will be more energy efficient, which the university says will reduce operating costs. In addition to purchasing the new boiler, the project also:

- demolishes and abates the existing boiler, mechanical equipment, and piping;
- demolishes and replaces sections of the roof and structure in the heating plant to create a path for installing the new boiler;

Fiscal Year 2020-21 Capital Construction Request

University of Northern Colorado

Heating Plant Boiler #3 Replacement (Capital Renewal)

- installs the boiler; and
- connects the new boiler infrastructure and piping to the plant main lines.

Cost assumption. The cost assumption was determined by an engineering firm hired by the university. The project cost accounts for inflation. As a capital renewal request, the project is not required to meet the Art in Public Places or High Performance Certification Program requirements.

PROJECT JUSTIFICATION

According to UNC, boiler #3, which was installed in 1971, has exceeded its useful life and utilizes old technology. In June 2015, this boiler developed several leaking tubes, which the university was able to repair. In addition, several of boiler #3's infrastructure components do not meet current National Fire Protection Association code.

Boiler #3 provides redundancy to the two main boilers, both of which are used to serve the campus load during peak energy use. Failure of one of the main boilers would require operation of boiler #3 which, if not available, could cause significant damage to campus facilities and operations. In November 2019, the university reported that boiler #3 developed an additional leak and boiler #2 developed a leak, so the system has no redundancy.

PROGRAM INFORMATION

UNC operates the 8,682-GSF Central Heating Plant with three boilers to provide its campus heating and cooling needs, serving all major buildings (about 2.8 million square feet). Boiler #3 is a 60 million BTU Riley Stoker high-temperature hot water generator. Boilers #1 and #2 were replaced in 2006 and 1996, respectively.

PROJECT SCHEDULE

	Start Date	Completion Date
Design	July 2020	February 2021
Construction	April 2021	October 2021
Equipment		
Occupancy	October 2021	December 2021

SOURCE OF CASH FUNDS

The source of cash funds for the project is capital reserves as part of the university's internal capital plan.

OPERATING BUDGET

Operating costs are paid from institutional sources. UNC expects its gas utility budget to decrease as a result of the project, but cannot calculate the impact until the final boiler is designed and selected.

STAFF QUESTIONS AND ISSUES

1. Since there were additional system leaks identified in November, has the university sought emergency controlled maintenance funding or other funding for temporary repairs?

The current Boiler # 3 leak appears to be a single tube which we should be able to plug and abandon in place. This is relatively simple and can be funded from operations funds.

Fiscal Year 2020-21 Capital Construction Request

University of Northern Colorado

Gray Hall Mechanical Systems Improvements (Capital Renewal)

PROGRAM PLAN STATUS

2017-049

Approved Program Plan? No Yes

Date Approved:

PRIORITY NUMBERS

Prioritized By	Priority	
DeptInst	2 of 2	
CCHE	20 of 39	
OSPB	46 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	\$3,510,934	\$0	\$0	\$3,510,934
CF	\$0	\$45,000	\$0	\$0	\$45,000
Total	\$0	\$3,555,934	\$0	\$0	\$3,555,934

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	\$398,915	\$0	\$0	\$398,915
Construction	\$0	\$2,833,752	\$0	\$0	\$2,833,752
Equipment	\$0	\$0	\$0	\$0	\$0
Miscellaneous	\$0	\$0	\$0	\$0	\$0
Contingency	\$0	\$323,267	\$0	\$0	\$323,267
Software Acquisition	\$0	\$0	\$0	\$0	\$0
Total	\$0	\$3,555,934	\$0	\$0	\$3,555,934

PROJECT STATUS

This is the fourth request for funding. Funding on behalf of the project was requested for FY 2017-18 through FY 2019-20.

PROJECT DESCRIPTION / SCOPE OF WORK

The University of Northern Colorado (UNC) is requesting state funds for a capital renewal project to upgrade various mechanical systems in the 27,531-GSF Gray Hall. The capital renewal approach focuses on upgrading building systems, infrastructure, and the basic building components within existing academic buildings on a building-by-building basis, rather than project by project. Specifically, the project upgrades the HVAC system and associated infrastructure, installs a sprinkler system, and installs air conditioning in certain areas of the building. Work to be completed in association with the main objectives of the project includes:

- creating wall openings and constructing walled enclosures for ductwork and piping;
- repairing and replacing ceilings;
- removing window-mounted air conditioning units and replacing window sashes;

Fiscal Year 2020-21 Capital Construction Request

University of Northern Colorado

Gray Hall Mechanical Systems Improvements (Capital Renewal)

- replacing rooftop units and repairing certain roofing elements;
- installing a fire sprinkler system;
- replacing the plumbing system;
- upgrading the building's electrical service and modifying the electrical systems to accommodate the new mechanical systems;
- painting;
- removing all steam components from the building and installing a new connection to the campus hot water system; and
- extending chilled water lines to existing utility infrastructure.

Cost assumption. The cost assumption was determined by university architects and a consultant study. The project costs \$129 per square foot. The project cost accounts for inflation. As a capital renewal request, the project is not required to meet the Art in Public Places Program or High Performance Certification Program requirements.

PROJECT JUSTIFICATION

UNC explains that Gray Hall, which was constructed in 1913, contains many outdated mechanical systems and supporting components, some of them original to the building and all at the end of their useful life. Additionally, the university has constructed a number of additions and renovations to the building over the years, resulting in a mix of mechanical system technologies. The project will bring these disparate technologies into alignment. UNC further says that the building is cooled in only a few areas, so the project adds air conditioning via a newly constructed central campus chilled water plant. Concerns expressed by the university's insurance carrier prompted the addition of a fire sprinkler system to the scope of the project. The domestic water system is experiencing high iron levels, so the university is using bottled water in the building until the plumbing system is replaced.

The most recent Facility Condition Index (FCI) audit, conducted in April 2015, placed Gray Hall's FCI at 65, short of the 85 target FCI established by the Office of the State Architect. The university has cash funded several infrastructure improvements to the building, including replacing a buried steam line and air conditioning units that cool information technology infrastructure. UNC says failure to replace the building's mechanical systems will result in continued high maintenance costs to keep the current systems operational.

PROGRAM INFORMATION

Gray Hall houses the UNC campus police department, a major telephone and data hub, two theaters, classrooms for visual and performing arts programs, and offices.

PROJECT SCHEDULE

	Start Date	Completion Date
Design	July 2020	April 2021
Construction	April 2021	April 2022
Equipment		
Occupancy	April 2022	July 2022

SOURCE OF CASH FUNDS

The source of cash funds for the project is capital reserves as part of the university's internal capital plan.

Fiscal Year 2020-21 Capital Construction Request

University of Northern Colorado

Gray Hall Mechanical Systems Improvements (Capital Renewal)

OPERATING BUDGET

Operating costs are paid from institutional sources. The university expects the project to result in decreased operating costs due to the installation of more efficient systems.

STAFF QUESTIONS AND ISSUES

None.