COLORADO

Department of Higher Education

FY 2024-2025 Capital IT Request

-Prioritized State Funded Budget Request -

1600 Broadway, Suite 2200 • Denver, Colorado 80202 • (303) 862-3001

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CAPITAL IT PRIORITY RANKING FY2024-25					
Ranking	**Institution Name**	**Project Name**	**Score**	**CCF**	**CF**
CONTINUATION PROJECTS					
1	**Metropolitan State University**	Reimagining the Campus Digital Experience	**N/A**	$ 8,406,163	$ 850,000
NEW PROJECTS					
2	**University of Northern Colorado**	Wireless First	100.0%	$ 5,125,326	$ 219,122
	Front Range Community College (CCCS)	College Wide Cellular Improvements	100.0%	$ 2,695,500	$ 299,500
	Colorado School of Mines	Network Modernization and Refresh	100.0%	$ 7,300,000	$ 2,700,000
	Auraria Higher Education Center	Auraria Campus Network Infrastructure Modernization	100.0%	$ 4,614,341	$ -
6	**Othero Junior College (CCCS)**	Classroom Security Access Software and Computer Equipment Upgrades	95.6%	$ 438,000	$ 80,000
5	**Colorado State University**	CSU Human Capital Management	92.5%	$ 11,015,322	$ 3,477,656
			GRAND TOTAL:	**$ 39,594,652**	**$ 7,626,278**

Reimagining the Campus Digital Experience

Metropolitan State University

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Five-Year Capital Information Technology (IT) Project Plan FY 2023-24 to FY 2027-28 (CC_IT-5P)

(A)	(1) **Institution Name:**	Metropolitan State University of Denver	(2) **Institution Signature Approval:**	24-May-23
(B)	(1) **Name & Title of Preparer:**	Nick Pistentis, Deputy CIO	(2) **CDHE Signature Approval:**	Date
(C)	(1) **E-mail of Preparer:**	npistent@msudenver.edu		

(D)	***GRAND TOTALS***	*(b) Total Project Cost*	*(c) Total Prior Appropriation*	*(d) Current Budget Year Request*	*(e) Year Two Request*	*(f) Year Three Request*	*(g) Year Four Request*	*(h) Year Five Request*
	Capital Construction Funds (CCF)	$14,056,163	$5,650,000	$8,406,163	$0	$0	$0	$0
	Cash Funds (CF)	$2,041,837	$1,191,837	$850,000	$0	$0	$0	$0
	Reappropriated Funds (RF)	$0	$0	$0	$0	$0	$0	$0
	Federal Funds (FF)	$0	$0	$0	$0	$0	$0	$0
	Total Funds (TF)	**$16,098,000**	**$6,841,837**	**$9,256,163**	**$0**	**$0**	**$0**	**$0**

(1)	**Project Title:**	Reimagining the Campus Digital Experience						
(2)	**Brief Description of Project:**	Initiative to implement a modern, cloud-based ERP and Student Information System at MSU Denver						
(3)	**Intercept Program? (Yes/No):**	**No**						
(4)	(a) **Priority Number:**	1	(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$14,056,163	$5,650,000	**$8,406,163**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$2,041,837	$1,191,837	**$850,000**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$16,098,000**	**$6,841,837**	**$9,256,163**	**$0**	**$0**	**$0**	**$0**

(1)	**Project Title:**							
(2)	**Brief Description of Project:**							
(3)	**Intercept Program? (Yes/No):**							
(4)	(a) **Priority Number:**		(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$0			$0	$0	$0	$0
(7)	Cash Funds (CF)	$0			$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

(1)	**Project Title & No. of Phases:**							
(2)	**Brief Description of Project:**							
(3)	**Intercept Program? (Yes/No):**							
(4)	(a) **Priority Number:**		(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$0	$0	**$0**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 5/24/23

FY23-24 CAPITAL INFORMATION TECHNOLOGY PROJECT REQUEST- *COST SUMMARY (CC_IT-C)**

(A)	(1) **Funding Type (Cash, CCF, Cash & CCF):**	**CCF and CF**	(2) **Intercept Program Request? (Yes/No):**	
(B)	(1) **Institution:**	Metropolitan State University of Denver	(2) **Name & Title of Preparer:**	Nick Pistentis, Deputy Chief Information Officer
(C)	(1) **Project Title:**	Reimagining the Campus Digital Experience	(2) **E-mail of Preparer:**	npistent@msudenver.edu
(D)	(1) **Project Phase (__ of __):**	4 of 4	(2) **State Controller Project # (if continuation):**	
(E)	(1) **Project Type (IT):**	Capital IT	(2) **Institution Signature Approval:**	23-May-23
(F)	(1) **Year First Requested:**	FY 2021 - 2022	(2) **CDHE Signature Approval:**	Date
(G)	(1) **Priority Number (Leave blank for continuation projects):**	_____ of _____	(2) **OSPB Signature Approval**	Date

(1)		(a) **Total Project Costs**	(b) **Total Prior Year Appropriation(s)**	(c) **Current Budget Year Request**	(d) **Year Two Request**	(e) **Year Three Request**	(f) **Year Four Request**	(g) **Year Five Request**
	Land /Building Acquisition							
(2)	Land Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Consultants/Contractors	$ 10,196,516	$ 5,435,000	**$ 4,761,516**		$ -	$ -	$ -
(6)	Quality Assurance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Training	$ 227,000	$ -	**$ 227,000**		$ -	$ -	$ -
(8)	Leased Space (Temporary)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Feasibility Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Other Services/Costs	$ 2,715,618	$ 656,837	**$ 2,058,781**		$ -	$ -	$ -
(11)	Inflation Cost for Professional Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(13)	***Total Professional Services***	$ 13,139,134	**$ 6,091,837**	**$ 7,047,297**	**$ -**	**$ -**	$ -	$ -
	Software Acquisition							
(23)	Software COTS	$ 2,720,790	750,000	**$ 1,970,790**		$ -	$ -	$ -
(24)	Software Built	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(25)	Inflation on Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(27)	***Total Software***	**$ 2,720,790**	**$ 750,000**	**$ 1,970,790**	**$ -**	**$ -**	**$ -**	**$ -**
	Equipment							
(28)	Servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(32)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(33)	Miscellaneous	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	**$ 15,859,924**	**$ 6,841,837**	**$ 9,018,087**	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(36)	5% for New	$ 238,076	$ -	**$ 238,076**		$ -	$ -	$ -
(37)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 238,076	$ -	**$ 238,076**	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	**$ 16,098,000**	**$ 6,841,837**	**$ 9,256,163**	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 14,056,163	$ 5,650,000	**$ 8,406,163**		$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 2,041,837	$ 1,191,837	**$ 850,000**		$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	**16,098,000**	**6,841,837**	**9,256,163**	**-**	**-**	**-**	**-**

*Should match CC_IT-N Form

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Department of Higher Education

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DEPARTMENT OF HIGHER EDUCATION

FY 2023-24 CAPITAL IT PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$ 8,406,163**	
Cash Fund Amount (CF):	**$ 850,000**	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Metropolitan State University of Denver	
Project Title:	Reimagining the Campus Digital Experience	
Project Phase (Phase _of_):	4 of 4	
State Controller Project Number (if continuation):		
Project Type:		Technology Hardware
	X	Technology Software
Year First Requested:	FY 2021 - 2022	
Priority Number (Leave blank for continuation projects):	Continuation	
Name & Title of Preparer:	Nick Pistentis, Deputy CIO, Metropolitan State University of Denver	
E-mail of Preparer:	npistent@msudenver.edu	
Institution Signature Approval:		5/23/23
OSPB Signature Approval:		Date
CDHE Signature Approval:		Date

A. PROJECT SUMMARY/STATUS:

Provide a brief scope description of the project and explain the status of the prior appropriated phases. See instructions for further detail.

Executive Summary

Metropolitan State University of Denver is pleased to present our Student Information System Transformation proposal, the culmination of a multi-phase digital transformation program that has been generously supported by the State of Colorado to date.

Building upon our successful, on-time, and on-budget implementation of the Workday Human Capital Management/Finance Enterprise Resource Planning (ERP) platform, MSU Denver seeks to move forward with an equally impactful implementation of a transformative Student Information System (SIS), delivering a world-class, modern, accessible, mobile-friendly, and cloud-based digital experience for the MSU Denver student community.

By replacing our legacy solution, MSU Denver will enable our students, faculty, and staff to leap ahead with intuitive tools, modernized business practices, on-demand analytics, and enhanced security. This project, which closely aligns with the objectives outlined in “Building Skills for an Evolving Economy”, will position MSU Denver for success in the next decade and beyond, reducing administrative barriers for our students, enhancing student engagement, bolstering retention, supporting equity initiatives, streamlining innovative educational pathways,

delivering a positive return on investment for the institution, and blazing a trail for our State of Colorado peers who will benefit from the tailwinds we create.

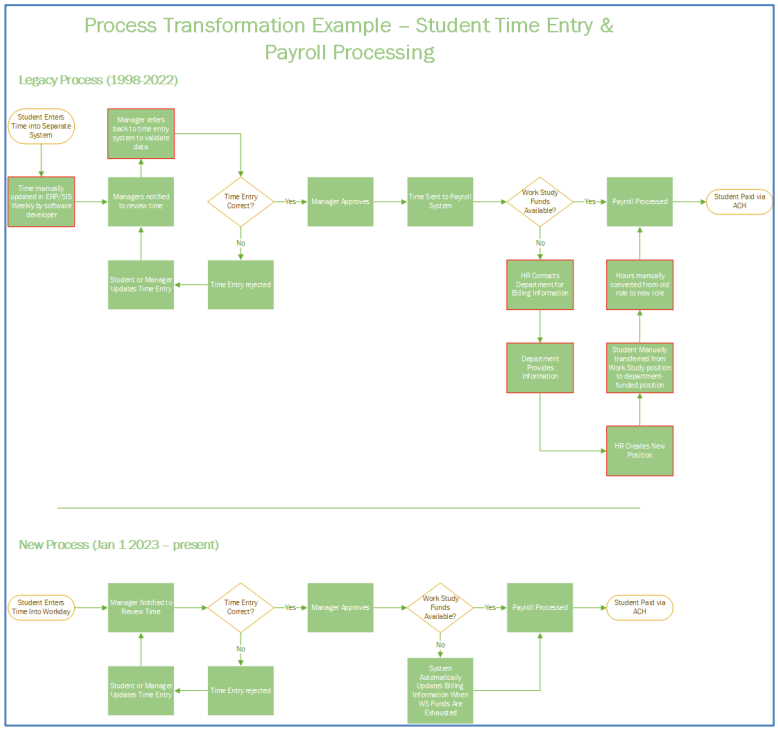
Project Status

Metropolitan State University of Denver (MSU Denver) first presented this multi-year initiative in FY 21-22 and remains grateful for the support that our project has received. The funds allocated in prior years have revitalized core systems and have demonstrated the state's commitment to driving technological innovation and efficiency within higher education.

MSU Denver launched Workday's Enterprise Resource Planning (ERP) platform in January 2023, delivering dramatic improvements in the employee experience, financial reporting, and institutional analytics.

Further, the system advances our equity initiatives by supporting inclusive language for applicants and employees and providing clear metrics regarding campus diversity, equity and inclusion (DEI) achievements and growth areas.

As part of the implementation, the University has redesigned and automated numerous critical business processes, yielding measurable efficiencies. The adjacent illustration is an example of one process that has been transformed, reducing the time and manual effort required to compensate student employees with Federal and State Work Study awards by over 50%. This one process change has positively impacted over 2,000 community members and is complemented by dozens of similar successes.



By empowering MSU Denver to lay this strong foundation, the State of Colorado has positioned the University to move forward with a Student Information System (SIS) transformation, a critical step toward effectively serving modern learners in Colorado. A more efficient, user-friendly SIS will have immediate and tangible benefits for the University and its students by supporting enrollment, registration, retention and graduation:

- A streamlined interface will reduce frustration and barriers to completing the registration process, yielding increases in student enrollment.
- A mobile-friendly application will meet modern students where they are, providing ease of access on the go and empowering students who use their mobile devices as their primary means of online communication[1] to register and persist at MSU Denver.
- A modern tool with automated business processes will allow staff to focus on student success instead of manual process, creating more meaningful staff-student interactions, improving advising outcomes, and supporting our students through graduation.
- Improved, on-demand analytics will help identify students in need of extra support for earlier intervention, allowing MSU Denver to engage with struggling students proactively and decrease stop-outs among at-risk student populations.

[1] 15% of U.S. adults presently are "smartphone-only" internet users. "Mobile Fact Sheet", Pew Research Center, 2021.

Ultimately, these enhancements will benefit the State of Colorado in the form of more graduates entering the workforce.

The University aims to begin planning and design of this platform in early 2024 in anticipation of a project launch on July 1, 2024 and a planned go-live in October 2026. The funding requested in this fiscal year would be allocated entirely in support of this implementation effort.

MSU Denver continues to collaborate closely with Colorado university peers, both formally and informally, to align enterprise system strategies and deliver measurable improvements for students at institutions across the state. Our collaborative approach has yielded a net software licensing savings of over 13%, and we anticipate implementation savings of approximately 20% resulting from our cooperative work. The total projected efficiencies resulting from this collaboration are estimated at over $9.75 million:

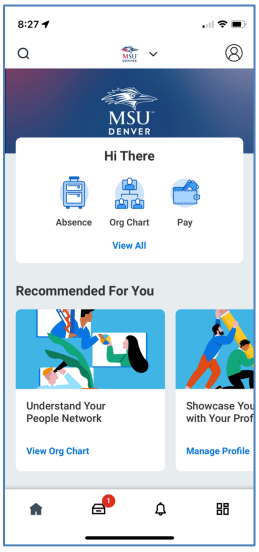
Savings Source	Amount	Description
ERP Contract Terms	$ 977,812	7% savings on extended contract for MSU + CSM
Letter of Intent Pricing	$3,000,000	13% savings from initial quoted pricing over 10 years
Aligned Contract Terms	$ 60,000	estimated 500 hours saved in contract negotiations
Integration Strategy	$3,000,000	20% savings against direct implementation costs for all participating schools.
Long Term Savings – MSU Denver	$2,713,297	anticipated net savings over life of contract versus current system; savings begin to accrue in YR5. Gross savings of $4.4mn+
Total	**$9,751,109**	

B. SUMMARY OF PROJECT FUNDING REQUEST:

Funding Source	Total Project Cost	Total Prior Appropriation (Y1 + Y2 + Y3)	Current Budget Year Request (Y4)	Year Five Request
Capital Construction Funds (CCF)	$14,056,163	$5,650,000	**$8,406,163**	$0
Cash Funds (CF)	$2,041,837	$1,191,837	**$850,000**	$0
Reappropriated Funds (RF)	$0	$0	**$0**	$0
Federal Funds (FF)	$0	$0	**$0**	$0
Total Funds (TF)	**$16,098,000**	**$6,841,837**	**$9,256,163**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

Provide a detailed description of the project, phases, funding and any other information relevant to the project. Include information on best practices. Describe how the project fits in with the Higher Education Master Plan goals.



MSU Denver completed a comprehensive external analysis of our ERP/SIS landscape, which was based on best practice comparisons, constituent interviews, and a market review of available solutions. The summary provided by our external partner can be distilled into the following excerpt: "***The overall message is that the current state of Ellucian's Banner system is not meeting the needs of the institution***." Further, MSU Denver evaluated the campus climate and appetite for comprehensive change, with roughly two-thirds of survey respondents favoring significant transformation of the Student Information System.

Following extensive requirements gathering and a formal solicitation process, Workday's ERP solution was selected in 2020, with contracting, design, and implementation following in 2021 and 2022. The platform launched to campus in January 2023, and the University is presently finalizing work on post-production value-add implementation components.

In parallel, MSU Denver launched a similarly rigorous evaluation of the Student Information System market, initially considering three market leading vendors and completing deep review and analysis for two finalists. The evaluation included numerous live demonstrations (25 individual sessions, for a total of 73 hours and over 1,000 hours of cumulative staff time), attendance at conferences (an aggregated investment of $60,000 and roughly 800 hours), multiple reference calls, and countless internal working sessions.

Ultimately, the 30-member MSU Denver SIS Evaluation Committee recommended transitioning to a modern Student Information System by a 2-to-1 margin. The committee based their recommendation on myriad factors, including:

- A modern, mobile-friendly, secure, and cloud-based environment
- The opportunity to transform student-facing business processes
- Confidence in the platform's ability to support MSU Denver students
- Efficiencies offered by implementing a unified solution
- Compelling built-in on-demand analytics capabilities
- Pace of platform innovation driven by an agile-based development methodology

Including strategic planning, system design, architecture, data transformation, and migration, MSU Denver estimates that this implementation will take approximately 30 months to complete, at a projected cost of $9.26 million. Based on the schedule provided in Section H below and pending availability of the requested funds, the new platform would be commissioned in time to support registration for Spring 2027 courses at MSU Denver.

"Increased institutional agility, flexible access to solutions, and lower costs …

Cloud-based solutions enable effective information delivery to students and efficient management of business processes, resulting in improved stakeholder collaboration, data protection, and ease of access."

- Verified Market Research

"Student Information System Market Size and Forecast." Verified Market Research, 2022

Alignment with the Higher Education Master Plan

By supporting this transformative initiative, the State will be investing in an institution which directly supports "Building Skills for an Evolving Economy," Colorado's Strategic Plan for Higher Education.

Metropolitan State University of Denver is an innovative institution which generates over $700 million in economic impact within the state each year. A designated Hispanic-Serving Institution, the University serves an undergraduate community that includes nearly 54% students of color. Over 95% of MSU Denver students are from Colorado, and nearly 80% remain in Colorado long-term after graduation, the highest rate in the state. With an average age of 25 years old, 87% of our students work full- or part-time while pursuing their degrees.

While this is a small sample of the University's attributes, in aggregate it serves to illustrate how closely our mission and values align with the Colorado Commission on Higher Education's vision for the State writ large. MSU Denver:

- Educates a high percentage of Coloradans, creating pathways for professional growth and advancement.
- Intentionally focuses on improving access to postsecondary education among students of color.
- Offers flexibility across a range of degree and certificate programs to support learners of all ages and experience.
- Contributes directly to the state's economic vitality, offering a quality education and proven outcomes at an affordable rate.

This project will support the University's efforts directly in the following ways:

- Provide trusted data, on-demand reporting, and enhanced analytics capabilities that are not presently available to the University community.
    - Transitioning to a modern, cloud-based Student Information System will improve data availability, streamline report generation, and align MSU Denver reporting architecture with other State peers who have already adopted this platform.
    - Simplify results-based analysis, ensuring that academic programs are providing a positive return on investment for both the institution and the individual student, and allowing us to identify and invest in proven approaches.
    - Increase transparency for learners about expected outcomes from educational pathways.
- Reduce ongoing administrative costs related to maintaining a legacy, on-site Student Information System
    - In transitioning to a cloud-based platform, the University will reduce inefficiencies inherent to outmoded architecture, and realize business process efficiencies that will yield near-immediate financial benefits.[2]
- Modernize certificate/credential-driven academic pathway delivery.
    - The legacy system in place was not designed to support non-traditional students and results in a cumbersome and often manual experience for certificate-seeking students and staff alike. A transformed system will offer a streamlined, "shopping cart-type" experience for students to rapidly engage in online and innovative learning programs.
- Support continued public-private partnerships and career pathway programs.

[2] Financial benefits are outlined in Sections G and J below.

- MSU Denver partners closely with some of the state's largest employers, educating students who are career-ready at graduation. Implementation of a modern SIS will streamline the data gathering and progress tracking necessary to validate the efficacy of these partnerships.

Lastly, MSU Denver's comprehensive baccalaureate and master's programs directly support virtually all of the most in-demand occupations[3] in Colorado, including Nursing, Social Work, Management, Accounting, Software Development, Education, Speech Pathology, Addiction Counseling, Aviation, and Cybersecurity. [4]

D. PROGRAM INFORMATION:

Provide a description of the programs within the institution that will be impacted by this request.

Transforming the SIS ecosystem at our university directly and positively impacts the entire MSU Denver community. This initiative positions our institution to adapt with the higher education industry as it shifts over time, and presents an opportunity to differentiate ourselves from institutions who will continue to rely on outdated technology:

- Our students will enjoy access to a cloud-based, mobile-friendly system that increases efficiency and accessibility for course registration, financial aid processing, and potentially academic advising and career counseling.
- Faculty will use the system to perform core administrative functions of their job such as submitting student grades, reviewing course rosters and administering grant awards.
- Staff will utilize modern interfaces to admit new students, award financial aid, and advise current students.

E. CONSEQUENCES IF NOT FUNDED:

Provide a description of consequences if this project is not funded. See instructions for further detail.

While the higher education technology landscape continues to evolve, our institution continues to rely on outdated and cumbersome infrastructure, based on technology older than many of the students who we serve. The Ellucian Banner system currently in place was first deployed in 1998 at MSU Denver. While we have deployed numerous upgrades over the intervening years, student-facing departments have come to increasingly rely on third-party systems and manual workarounds to support students accustomed to seamless use of contemporary, mobile technology in their daily lives. Such a disparate, patchwork approach leads to ineffective knowledge management, negatively impacting student retention and graduation
Further, recruiting skilled labor to support the dated, on-premises Ellucian Banner platform is challenging; in the past five years, MSU Denver has struggled to fill open positions for Banner Developer and Banner Administrator roles, leading to an increased reliance on contract labor at a higher annual cost than in-house resources. As the solution continues to age, this challenge has only increased.

The financial support provided to date has been hugely valuable, permitting us to transform the systems that our talented faculty and staff use each day and freeing them to focus on delivering services to our students.

[3] Top 10 Occupations with the Highest Projected Job Openings by Typically Required Education Level (Published September 2022, Bureau of Labor Statistics) – provided by CDHE, April 2023
[4] https://www.msudenver.edu/graduate-studies/

The funds requested in this fiscal year will directly support transformation of our Student Information System, the most visible and impactful digital tool available to MSU Denver students.[5] Following implementation, our students will manage their academic careers on mobile devices from virtually anywhere in the world with just a tap, reducing technological barriers (and the financial barriers of computer access) that many of our students face at present.

F. ASSUMPTIONS FOR CALCULATIONS:

Describe the basis for how the project costs were estimated. Include inflation assumptions. See instructions for further detail.

As part of our assessment engagement and in collaboration with Colorado peers and service providers, we have produced implementation estimates based on historical trends in this type of project and included a 10% contingency in our estimate to account for unanticipated variations.

G. OPERATING BUDGET IMPACT:

Detail operating budget impacts the project may have. See instructions for further detail.

In total, MSU Denver commits roughly $2.5 million annually to support our on-premises ERP solution, including licensing, infrastructure, staffing, and ancillary systems.

By comparison, following the initial implementation, the annual cost of the proposed alternative solution is projected at less than $2 million in total, resulting in a gross cost savings of approximately $5 million over the contract term.

In addition, addressing current inefficiencies in our business processes would provide cost avoidance and savings throughout our institution. Optimizing and automating these processes will allow individual departments to better leverage their existing staff, providing a much higher level of service to the university community without needing to continually increase headcount.

H. PROJECT SCHEDULE:

Identify project schedule by funding phases. Add or delete boxes as required for each phase. See instructions for further detail.

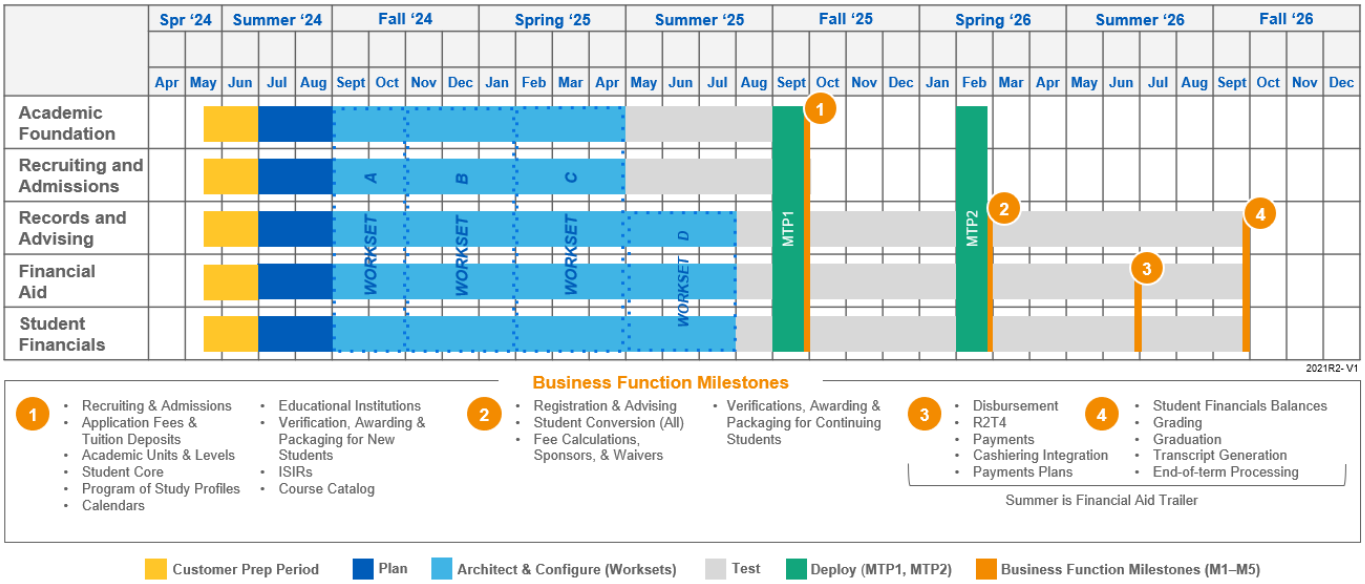
Phase 1 of 4	Start Date	Completion Date
Pre-Design	7/1/2020	10/01/2020
Design	10/02/2020	12/31/2021
Implementation	01/01/2022	06/30/2022

Phase 2 of 4	Start Date	Completion Date
Implementation: ERP	07/01/2022	06/30/2023
Pre-Design: SIS	01/01/2023	06/30/2023

Phase 3 of 4	Start Date	Completion Date
Post Implementation: ERP	07/01/2023	12/15/2023
Design: SIS	01/05/2024	06/30/2024

[5] In 2022, students logged over 1.5 million sessions in the Banner Self-Service system.

Phase 4 of 4	Start Date	Completion Date
Implementation: SIS	**05/15/2024**	**10/15/2026**



I. ADDITIONAL INFORMATION:

Three-year roll forward spending authority is required:	Yes
Request 6-month encumbrance waiver:	Yes
Is this a continuation of a project appropriated in a prior year:	Yes
State Controller Project Number (if continuation):	TBD

J. COST SAVINGS / IMPROVED PERFORMANCE OUTCOMES:

Describe the cost savings or improved performance outcomes as a result of this project. Please clearly identify and quantify anticipated administrative and operating efficiencies or program enhancements and service expansion through cost-benefit analyses and return on investment calculations.

Through a purely financial lens this project will yield measurable cost savings over a 10-year period (as outlined in Section G). These savings are compounded by gains in drastically increased efficiency for all student-facing departments, which presently rely on cumbersome SIS solutions for critical business functions. Based on modeling performed by outside consultants, we estimate the net benefit in efficiency offered by simplifying business processes and implementing a more efficient system is equivalent to 12 full time employees distributed throughout the organization.

We collectively identified over 20 third-party applications which are used today across MSU Denver and may be eliminated if a modern system is deployed. This alone will yield significant efficiencies for staff members who today must bounce between disparate interfaces to complete their work; the operating costs of these systems exceed $500,000 per year, but further investigation is required before these numbers are included in our official financial projections. These financial gains are bolstered by myriad performance gains, including:

- Agile, innovative solutions that are ready to support a changing higher ed technology landscape
- Technology that meets the expectations of 21st century learners
- Unified, accessible data that can effectively support data informed decisions
- Reduced risk and greater system reliability.
- Ability to transform staff focus from operational to strategy and innovation.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

Describe the data protection and disaster recovery considerations factored into the plan. Indicate any cybersecurity implications if applicable.

While MSU Denver boasts a robust information security program and backup strategy today, migration to a cloud provider would offer increased resiliency. Reasons for this include:

- As the present SIS is hosted on-premises, it is dependent upon campus network services; if internet access to our campuses is disrupted, access to our SIS environment is interrupted as well. This can be particularly impactful during periods of high demand, such as class registration dates, grade submission deadlines, or financial aid disbursement windows. By contrast, a cloud provider would offer a geographically distributed, fully redundant infrastructure, delivering a level of availability that would be impractical to replicate on campus.
- Ransomware has emerged as one of the top security threats faced by organizations, and the education sector has become the most-targeted industry in recent years following a 49% increase in attacks in 2022. Regardless of security protocols in place, on-premise data storage remains vulnerable to this type of security incident. Transitioning to a true cloud provider mitigates this risk.
- A move to a modern solution will offer enhanced data encryption protocols that exceed the current security capabilities of MSU Denver's on-premises solution.
- Any provider under consideration has documented alignment with the ISO 27000 Family of Standards and regular completion of Service Organization Controls Type 1 and 2 reports. This level of rigor indicates a prioritization of reliability and availability from any of the candidates.

L. BUSINESS PROCESS ANALYSIS:

Describe alternatives analyzed, cost-benefit analysis, and measures in place to prevent time and cost overruns. Articulate how the proposed project fits in with the institution's strategic IT plan.

Alternative Paths Considered

As noted above, MSU Denver began this journey by soliciting an external, independent assessment of current posture and potential paths forward. The consulting team presented three potential paths:

1. Status quo with minor adjustments *(not recommended)*[6]
2. Reimplementation of Ellucian Banner
3. Selection and Implementation of new SIS

The consultants' report outlined pros and cons for three candidate solutions, encompassing points two and three above.

[6] While the consultants initially advised against this path, the need to move away from existing architecture becomes more acute as time passes with several million dollars of hardware and facility upgrades required no later than CY 2027.

Managing the Change

Guiding a large, diverse organization through a change of this magnitude is never simple, and doing so will require thoughtful, engaged management, inclusive leadership, and strong institutional support. To that end:

- We have chartered cross-functional Steering Committees for this project, ensuring that all constituent voices are heard and included in the planning and implementation phases.
- We have made significant organizational adjustments in preparation for a project of this scale, including augmentation of existing Software Project Management and Business Analysis resources and ongoing revision of internal project and portfolio management practices.
- To prevent time and cost overruns, we have secured experienced project management resources to support the effort and ensure that adequate attention is given to the effort throughout the organization.
- We have chartered a broad Change Champion Network, engaging staff throughout the organization to build grassroots support for the project.

Strategic Alignment

MSU Denver's 2030 Strategic Plan emphasizes several key pillars regarding Student Access; Academic Excellence; Civic Engagement and Partnership; Diversity, Equity and Inclusion; and Community Engagement.

This project will positively impact these objectives by providing an improved student experience, by reducing barriers to academic success, by enhancing our DEI efforts through streamlined analytics, and by providing a stable, scalable, reliable system that supports all University operations.

When evaluating and selecting new solutions, we seek transformative opportunities throughout campus – situations where the right technology can be applied to deliver massive results. This project, if funded, would fit that mold. We look forward to the opportunity to further discuss this proposal with State leaders and hope to proceed with a plan to transform the SIS experience, benefiting MSU Denver's students, faculty, and staff – and by proxy, tens of thousands of Coloradans.

Wireless First

University of Northern Colorado

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Five-Year Capital Information Technology (IT) Project Plan FY 2024-25 to FY 2028-29 (CC_IT-5P)

(A)	(1) **Institution Name:**	University of Northern Colorado	(2) **Institution Signature Approval:**	Date
(B)	(1) **Name & Title of Preparer:**	Phillip Wyperd, CIO	(2) **CDHE Signature Approval:**	Date
(C)	(1) **E-mail of Preparer:**	phillip.wyperd@unco.edu		

(D)	***GRAND TOTALS***	*(b) Total Project Cost*	*(c) Total Prior Appropriation*	*(d) Current Budget Year Request*	*(e) Year Two Request*	*(f) Year Three Request*	*(g) Year Four Request*	*(h) Year Five Request*
	Capital Construction Funds (CCF)	$5,125,326	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
	Cash Funds (CF)	$219,122	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
	Reappropriated Funds (RF)	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
	Federal Funds (FF)	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
	Total Funds (TF)	**$5,344,448**	**#REF!**	**#REF!**	**#REF!**	**#REF!**	**#REF!**	**#REF!**

(1)	**Project Title & No. of Phases:**	Wireless First - Phase 1 of 1						
(2)	**Brief Description of Project:**	The funding of UNC's Wireless First project will implement a modern Wifi 6 wireless network, greatly enhance our student experience, reduce tech debt, and alleviate various security risks.						
(3)	**Intercept Program? (Yes/No):**	**No**						
(4)	(a) **Priority Number:**	1 of 1	(b) **Project Type:**	CCF	(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$5,125,326	$0	**$5,125,326**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$219,122	$0	**$219,122**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$5,344,448**	**$0**	**$5,344,448**	**$0**	**$0**	**$0**	**$0**

(1)	**Project Title & No. of Phases:**							
(2)	**Brief Description of Project:**							
(3)	**Intercept Program? (Yes/No):**							
(4)	(a) **Priority Number:**		(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$0	$0	**$0**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

(1)	**Project Title & No. of Phases:**							
(2)	**Brief Description of Project:**							
(3)	**Intercept Program? (Yes/No):**							
(4)	(a) **Priority Number:**		(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$0	$0	**$0**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 5/23/2023

FY24-25 CAPITAL INFORMATION TECHNOLOGY PROJECT REQUEST- *COST SUMMARY (CC_IT-C)**

(A)	(1) **Funding Type (Cash, CCF, Cash & CCF):**	**CCF**	(2) **Intercept Program Request? (Yes/No):**	No
(B)	(1) **Institution:**	University of Northern Colorado	(2) **Name & Title of Preparer:**	Phillip Wyperd, CIO
(C)	(1) **Project Title:**	Wireless First	(2) **E-mail of Preparer:**	phillip.wyperd@unco.edu
(D)	(1) **Project Phase (__ of __):**	1 of 1	(2) **State Controller Project # (if continuation):**	
(E)	(1) **Project Type (IT):**	Capital IT	(2) **Institution Signature Approval:**	Date
(F)	(1) **Year First Requested:**	FY ___24_____	(2) **CDHE Signature Approval:**	Date
(G)	(1) **Priority Number (Leave blank for continuation projects):**	__1___ of ___1___	(2) **OSPB Signature Approval**	Date

(1)		(a) **Total Project Costs**	(b) **Total Prior Year Appropriation(s)**	(c) **Current Budget Year Request**	(d) **Year Two Request**	(e) **Year Three Request**	(f) **Year Four Request**	(g) **Year Five Request**
	Land /Building Acquisition							
(2)	Land Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Consultants/Contactors	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Quality Assurance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Training	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(8)	Leased Space (Temporary)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Feasibility Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Other Services/Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(11)	Inflation Cost for Professional Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(13)	***Total Professional Services***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Associated Building Construction							
(14)	Cost for New (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(15)	New $_____/GSF							
(16)	Cost for Renovate GSF:	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(17)	Renovate $_____/GSF							
(18)	Site Work/Landscaping	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(19)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(20)	Inflation for Construction	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(21)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(22)	***Total Construction Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Software Acquisition							
(23)	Software COTS	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(24)	Software Built	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(25)	Inflation on Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(27)	***Total Software***	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	Equipment							
(28)	Servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ 5,089,999	$ -	**$ 5,089,999**	$ -	$ -	$ -	$ -
(32)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(33)	Miscellaneous	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 5,089,999	$ -	**$ 5,089,999**	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	**$ 5,089,999**	**$ -**	**$ 5,089,999**	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(36)	5% for New	$ 254,500	$ -	**$ 254,500**	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 254,500	$ -	**$ 254,500**	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	**$ 5,344,498**	**$ -**	**$ 5,344,499**	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 5,125,326	$ -	**$ 5,125,326**	$ -	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 219,122	$ -	**$ 219,122**	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	**5,344,448**	**-**	**5,344,448**	**-**	**-**	**-**	**-**

*Should match CC_IT-N Form

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2024-25 CAPITAL IT PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$5,125,326**	
Cash Fund Amount (CF):	$219,122	
Intercept Program Request? (Yes/No):	No	
Institution Name:	University of Northern Colorado	
Project Title:	Wireless First	
Project Phase (Phase _of_):	1_1	
State Controller Project Number (if continuation):		
Project Type:	X	Technology Hardware
		Technology Software
Year First Requested:	FY 2024 - 2025	
Priority Number (Leave blank for continuation projects):	_1__ OF _1__	
Name & Title of Preparer:	Phillip Wyperd, CIO Matt Langford, CISO	
E-mail of Preparer:	Phillip.wyperd@unco.edu Matt.Langford@unco.edu	
Institution Signature Approval:		Date
OSPB Signature Approval:		Date
CDHE Signature Approval:		Date

A. PROJECT SUMMARY/STATUS:

Provide a brief scope description of the project and explain the status of the prior appropriated phases. See instructions for further detail.

The University of Northern Colorado kindly requests funding to implement a *Wireless First* initiative. This student-focused network transformation will provide a modern wifi experience that today's students expect and demand. Our students often arrive with a collection of devices that need to connect to UNC's wireless network infrastructure. However, UNC's current network architecture cannot meet those needs. For example, most of UNC's residence halls don't offer reliable wireless connectivity and only provide a single wired "port-per-room" network connection. The single port-per-room model falls well short of student expectations and negatively impacts the student experience. In addition to expanding our wireless footprint, this project will address the significant tech debt associated with our aging networking equipment. Funding the upgrades of our aging equipment will also significantly improve the security posture of our networking edge hardware. The funding of UNC's *Wireless First* project will implement a modern wireless network, greatly enhance our student experience, reduce tech debt, and alleviate various security risks.

The total funding required for the Wireless First project is $5,344,448. The project is a new funding request but was priority number 2 of 2 and titled "Replace Aging Wireless Infrastructure" on UNC's FY23-24-IT-5P submission last year.

B. SUMMARY OF PROJECT FUNDING REQUEST:

As part of scoring criteria section #2 - Other Fund Sources, UNC will be contributing $219,122 or 4.1% of the total $5,344,448 funds for this project. UNC funding will come from institution operating funds.

Funding Source	Total Project Cost	Total Prior Appropriation	Current Budget Year Request	Year Two Request	Year Three Request	Year Four Request	Year Five Request
Capital Construction Funds (CCF)	$5,125,326	$0	**$5,125,326**	$0	$0	$0	$0
Cash Funds (CF)	$219,122	$0	**$ 219,122**	$0	$0	$0	$0
Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
Total Funds (TF)	**$5,344,448**	**$0**	**$5,344,448**	**$0**	**$0**	**$0**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

Provide a detailed description of the project, phases, funding and any other information relevant to the project. Include information on best practices. Describe how the project fits in with the Higher Education Master Plan goals.

Wireless First project funding will substantially improve the availability of the wireless network, reduce costs associated with wired connections, significantly enhance our student's experience, and mitigate security risks.

The center of our vision is to transform UNC's inadequate wireless experience into a modern Wifi 6 environment where students and staff can connect to a wireless network in every academic, residential, and administrative area. To ensure strong wifi availability in our student residential spaces, we would transition from a low-density high-power enterprise model to a high-density hospitality model with an access point in every student suite. Additionally, the transformational design will provide a network redundancy that will enhance our current disaster recovery plan.

Transforming UNC's focus from a wired to the *Wireless First* model will reduce future costs. The cost reductions will result from reducing the number of physical connections because our new strategy will only offer a wireless environment. We are also transitioning away from wired physical phones to softphone technology. These strategic decisions will significantly reduce our network switch count and future tech debt.

UNC's current environment is obsolete and struggles to provide students and staff with the wireless experience they expect and the flexibility to pursue academic work in all classrooms and residential areas. Students often arrive with four to six wireless-ready devices that they use daily. The inability to have reliable wireless can cause stress and disappointment during a very impactful time in their lives. The current port-per-room model increases student costs because laptops, tablets, and entertainment devices typically are not manufactured with an ethernet port. Therefore, students must purchase adapters to connect these devices to our physical network because we do not allow students to setup/connect personal wifi routers. Most residential buildings are shared rooms, and roommates must compromise on which device between them will connect to a single physical connection. Funding a reliable and modern Wireless First project will significantly improve the student experience within our resident

halls by allowing multiple wifi devices to connect, reducing the costs of purchasing adapters, and eliminating the need to share a single wired port.

UNC's aging network edge hardware not only represents a significant technical debt but increases UNC's risk in providing a secure and reliable network. Our manufacturer (Cisco) will no longer provide security updates to our hardware in 2025. Without the security updates, UNC will be vulnerable to malicious attacks that can be detrimental and significantly harm our campus.

Our campus community often relies on personal mobile phone LTE/5G service when a wireless connection is unavailable. Many of our buildings have historic charm but are built in a manner that makes it impossible to provide stable mobile data coverage. The combination of not having cell or wireless services exposes a life safety risk during times of refuge. Providing wireless to these areas would allow people seeking shelter to receive essential communications and use wifi calling.

The *Wireless First* project will upgrade and provide a robust and secure wifi-6 environment to roughly a million square feet. Due to the scale of this implementation, it will take place over three years, prioritizing student living spaces and academic areas.

In addition to articulating how the *Wireless First* project aligns with the scoring criteria within the narrative sections of this proposal, we have briefly addressed each of them in a bulleted format below. See section B of this document for scoring criteria #2 – Other Fund Sources.

<u>Scoring criteria #1 - IT Health, Security, and Industry Standards:</u>

- IT systems associated with proposed project are fully supported by developer:
    - As part of our procurement process, UNC will contractually require our selected hardware, services, and licensing manufacturer to fully support this project. The selected Value Added Reseller (VAR) will also be contractually liable to meet the services related to our specific deployment.
- Cybersecurity of IT systems/devices associated with project is up to industry standards (e.g. two-factor authentication, does not compromise FERPA compliance, etc.):
    - This implementation provides a robust and secure wifi-6 environment compliant with modern authentication and security standards. Access to the networking administrative functions will require two-factor authentication, and securing data associated with this project will not compromise FERPA, HIPPA, or PCI.
- Articulates how project fits in with current disaster recovery system:
    - The project enhances our disaster recovery and business continuity plans by creating a redundant design. This project will also provide the campus with many additional locations where staff and students can work if there is a disruption in an entire building, floor, or section of campus.
- Project mitigates urgent/serious IT risk (e.g. imminent risk of system failure or serious security IT risk (e.g. imminent risk of system failure or serious security vulnerability):
    - Our aging switch infrastructure presents a significant risk of failure, which will deny internet access to students and staff if they fail. Additionally, we have an increased risk of security incidents because out-of-support hardware will no longer receive critical security patches and updates.
- Project has life safety function:
    - Refreshing our edge switches will ensure optimal availability for life safety systems such as building control systems, door access, security cameras, and digital campus signage. Additionally, our wifi system supports campus security and police. Our campus community often relies on wifi connectivity for communications when cellular services are unavailable. Gaps in cellular coverage expose significant risks, and funding for this project will provide an essential alternate service to cellular for our students, faculty, and staff.

Scoring criteria #3 - Quality of Planning/Proposal:

- Cost-benefit analysis performed with positive outcome:
    - Over the past two years, UNC has analyzed various alternative options with the help of different VARs and manufacturers. The investigation included a cost-benefit analysis that provided UNC with a *Wireless First* design that will provide the best return on investment. In addition to delivering a modern solution that will future-proof our technology for the next ten years, it will address $5 million of technical debt.
- Proposal articulates how the project fits in the with institution's strategic IT plan:
    The *Wireless First* project aligns with the strategic goals of *Students First*, *Enhance & Invest*, and *Innovate & Create* within UNC's *Rowing, Not Drifting - 2030 Strategic Plan*.
    - ***Students First*:** We exist to transform the lives of our students. We focus on all aspects of their success by making intentional decisions to meet their needs and the needs of our community. The *Wireless First* model allows students to connect all their devices in their chosen space. This funding will provide a transformation that will lead to a better quality and more secure experience for our students.
    - ***Enhance & Invest*:** We provide our staff and faculty with the support and service they need to succeed as professionals and educators. The efficiency gained by staff who can work on a high-quality network in more locations will facilitate more resource time spent on student outcomes.
    - ***Innovate & Create*:** Learning occurs through critical inquiry, discovery, and creation. We leverage technology and capitalize on opportunities to innovate and improve instruction. We anticipate and address societal needs by transforming the campus into a creative laboratory that asks questions, solves problems, and shapes Colorado's future. The *Wireless First* design uses the latest wireless technologies to provide a high-quality, reliable, and widely available network while enabling wifi-6 capabilities to additional campus spaces for academic and administrative purposes.
- Alternatives analyzed
    - For the past two years, UNC has assessed various network technologies to ensure we will provide our campus with a solution that best fits our students and their academic needs. UNC explored all options to provide the best service and coverage at the most competitive price. We consulted with various vendors, including Nile, Comcast, CenturyLink, Cisco, Aruba, Ubiquiti, and multiple VARs.
- Proper measures in place to prevent time and cost overruns:
    - UNC's Information Management & Technology (IM&T) department has a mature project management framework, with our Project Management Office (PMO) managing the project portfolio. IM&T employs experienced and proven project managers that will ensure time and cost overruns will not take place. We supplement our PMO with rigorous vendor and contractor management and evaluation.
- Proposed project is cohesive and is not a combination of smaller, unrelated projects:
    - All the equipment, licensing, and services presented with the *Wireless First* project are one cohesive project. UNC has spent the last two years scoping a unified *Wireless First* project within our proven project management framework, governed by IM&T's PMO, and if funded, be implemented by experienced project managers.

Scoring criteria #4- *Achieves Strategic Plan Goals* - *Articulates request's alignment with one or more of the strategic goals in the Colorado Higher Education Strategic Plan, Colorado Rises.*

The Wireless First initiative aligns with strategic pillar two within Colorado's Strategic Plan for Higher Education - Building Skills in an Evolving Economy. Pillar two asserts to focus on equity and enabling more learners to succeed. UNC is recognized as a top university for social mobility, an emerging Hispanic Serving Institution, and honored to serve the more than 40% of our undergraduates who are the first in their family to attend college. The Chronicle of Higher Education has several articles outlining data that indicate an increase in graduation rates and retention

when investments are made to improve a student's experience. Funding for the *Wireless First* initiative significantly improves the technology experience for students and will enable more students to succeed.

D. PROGRAM INFORMATION:

Provide a description of the programs within the institution that will be impacted by this request.

This project supports several goals of *IM&T's 2023 Strategic Plan*. Below are the key alignments:

Innovation and Technology Experience: Create a seamless and innovative technology experience for students, faculty, staff to enhance teaching, learning, and research outcomes and improve overall user satisfaction.

- The *Wireless First* model provides a modern and stable wifi experience for the campus.
- The *Wireless First* model will improve satisfaction within our residential buildings.

Infrastructure and Cloud Strategy: Secure adequate funding for developing, maintaining, and renewing UNC's technology infrastructure and ensure that the infrastructure supports UNC's strategic goals and objectives.

- Obtaining funding for the *Wireless First* initiative is the top priority for this strategic goal.
- Expand the adoption of Microsoft Teams Softphone to reduce wired switch count for physical phones.

Cybersecurity and Compliance: Continue building and evolving the comprehensive and proactive cybersecurity program that safeguards UNC's data, systems, and networks and promotes a culture of security awareness and best practices among faculty, staff, and students.

- Funding the *Wireless First* project will fund the next generation of network switches. UNC's current switches will be out of support in 2025 and vulnerable to cybersecurity attacks.

E. CONSEQUENCES IF NOT FUNDED:

Provide a description of the consequences if this project is not funded. See instructions for further detail.

If this project is not funded, our student wireless experience will remain inadequate, our technical debt will continue to increase, and our security posture will degrade.

UNC's current network is an obsolete design from the early 2000s. Research data indicates that a good student experience directly improves retention and graduation rates; therefore, investing in the student wireless experience will provide a positive return on the state's investment.

The current obsolete design also requires costly ongoing investments in various hardware and cabling. Without funding, UNC would continue funding a model that doesn't have a long-term strategy to reduce tech debt.

Without funding, UNC's security risk will increase because unpatched networking infrastructure devices will leave our network susceptible to cyber attacks. If a cyber attack were to occur, UNC would incur a considerable cost remedying the attack and suffer a diminished reputation amongst our campus community. Additionally, security risks will occur due to the technical labor complexities of protecting non-supported aging hardware.

F. ASSUMPTIONS FOR CALCULATIONS:

Describe the basis for how the project costs were estimated. Include inflation assumptions. See instructions for further detail.

UNC analyzed various alternative options for this project based on several VAR and manufacturer estimates. The basis of our equipment costs for this project derives from quotes provided by multiple VARs and an estimate from one of our business partners. Additionally, the investigation included a cost-benefit analysis by UNC network engineers and a VAR partner. The analysis reinforced UNC's confidence that the calculations for a *Wireless First* design are cost-effective and will deliver a modern solution that will be supported for at least the next decade. We have included a 10% uplift on equipment costs because the availability and demand for the limited supply continue to push prices up.

G. OPERATING BUDGET IMPACT:

Detail operating budget impacts the project may have. See instructions for further detail.

This investment will cover over ten years of wireless and edge networking needs. This investment will also allow us to migrate campus to a software-based phone system that will eliminate at least 20% of our existing switches and save over $600,000 in the long term. Without this investment, we will accumulate additional costs supporting end-of-life infrastructure. Over the next ten years, UNC will create a sustainable OpX model to fund future upgrades.

H. PROJECT SCHEDULE:

Identify project schedule by funding phases. Add or delete boxes as required for each phase. See instructions for further detail.

The University of Northern Colorado employs several project managers, and our Project Management Office (PMO) manages the project portfolio. A project manager will be assigned, and the initial scope will be reviewed and updated. Stakeholders and technical staff will attend a kickoff meeting outlining UNC's various project policies and procedures. One of the main procedures reviewed will be the change management policy that includes communication plans to students, faculty, and staff. UNC has a well-defined maintenance window (Thursday, Saturday, and Sunday, 5 am-7 am). It will take 4-16 months to receive the equipment. Equipment will be deployed after receiving it over the next 24 months to maximize our available labor resources and minimize the cost of external labor and disruption to the university and its constituents. We will work and communicate with our IT governance group, including academic, student, and administrative units.

Phase _1_of_1_	**Start Date**	**Completion Date**
Pre-Design	**4/1/2024**	**6/1/2024**
Design	**6/1/2024**	**7/1/2024**
Procurement	**7/1/2024**	**6/1/2025**
Implementation	**7/1/2024**	**6/30/2026**
Testing	**7/1/2024**	**6/30/2026**
Go-Live	**8/1/2025**	**6/30/2026**

I. ADDITIONAL INFORMATION:

Three-year roll forward spending authority is required:	☒ Yes	❑ No
Request 6-month encumbrance waiver:	❑ Yes	☒ No
Is this a continuation of a project appropriated in a prior year:	❑ Yes	☒ No
State Controller Project Number (if continuation):		

J. COST SAVINGS / IMPROVED PERFORMANCE OUTCOMES:

Describe the cost savings or improved performance outcomes as a result of this project. Please clearly identify and quantify anticipated administrative and operating efficiencies or program enhancements and service expansion through cost-benefit analyses and return on investment calculations.

The significant amount of tech debt UNC currently possesses will only grow until we modernize our wireless network design, technology, and edge switches. A transformation project will eliminate UNC's legacy wireless environment's maintenance, refactoring, and licensing. UNC's initial research resulted in an estimated Wireless and Edge tech debt of roughly $5 million, or 32% of our annual operating budget. Therefore, funding this project will significantly reduce our tech debt and free our staff and budgets to provide a modern student-first experience. Transforming our architecture to a wireless-first design will result in fewer wired connections. Combined with moving from physical phones to softphones, UNC's next refresh will have a reduced amount of physical switches to replace and, ultimately, minimize refresh costs.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

Describe the data protection and disaster recovery considerations factored into the plan. Indicate any cybersecurity implications if applicable.

This project would prevent the edge devices from falling out of support and being unable to receive vulnerability updates. Unsupported devices that no longer receive security updates are a substantial security risk.

Funding a modern wireless design and the replacement of aging switches strengthens campus business continuity. This project will also decrease the probability that our out-of-date and unsupported equipment will fail and cause outages. Investing in the new design will also provide our students with many additional options if they need to work from an alternate location. Funding for this project enhances our disaster recovery and business continuity plans by establishing a redundant design.

L. BUSINESS PROCESS ANALYSIS:

Describe alternatives analyzed, cost-benefit analysis, and measures in place to prevent time and cost overruns. Articulate how the proposed project fits in with the institution's strategic IT plan.

Over the last two years, UNC has consulted with various vendors with extensive experience working with higher education customers. We have required these vendors to review our business needs and processes and demonstrate their ability to provide robust solutions on time and within budget. These vendors include Nile, Comcast, CenturyLink, Cisco, Aruba, Ubiquiti, and multiple VARs.

UNC is meeting monthly with other higher education institutions that are modernizing their wireless infrastructures. Combining our business process analysis efforts with these other Colorado institutions will align our processes and bargaining power resulting in best-of-breed solutions and negotiating for better pricing.

These extensive business process analyses resulted in a proposal for a student-focused *Wireless First* initiative.

College Wide Cellular Improvements

Front Range Community College (CCCS)

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Five-Year Capital Construction/Capital Renewal Project Plan FY 2024-25 to FY 2028-29 (CC_CR-P)

(A)	(1) **Institution Name:**	Front Range Community College	(2) **Institution Signature Approval:**	Date
(B)	(1) **Name & Title of Preparer:**	Duane E. Risse, Interim Vice President, Finance and Administration	(2) **CDHE Signature Approval:**	Date
(C)	(1) **E-mail of Preparer:**	Duane.Risse@Frontrange.edu		

(D)	***GRAND TOTALS***	*(b) Total Project Cost*	*(c) Total Prior Appropriation*	*(d) Current Budget Year Request*	*(e) Year Two Request*	*(f) Year Three Request*	*(g) Year Four Request*	*(h) Year Five Request*
	Capital Construction Funds (CCF)	$139,000,000	$0	$0	$0	$0	$0	$139,000,000
	Cash Funds (CF)	$11,120,000	$0	$0	$0	$0	$0	$11,120,000
	Reappropriated Funds (RF)	$0	$0	$0	$0	$0	$0	$0
	Federal Funds (FF)	$0	$0	$0	$0	$0	$0	$0
	Total Funds (TF)	**$150,120,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$150,120,000**

(1)	**Project Title and No. of Phases:**	New FRCC Boulder County Campus - One Phase						
(2)	**Brief Description of Project:**	Construct new 135,000 GSF campus serving the Boulder County area and vacate current leased facilities, that is approximately 50 years old.						
(3)	**Intercept Program? (Yes/No):**	**NO**						
(4)	(a) **Priority Number:**	1	(b) **Project Type:**	Capital Construction (CC)	(c) **Gross Square Feet:**		**135,000**	
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Constr Funds (CCF)	$139,000,000	$0	**$0**	$0	$0	$0	$139,000,000
(7)	Cash Funds (CF)	$11,120,000	$0	**$0**	$0	$0	$0	$11,120,000
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$150,120,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$150,120,000**

(1)	**Project Title and No. of Phases:**							
(2)	**Brief Description of Project:**							
(3)	**Intercept Program? (Yes/No):**							
(4)	(a) **Priority Number:**		(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Constr Funds (CCF)	$0	$0	**$0**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

(1)	**Project Title and No. of Phases:**							
(2)	**Brief Description of Project:**							
(3)	**Intercept Program? (Yes/No):**							
(4)	(a) **Priority Number:**		(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Constr Funds (CCF)	$0	$0	**$0**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 4/19/2023

FY24-25 CAPITAL INFORMATION TECHNOLOGY PROJECT REQUEST- *COST SUMMARY (CC_IT-C)**

(A)	(1) **Funding Type (Cash, CCF, Cash & CCF):**	**CCF & Cash**	(2) **Intercept Program Request? (Yes/No):**	NO
(B)	(1) **Institution:**	Front Range Community College	(2) **Name & Title of Preparer:**	Duane E. Risse, Interim Vice President, Finance and Administration
(C)	(1) **Project Title:**	FRCC IT College Wide Cellular Improvements	(2) **E-mail of Preparer:**	Duane.Risse@Frontrange.edu
(D)	(1) **Project Phase (__ of __):**	Phase 1 of 1	(2) **State Controller Project # (if continuation):**	
(E)	(1) **Project Type (IT):**	Capital IT	(2) **Institution Signature Approval:**	Date
(F)	(1) **Year First Requested:**	FY 24-25	(2) **CDHE Signature Approval:**	Date
(G)	(1) **Priority Number (Leave blank for continuation projects):**	1 of 1	(2) **OSPB Signature Approval**	Date

(1)		(a) **Total Project Costs**	(b) **Total Prior Year Appropriation(s)**	(c) **Current Budget Year Request**	(d) **Year Two Request**	(e) **Year Three Request**	(f) **Year Four Request**	(g) **Year Five Request**
	Land /Building Acquisition							
(2)	Land Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Consultants/Contactors	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Quality Assurance	$ 16,812	$ -	$ 16,812	$ -	$ -	$ -	$ -
(7)	Training	$ 14,711	$ -	$ 14,711	$ -	$ -	$ -	$ -
(8)	Leased Space (Temporary)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Feasibility Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Other Services/Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(11)	Inflation Cost for Professional Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(13)	***Total Professional Services***	$ 31,523	$ -	$ 31,523	$ -	$ -	$ -	$ -
	Associated Building Construction							
(14)	Cost for New (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(15)	New $_____/GSF							
(16)	Cost for Renovate GSF:	$ 145,999	$ -	$ 145,999	$ -	$ -	$ -	$ -
(17)	Renovate $450/GSF							
(18)	Site Work/Landscaping	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(19)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(20)	Inflation for Construction	$ 7,300	$ -	$ 7,300	$ -	$ -	$ -	$ -
(21)	Inflation Percentage Applied		0.00%	5.00%	0.00%	0.00%	0.00%	0.00%
(22)	***Total Construction Costs***	$ 153,299	$ -	$ 153,299	$ -	$ -	$ -	$ -
	Software Acquisition							
(23)	Software COTS	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(24)	Software Built	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(25)	Inflation on Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(27)	***Total Software***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Equipment							
(28)	Servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ 157,355	$ -	$ 157,355	$ -	$ -	$ -	$ -
(32)	Other: Cellular Distributed Antenna System	$ 2,101,550	$ -	$ 2,101,550	$ -	$ -	$ -	$ -
(33)	Miscellaneous - Maintenance & Service Agreement	$ 279,000	$ -	$ 279,000	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 2,537,905	$ -	$ 2,537,905	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	$ 2,722,727	$ -	$ 2,722,727	$ -	$ -	$ -	$ -
	Project Contingency							
(36)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ 272,273	$ -	$ 272,273	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 272,273	$ -	$ 272,273	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	$ 2,995,000	$ -	$ 2,995,000	$ -	$ -	$ -	$ -
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 2,695,500	$ -	$ 2,695,500	$ -	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 299,500	$ -	$ 299,500	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	**2,995,000**	**-**	**2,995,000**	**-**	**-**	**-**	**-**

*Should match CC_IT-N Form

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 4/19/2023

FY24-25 CAPITAL INFORMATION TECHNOLOGY PROJECT REQUEST- *COST SUMMARY (CC_IT-C)**

(A)	(1) **Funding Type (Cash, CCF, Cash & CCF):**	**CCF & Cash**	(2) **Intercept Program Request? (Yes/No):**	NO
(B)	(1) **Institution:**	Front Range Community College	(2) **Name & Title of Preparer:**	Duane E. Risse, Interim Vice President, Finance and Administration
(C)	(1) **Project Title:**	Westminster Campus	(2) **E-mail of Preparer:**	Duane.Risse@Frontrange.edu
(D)	(1) **Project Phase (__ of __):**	Phase 1 of 1	(2) **State Controller Project # (if continuation):**	
(E)	(1) **Project Type (IT):**	Capital IT	(2) **Institution Signature Approval:**	Date
(F)	(1) **Year First Requested:**	FY 24-25	(2) **CDHE Signature Approval:**	Date
(G)	(1) **Priority Number (Leave blank for continuation projects):**	1 of 1	(2) **OSPB Signature Approval**	Date

(1)		(a) **Total Project Costs**	(b) **Total Prior Year Appropriation(s)**	(c) **Current Budget Year Request**	(d) **Year Two Request**	(e) **Year Three Request**	(f) **Year Four Request**	(g) **Year Five Request**
	Land /Building Acquisition							
(2)	Land Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Consultants/Contactors	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Quality Assurance	$ 6,310	$ -	$ 6,310	$ -	$ -	$ -	$ -
(7)	Training	$ 5,522	$ -	$ 5,522	$ -	$ -	$ -	$ -
(8)	Leased Space (Temporary)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Feasibility Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Other Services/Costs	$ -	$ -		$ -	$ -	$ -	$ -
(11)	Inflation Cost for Professional Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(13)	***Total Professional Services***	$ 11,832	$ -	$ 11,832	$ -	$ -	$ -	$ -
	Associated Building Construction							
(14)	Cost for New (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(15)	New $_____/GSF							
(16)	Cost for Renovate GSF:	$ 63,104	$ -	$ 63,104	$ -	$ -	$ -	$ -
(17)	Renovate $450/GSF							
(18)	Site Work/Landscaping	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(19)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(20)	Inflation for Construction	$ 3,155	$ -	$ 3,155	$ -	$ -	$ -	$ -
(21)	Inflation Percentage Applied		0.00%	5.00%	0.00%	0.00%	0.00%	0.00%
(22)	***Total Construction Costs***	$ 66,259	$ -	$ 66,259	$ -	$ -	$ -	$ -
	Software Acquisition							
(23)	Software COTS	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(24)	Software Built	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(25)	Inflation on Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(27)	***Total Software***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Equipment							
(28)	Servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ 58,899	$ -	$ 58,899	$ -	$ -	$ -	$ -
(32)	Other: Cellular Distributed Antenna System	$ 779,980	$ -	$ 788,800	$ -	$ -	$ -	$ -
(33)	Miscellaneous - Maintenance & Service Agreement	$ 69,000	$ -	$ 69,000	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 916,699	$ -	$ 916,699	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	$ 994,790	$ -	$ 994,790	$ -	$ -	$ -	$ -
	Project Contingency							
(36)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ 99,479	$ -	$ 99,479	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 99,479	$ -	$ 99,479	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	$ 1,094,269	$ -	$ 1,094,269	$ -	$ -	$ -	$ -
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 984,842	$ -	$ 984,842	$ -	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 109,427	$ -	$ 109,427	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	**1,094,269**	**-**	**1,094,269**	**-**	**-**	**-**	**-**

*Should match CC_IT-N Form

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 4/19/2023

FY24-25 CAPITAL INFORMATION TECHNOLOGY PROJECT REQUEST- *COST SUMMARY (CC_IT-C)**

(A)	(1) **Funding Type (Cash, CCF, Cash & CCF):**	**CCF & Cash**	(2) **Intercept Program Request? (Yes/No):**	NO
(B)	(1) **Institution:**	Front Range Community College	(2) **Name & Title of Preparer:**	Duane E. Risse, Interim Vice President, Finance and Administration
(C)	(1) **Project Title:**	Boulder County Campus	(2) **E-mail of Preparer:**	Duane.Risse@Frontrange.edu
(D)	(1) **Project Phase (__ of __):**	Phase 1 of 1	(2) **State Controller Project # (if continuation):**	
(E)	(1) **Project Type (IT):**	Capital IT	(2) **Institution Signature Approval:**	Date
(F)	(1) **Year First Requested:**	FY 24-25	(2) **CDHE Signature Approval:**	Date
(G)	(1) **Priority Number (Leave blank for continuation projects):**	1 of 1	(2) **OSPB Signature Approval**	Date

(1)		(a) **Total Project Costs**	(b) **Total Prior Year Appropriation(s)**	(c) **Current Budget Year Request**	(d) **Year Two Request**	(e) **Year Three Request**	(f) **Year Four Request**	(g) **Year Five Request**
	Land /Building Acquisition							
(2)	Land Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Consultants/Contactors	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Quality Assurance	$ 3,540	$ -	$ 3,540	$ -	$ -	$ -	$ -
(7)	Training	$ 3,098	$ -	$ 3,098	$ -	$ -	$ -	$ -
(8)	Leased Space (Temporary)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Feasibility Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Other Services/Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(11)	Inflation Cost for Professional Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(13)	***Total Professional Services***	$ 6,638	$ -	$ 6,638	$ -	$ -	$ -	$ -
	Associated Building Construction							
(14)	Cost for New (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(15)	New $_____/GSF							
(16)	Cost for Renovate GSF:	$ 13,275	$ -	$ 13,275	$ -	$ -	$ -	$ -
(17)	Renovate $450/GSF							
(18)	Site Work/Landscaping	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(19)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(20)	Inflation for Construction	$ 664	$ -	$ 664	$ -	$ -	$ -	$ -
(21)	Inflation Percentage Applied		0.00%	5.00%	0.00%	0.00%	0.00%	0.00%
(22)	***Total Construction Costs***	$ 13,939	$ -	$ 13,939	$ -	$ -	$ -	$ -
	Software Acquisition							
(23)	Software COTS	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(24)	Software Built	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(25)	Inflation on Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(27)	***Total Software***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Equipment							
(28)	Servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ 33,188	$ -	$ 33,188	$ -	$ -	$ -	$ -
(32)	Other: Cellular Distributed Antenna System	$ 442,500	$ -	$ 442,500	$ -	$ -	$ -	$ -
(33)	Miscellaneous - Maintenance & Service Agreement	$ 61,500	$ -	$ 61,500	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 537,188	$ -	$ 537,188	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	$ 557,764	$ -	$ 557,764	$ -	$ -	$ -	$ -
	Project Contingency							
(36)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ 55,776	$ -	$ 55,776	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 55,776	$ -	$ 55,776	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	$ 613,540	$ -	$ 613,540	$ -	$ -	$ -	$ -
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 552,186	$ -	$ 552,186	$ -	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 61,354	$ -	$ 61,354	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	**613,540**	-	**613,540**	-	-	-	-

*Should match CC_IT-N Form

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 4/19/2023

FY24-25 CAPITAL INFORMATION TECHNOLOGY PROJECT REQUEST- *COST SUMMARY (CC_IT-C)**

(A)	(1) **Funding Type (Cash, CCF, Cash & CCF):**	**CCF & Cash**	(2) **Intercept Program Request? (Yes/No):**	NO
(B)	(1) **Institution:**	Front Range Community College	(2) **Name & Title of Preparer:**	Duane E. Risse, Interim Vice President, Finance and Administration
(C)	(1) **Project Title:**	Larimer County Campus	(2) **E-mail of Preparer:**	Duane.Risse@Frontrange.edu
(D)	(1) **Project Phase (__ of __):**	Phase 1 of 1	(2) **State Controller Project # (if continuation):**	
(E)	(1) **Project Type (IT):**	Capital IT	(2) **Institution Signature Approval:**	Date
(F)	(1) **Year First Requested:**	FY 24-25	(2) **CDHE Signature Approval:**	Date
(G)	(1) **Priority Number (Leave blank for continuation projects):**	1 of 1	(2) **OSPB Signature Approval**	Date

(1)		(a) **Total Project Costs**	(b) **Total Prior Year Appropriation(s)**	(c) **Current Budget Year Request**	(d) **Year Two Request**	(e) **Year Three Request**	(f) **Year Four Request**	(g) **Year Five Request**
	Land /Building Acquisition							
(2)	Land Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Consultants/Contactors	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Quality Assurance	$ 6,962	$ -	$ 6,962	$ -	$ -	$ -	$ -
(7)	Training	$ 6,092	$ -	$ 6,092	$ -	$ -	$ -	$ -
(8)	Leased Space (Temporary)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Feasibility Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Other Services/Costs	$ -	$ -		$ -	$ -	$ -	$ -
(11)	Inflation Cost for Professional Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(13)	***Total Professional Services***	$ 13,054	$ -	$ 13,054	$ -	$ -	$ -	$ -
	Associated Building Construction							
(14)	Cost for New (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(15)	New $_____/GSF							
(16)	Cost for Renovate GSF:	$ 69,620	$ -	$ 69,620	$ -	$ -	$ -	$ -
(17)	Renovate $450/GSF							
(18)	Site Work/Landscaping	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(19)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(20)	Inflation for Construction	$ 3,481	$ -	$ 3,481	$ -	$ -	$ -	$ -
(21)	Inflation Percentage Applied		0.00%	5.00%	0.00%	0.00%	0.00%	0.00%
(22)	***Total Construction Costs***	$ 73,101	$ -	$ 73,101	$ -	$ -	$ -	$ -
	Software Acquisition							
(23)	Software COTS	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(24)	Software Built	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(25)	Inflation on Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(27)	***Total Software***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Equipment							
(28)	Servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ 65,269	$ -	$ 65,269	$ -	$ -	$ -	$ -
(32)	Other: Cellular Distributed Antenna System	$ 870,250	$ -	$ 870,250	$ -	$ -	$ -	$ -
(33)	Miscellaneous - Maintenance & Service Agreement	$ 148,500	$ -	$ 148,500	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 1,084,019	$ -	$ 1,084,019	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	$ 1,170,174	$ -	$ 1,170,174	$ -	$ -	$ -	$ -
	Project Contingency							
(36)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ 117,017	$ -	$ 117,017	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 117,017	$ -	$ 117,017	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	$ 1,287,191	$ -	$ 1,287,191	$ -	$ -	$ -	$ -
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 1,158,472	$ -	$ 1,158,472	$ -	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 128,719	$ -	$ 128,719	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	**1,287,191**	**-**	**1,287,191**	**-**	**-**	**-**	**-**

*Should match CC_IT-N Form

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2024-25 CAPITAL IT PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$2,695,500**	
Cash Fund Amount (CF):	$ 299,500	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Front Range Community College	
Project Title:	FRCC IT College Wide Cellular Improvements	
Project Phase (Phase _of_):	Phase 1 of 1	
State Controller Project Number (if continuation):		
Project Type:	X	Technology Hardware
	X	Technology Software
Year First Requested:	FY 2024-2025	
Priority Number (Leave blank for continuation projects):	1 of 1	
Name & Title of Preparer:	Duane E. Risse, Interim Vice President, Finance and Administration	
E-mail of Preparer:	Duane.Risse@Frontrange.edu	
Institution Signature Approval:		Date
OSPB Signature Approval:		Date
CDHE Signature Approval:		Date

A. PROJECT SUMMARY/STATUS:

Provide a brief scope description of the project and explain the status of the prior appropriated phases. See instructions for further detail.

Improve Cellular Coverage

The objective of this project is to improve the cellular coverage throughout Front Range Community College's (FRCC or College) three campuses (Westminster, Boulder County and Larimer County) in order to improve student and faculty experience, improve security communications and improve facility operations.

The College's Westminster Campus building is 485,000 square feet and made of concrete and reinforced steel on three floors. Getting a cell phone signal anywhere inside the building is a challenge. Students, faculty and staff experience similar challenges in buildings on the Larimer Campus and the Boulder County Campus. If the project is funded, Facilities staff will no longer need to exit buildings to communicate or coordinate maintenance responses on hot/cold calls.

The College desires to provide a system that not only allows for cellular connections in buildings, but also a system that will handle the volume of cellular connections needed to ensure connectivity from the varied devices student carry and use while in our buildings. Students typically have three devices – a smart phone, smart watch and tablet/computer.

A recent training event with first responders from local law enforcement highlighted a critical communication deficiency at our Westminster Campus when first responders could not use cell phones or radios to communicate while inside the building due to poor cellular connections. This lack of ability to communicate could result in delay of valuable minutes to assess the situation and respond to a life safety emergency within the building. The College also recently completed Hazardous Vulnerability Assessments of all three campuses, and the lack of seamless communication for our employees and first responders was highlighted as a critical obstacle to successfully saving lives and respond/recover from a major emergency or disaster.

During major emergency situations, cellular communications become critical to ensure that lives and property are not lost. In these situations, however, the phone calls and texts of victims, witnesses, and first responders compete within a finite cellular service "pipeline" with the cell phone calls of others who are simply wanting information or who are curious about the incident. This tremendous increase in cellular usage (especially by those who are not directly involved with the incident) can overload the cellular phone systems causing more demand for cellular service than the systems can handle. This can (and has previously) caused some cell phone calls to be dropped, some cell phone calls to fail to connect, and some texts to be delayed or lost. In these cases, the loss of critical lifesaving communication capabilities can result in tragic consequences.

Installing an active cellular service platform not only enhances cellular phone service for community members during regular service demands, but it also "widens the cell service pipeline" so that more cellular phone calls and texts can go through providing a greater degree of stability and safety for connecting and preserving lifesaving communications during critical operations."

To remedy the poor cell coverage, FRCC will engage a firm experienced in analyzing current cellular coverage deficiencies and identifying and designing a solution to remedy deficiencies. The College will install equipment fully supported by a third-party vendor via a maintenance and management contract, that will amplify cell signals from major carriers to deliver greatly improved cell coverage. The project will also cover the cost of reconfiguring some IT closets to provide sufficient space and cooling for the new equipment, and well as adding electrical connections, fiber and electrical infrastructure as required.

B. SUMMARY OF PROJECT FUNDING REQUEST:

Funding Source	Total Project Cost	Total Prior Appropriation	Current Budget Year Request	Year Two Request	Year Three Request	Year Four Request	Year Five Request
Capital Construction Funds (CCF)	**$2,695,500**	$0	**$2,695,500**	$0	$0	$0	$0
Cash Funds (CF)	**$ 299,500**	$0	**$ 299,500**	$0	$0	$0	$0
Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
Total Funds (TF)	**$2,995,000**	**$0**	**$2,995,000**	**$0**	**$0**	**$0**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

Provide a detailed description of the project, phases, funding and any other information relevant to the project. Include information on best practices. Describe how the project fits in with the Higher Education Master Plan goals.

This project aligns with the College's *Vision 2020 Strategic Plan* in that it will:

- **Goal 1: Create a Superior Student Experience** by enabling students to use cell phones and other devices throughout all areas of the College without the need to exit the buildings. Only having reliable cell phone service when standing outside the College buildings has been a constant source of frustration for students, faculty and staff.
- **Goal 2: Embrace Organizational Excellence** by improving efficiency in IT operations and aid in critical response times in the event of an accident or critical life safety incident on any of campus of the College.

This project aligns with the following goals of the *State of Colorado Higher Education Master Plan*:

- **Goal 3 – Improve Student Success** by enabling students to communicate with the primary tool that students are accustomed to using for research, communication and education – the cell phone. The project will also increase the capacity of cellular service to account for multiple devices students, faculty and staff tend to have these days, including cell phones, smart watches and tablets.
- **Goal 4 – Invest in Affordability and Innovation to Reduce Cost** by ensuring the cellular enhancements are designed and integrated as one solution covering all three campuses, thereby reducing the potential to have multiple vendors and a greater variety of equipment to support.

This project will be completed in one phase.

Funding for this project will be primarily (90%) from the CC_IT request and 10% cash funds from FRCC.

Project Description:
In 2023 the College engaged Advanced Network Management, Inc. (ANM) and Engineering Wireless Services, LLC (EWS) to provide an analysis of how to improve FRCCs cellular coverage at its three campuses. The solution proposes to install a mix of active and passive systems, which will cover all buildings on the three campuses.

For larger buildings, the College will install and integrate a CommScope ERA (or equivalent) Distributed Antenna System (DAS). The DAS system will deliver high-performance in-building connectivity with speed and simplicity. The modular system will allow supporting today's cellular coverage and capacity demands and scale to deliver 5G. ERA uses a variety of Carrier Access Points (CAP) that convert the digital signal back to radio frequency (RF) for over-the-air transmission. The specific design would be determined after a thorough RF Bbenchmarking of all buildings is collected.

For smaller buildings where the size or type of construction does not require an active cellular system, the College will install a passive DAS using Wilson Pro (or equivalent) system, paired with the Enterprise 4300 & 4300R (or equivalent) cell signal amplifier system to provide significantly enhanced voice and data coverage inside buildings. Supporting the system will be new antennas strategically located throughout the buildings necessary to deliver greatly improved cell coverage. This system will result in fewer dropped calls and improve voice quality. The Wilson system is cost-effective and designed to be installed quickly. A

wireless LTE (which is an industry term to reflect progression from 4G to 5G) connection is included with an annual WilsonPro subscription, so no additional internet connection is required.

The College will hire a vendor that is certified to install the chosen systems and with contractor assistance, will ensure clean and professional installation. Design will ensure validation of physical locations for equipment and ensure equipment is integrated into the existing IT environment and fully supported by the manufacture with appropriate training of College in-house IT staff.

Equipment Fully Supported by Manufacturer

All equipment and installation will be covered by a 3-year warranty. To ensure proper maintenance and support of the systems installed, the College will engage a vendor via a service maintenance agreement. This will ensure rapid response for the occasional failure of active and passive components and extend as much as possible the life of the equipment through pro-active servicing. It will also mean quick troubleshooting of the source of failures with experts familiar with the functionality of a DAS system and the requirements to tune to re-establish system connectivity to some or all carrier networks.

A Standard Service Maintenance Package would include:

1. System Monitoring and Reporting via the network operation center (NOC). Connectivity to DAS is made through the enterprise network or a separately provided wireless modem.
2. Diagnosis and remote troubleshooting.
3. 365x7x24 technical monitoring and telemetry (dependent on original equipment manufacturer (OEM) hardware capabilities) with live telephone and email support from qualified personnel.
4. Replacement of faulty units.
5. Software upgrades throughout duration of agreement as provided by OEM.
6. Custom priority phone line.
7. Yearly system health analysis and technology review.
8. Reporting available by Incident/ Occurrence
    - Alarm Status Report
    - Outage Report
    - Ticket Report
    - RMA Report
    - RCA Report
9. Services, troubleshooting, and repairs completed by OEM certified employees

Scope of Work:

The College will engage a vendor that will provide the following scope of work:

- RF Benchmark Testing
- RF iBwave Design
- Material Procurement
- Project Management
- Installation
- Commissioning and Integration

Project Specifications:

DAS System Requirements

1. Manage the installation, commissioning, integration, and validation of a Distributed Antenna System within College buildings.
2. Provide simultaneous support of wireless technologies from the cellular providers Verizon, AT&T, and T-Mobile.
3. Provide flexibility, and easily accommodate additional services within the system's frequency bands without requiring significant upgrades or system modifications.
4. Include all subsystems, equipment, components, transmission media, connection/termination apparatus, cabling, etc. necessary for a complete operating system.
5. Design signal strength of -95 RSRP or stronger throughout 95% of the required coverage areas, and 10 dB higher than the cellular carriers' macro signal based upon the macro coverage today.
6. Ability for proactive management and end-to-end alarming of active electronics. The system shall be able to engage with 3rd party-based element management systems and provide fault management information.
7. Meet all FCC requirements for installation and registration as applicable

System Acceptance Requirements

1. Provide an acceptance test plan, which includes notifying the appropriate representatives as to when acceptance testing will take place, at which point, vendor will execute acceptance test and provide to the client with documented results.
2. Provide a demonstration to the College of system operation and perform an active wireless survey demonstrating performance validating the design requirements.
3. Conduct pre- and post-installation survey validating coverage area.
4. Present the completed system and wireless services to the College, including functionality, features, ongoing maintenance, and warranty procedures.
5. Provide carrier acceptance of system integration.
6. Provide at least one (1) set of both electronic and printed documentation.

<u>Design</u>

The College will engage a vendor to design a comprehensive coverage solution utilizing iBwave Design Software (or equivalent), to create a visual representation of the proposed equipment locations throughout buildings, as well as propagating coverage levels for each desired carrier throughout the structure.

Each antenna location will be strategically located so that it distributes wireless coverage throughout buildings in the most efficient and optimized configuration possible. The goal in designing any DAS system is to maintain a minimum power level of -85 dBm to a maximum power level of -65 dBm, while eliminating signal loss to the exterior of buildings. The system will maintain maximum coverage levels throughout the vast majority of buildings and with the goal to provide cellular signal coverage that far exceeds the minimum power requirements. The vendor will be required to hold appropriate certifications required to design and install the active and passive systems.

<u>Benchmark Data:</u>

The selected vendor will perform benchmark data collection at all three FRCC campuses collecting Wireless Service Providers (WSP) network information from AT&T, T-Mobile, and Verizon networks.

<u>Project Actions and Deliverables:</u>

•WSP Physical Site Survey - A qualified RF engineer will set up and perform a comprehensive baseline scan of all available LTE Channels. Parking lot and buildings will have its own measurement file created. From this, each building will have a complete coverage picture created.

•WSP Indoor Signal Assessment and Measurement - Walk each building and floor from the supplied RFP pdf

- o Verify the ingress / egress of each exit on floor 1 of each building
- o Noting key areas of signal strength and weakness
- o Determination of the source of the strongest cell signal
- o Determination of the location of closest cell tower(s) from Google Earth

•WSP Survey Results – Provide a written assessment with analysis of data measured and presented in a report document. Map detail signal strength measured. (RSSI, RSRP, RSRQ, SiNR, PCI)

- o Highlighting problems areas that contribute to poor signal strength
- o Indicate impacts to SMS coverage vs voice based on signal strength

•Assign a qualified project manager (PM) who will be the single point of contact for the project. The PM will be responsible for the following activities:

- o Project Resource Scheduling
- o Daily Status Reports
- o FRCC Updates
- o Project Documentation
- o Final Deliverables/ Project Closeout
- o Invoicing

<u>Server Rooms, Data Centers and Networking Closet Improvements</u>

Vendor will make improvements to server rooms, data centers, and networking closets as required to integrate the new cellular equipment and ensure compliance with industry standards and regulations, including:

1. Provide and install isolated J-hook pathways in all areas that cabling will be installed.
2. Install 1” fire sleeves as needed.
3. Route, dress and label all installed 50-OHM Cable.
4. Ensure all roof mounted antenna locations will have end user approval.
5. Perform post-installation cell signal survey with College.
6. Work with College IT and Campus Security and Preparation (CSP) staff to ensure all changes to existing environment are coordinated and approved.

<u>D. PROGRAM INFORMATION:</u>

Provide a description of the programs within the institution that will be impacted by this request.

The areas impacted by this request to improve cellular signal coverage will have a positive impact on all College operations to include instructional programs, business and administration, faculty, staff and students.

E. CONSEQUENCES IF NOT FUNDED:

Provide a description of the consequences if this project is not funded. See instructions for further detail.

Lessons learned during the pandemic is that students, faculty, and staff use their phones for nearly every aspect of their lives, including accessing web content information, transacting business and communication.

If this project is not funded, the College will continue to experience cellular issues across its campuses and we will negatively impact the student experience, as well as, staff members, and first responders in the event there is an active shooter, other life safety incident or major weather event.

The College's oldest building is the Westminster Campus, a three-story building which was built in the 1970s using concrete and reinforced steel. The College's newest building called the Health Care Careers Center is a two-story building and is also plagued with lack of cellular service. The College desires to have a wholistic solution to improving cell phone service at all campuses, which this project would achieve.

The lack of cell phone coverage creates a big concern in the event there was ever a critical incident such as a tornado or an active shooter event that impacted any of the three campuses. A recent joint exercise with first responders at our Westminster Campus resulted in realizing that law enforcement personnel did not having the ability to use their cell phones or their two-way radio when inside the building due to interference. Without the ability of first responders to utilize their cell phones as a backup communication tool, this total loss of communication will guarantee a reduction of response capability. And as has been seen with recent school shootings, minimizing the amount of time – by even seconds- has proven to have huge positive consequences to minimize event impacts.

The lack of cell phone connectivity will mean continued challenges with communication between College personnel, its students and outside entities. It will likely mean that students will continue to opt to leave campus as they seek out the ability to use their phones.

F. ASSUMPTIONS FOR CALCULATIONS:

Describe the basis for how the project costs were estimated. Include inflation assumptions. See instructions for further detail.

Project cost for improving the cellular coverage was estimated using national leaders in technology solutions (Advanced Network Management, Inc and Engineering Wireless Services, LLC) which provided estimates on the cellular improvement project. Those estimates were then used to create total project budgets by campus, with budgets reflecting a project start date of 2024.

- Westminster Campus: $ 1,094,269
- Larimer Campus: $ 1,287,191
- Boulder Campus: $ 613,540

$ 2,995,000

The College has on staff a licensed Architect with thirty years of construction management experience that will manage this project. This same person is FRCC's designated State Delegate of the Office of State Architect, and as FRCC's Managing Architect, will treat this IT Capital Construction project like current and

recently completed projects. The College has not experienced time or cost overruns on any State funded projects because of proper project planning undertaken by the College.

FRCC will contract with industry professionals using the State procurement process. The State OSA delegate knows the importance of selecting qualified contractors and keeping to the planned scope. Good communication with the internal and external teams and keeping stakeholders updated is a proven strategy to keep the project on schedule and eliminate cost overruns due to scope creep. Weekly meetings will monitor progress to avoid cost overruns and schedule impacts.

FRCC has team members from the IT, Security and Facilities departments already in place that will work together to properly plan, develop a strategy to select consultants, engineers, contractors, and vendors for this project and to develop a communications plan before the college is awarded this project.

G. OPERATING BUDGET IMPACT:

Detail operating budget impacts the project may have. See instructions for further detail.

There will be nominal operating budget impact if the project funding is approved, as the College will enter into a services and management agreement to maintain or replace the specialized cellular equipment and trouble shoot any service disruptions that may occur. It is anticipated that this cost will be approximately $100,000 per year.

H. PROJECT SCHEDULE:

Identify project schedule by funding phases. Add or delete boxes as required for each phase. See instructions for further detail.

Phase _1_of_1_	Start Date	Completion Date
Pre-Design	**July 2024**	**August 2024**
Solicitations for Consultants/Vendors and Contractors	**August 2024**	**December 2024**
Design	**September 2024**	**March 2025**
Construction Phase	**April 2025**	**August 2025**
Implementation DAS Phase	**March 2025**	**December 2025**
Implementation of IDF Network Improvements	**January 2025**	**December 2025**
System Testing	**August 2025**	**December 2025**
Project Substantially Complete	**December 2025**	**January 2026**
Project Closeout	**January 2026**	**March 2026**

I. ADDITIONAL INFORMATION:

Three-year roll forward spending authority is required:	❑ Yes	■ No
Request 6-month encumbrance waiver:	❑ Yes	■ No
Is this a continuation of a project appropriated in a prior year:	❑ Yes	■ No

J. COST SAVINGS / IMPROVED PERFORMANCE OUTCOMES:

Describe the cost savings or improved performance outcomes as a result of this project. Please clearly identify and quantify anticipated administrative and operating efficiencies or program enhancements and service expansion through cost-benefit analyses and return on investment calculations.

There will be nominal yearly cost savings as a result of this project. However, the ability to provide required cellular connections for campus security and first responders in case of a natural disaster or critical event/active shooter is invaluable and will save lives.

The College also desires to provide for a better experience via cellular connectivity with students, staff and faculty and these improvements will have a large benefit to those stakeholders. Cellular connectivity will also aid facilities staff to more quickly address maintenance issues that arise.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

Describe the data protection and disaster recovery considerations factored into the plan. Indicate any cybersecurity implications if applicable.

The active and passive systems that will be installed will not have any cybersecurity implications, as the systems are not integrated with College or State computer networks. The cellular system will use proprietary repeaters and antennas, encrypted data, and will not be general network traffic on shared VLANS (virtual local area networks).

L. BUSINESS PROCESS ANALYSIS:

Describe alternatives analyzed, cost-benefit analysis, and measures in place to prevent time and cost overruns. Articulate how the proposed project fits in with the institution's strategic IT plan.

In terms of alternatives considered, the College has not finalized equipment selection and will follow State procurement processes when considering vendor and equipment.

FRCC has a great track record of providing IT networking and support for faculty, staff and students. Any IT related upgrades will be fully supported and comply with industry standards. The College goes to great lengths to ensure there is comparable services and infrastructure at all three campuses.

Front Range Community College is the largest of the CCCS colleges with the largest enrollment and campuses in three different municipalities. In the past 7 years FRCC has received and managed $19M in Controlled Maintenance and $38M in Capital Construction. There has never been a project that has exceeded the approved budget nor experienced significant delays. This is a testament to the thorough efforts by a combined team of facility and planning staff, IT, Security personnel and, when needed, the faculty and leadership of each campus.

The College is confident that, if funded, this critical project will ensure that students, faculty and staff are provided the access to cellular service, and the enhanced communications that will be available to College maintenance staff, security personnel and first responders will ensure quick response to any natural disaster or external threat that arises.

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2024-25 CAPITAL IT PROJECT REQUEST- *Scoring Appeal (CC_IT-A)*		
Institution Name:	**Front Range Community College**	
Project Title:	College Wide Cellular Improvements	
Project Type:	x	Technology Hardware
		Technology Software
Name & Title of Preparer:	Linc Nesheim - Director, Information Technology Services	
Email of Preparer:	Linc.Nesheim@frontrange.edu	

A. AREAS FOR APPEAL:

Please indicate which of the following evaluation criteria you wish to appeal.

Evaluation Criteria	Appeal Requested (Y/N)
IT Health, Safety, and Industry Standards	*Y*
Other Fund Sources	*N*
Quality of Planning/Proposal	*N*
Achieves Goals	*N*
Governing Board Priority	*N*

B. ADDITIONAL INFORMATION:

Please provide the appropriate documentation for the desired appeal category below if additional or revised information was requested.

Project/Narrative does NOT articulate:

• How project fits in with current disaster recovery system

Response:
Internal and external response/recovery operations depend on any and all communication methods available to carry out operations. Increasing the availability of cellular communications greatly increases the response and recovery operations when other services are impacted by site-specific outages. Cellular communications are often the most available and present when local infrastructure may be impacted. Responders are more likely to carry cellphones needing communications vs. traditional LAN-based communications devices.

• Project mitigates urgent/serious IT risk (e.g. imminent risk of system failure or serious security IT risk (e.g. imminent risk of system failure or serious security vulnerability)

Response:
IT system failures often impact LAN-based communications services such as VOIP, email, and instant messaging. More robust cellular communications can be used to manage emerging system failures prior to those failures impacting broader safety and business operations. Additionally, cellular communications do

not depend upon the local data network; therefore, would not be impacted if there were a local system compromise and would be critical to mitigating any cybersecurity incident.

C: JUSTIFICATION:

Please provide us with a justification on why each desired appealed criterion should be amended.

IT Health, Safety and Industry Standards:

FRCC has a proven track record of providing reliable networking and support across all of its campuses for faculty, staff, and students. In line with industry standards, any IT related upgrades will be evaluated and implemented with a focus on compliance with industry standards. FRCC goes to great lengths to ensure that comparable IT services and infrastructure are available all three campuses.

Network Modernization and Refresh

Colorado School of Mines

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 5/24/2023

Five-Year Capital Information Technology (IT) Project Plan FY 2024-25 to FY 2028-29 (CC_IT-5P)

(A)	(1) **Institution Name:**	Colorado School of Mines	(2) **Institution Signature Approval:**	DocuSigned by: Kirsten Volpi 5/24/2023 Date
(B)	(1) **Name & Title of Preparer:**	Amanda Mojica, Chief of Staff, Office of the CIO	(2) **CDHE Signature Approval:**	5B67EDFDE634483... Date
(C)	(1) **E-mail of Preparer:**	amojica@mines.edu		

(D)	***GRAND TOTALS***	*(b)* ***Total Project Cost***	*(c)* ***Total Prior Appropriation***	*(d)* ***Current Budget Year Request***	*(e)* ***Year Two Request***	*(f)* ***Year Three Request***	*(g)* ***Year Four Request***	*(h)* ***Year Five Request***
	Capital Construction Funds (CCF)	$7,300,000	$0	$7,300,000	$0	$0	$0	$0
	Cash Funds (CF)	$2,700,000	$0	$2,700,000	$0	$0	$0	$0
	Reappropriated Funds (RF)	$0	$0	$0	$0	$0	$0	$0
	Federal Funds (FF)	$0	$0	$0	$0	$0	$0	$0
	Total Funds (TF)	**$10,000,000**	**$0**	**$10,000,000**	**$0**	**$0**	**$0**	**$0**

(1)	**Project Title & No. of Phases:**	Network Modernization and Refresh						
(2)	**Brief Description of Project:**	Modernize Mines edge switching and Wifi for Campus						
(3)	**Intercept Program? (Yes/No):**	**No**						
(4)	(a) **Priority Number:**		(b) **Project Type:**	IT	(c) **Gross Square Feet:**		**N/A**	
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$7,300,000	$0	**$7,300,000**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$2,700,000	$0	**$2,700,000**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$10,000,000**	**$0**	**$10,000,000**	**$0**	**$0**	**$0**	**$0**

(1)	**Project Title & No. of Phases:**							
(2)	**Brief Description of Project:**							
(3)	**Intercept Program? (Yes/No):**							
(4)	(a) **Priority Number:**		(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$0	$0	**$0**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

(1)	**Project Title & No. of Phases:**							
(2)	**Brief Description of Project:**							
(3)	**Intercept Program? (Yes/No):**							
(4)	(a) **Priority Number:**		(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$0	$0	**$0**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 5/24/2023

FY24-25 CAPITAL INFORMATION TECHNOLOGY PROJECT REQUEST- *COST SUMMARY (CC_IT-C)**

(A)	(1) **Funding Type (Cash, CCF, Cash & CCF):**	Cash & CCF	(2) **Intercept Program Request? (Yes/No):**	No
(B)	(1) **Institution:**	Colorado School of Mines	(2) **Name & Title of Preparer:**	Amanda Mojica, Chief of Staff, Office of the CIO
(C)	(1) **Project Title:**	Network Modernization and Refresh	(2) **E-mail of Preparer:**	amojica@mines.edu
(D)	(1) **Project Phase (__ of __):**	1 of 1	(2) **State Controller Project # (if continuation):**	N/A
(E)	(1) **Project Type (IT):**	Capital IT	(2) **Institution Signature Approval:**	DocuSigned by: kirsten Volpi 5B67EDFDE634483... 5/24/2023 Date
(F)	(1) **Year First Requested:**	FY24-FY25	(2) **CDHE Signature Approval:**	Date
(G)	(1) **Priority Number (Leave blank for continuation projects):**	_____ of _____	(2) **OSPB Signature Approval**	Date

(1)		(a) **Total Project Costs**	(b) **Total Prior Year Appropriation(s)**	(c) **Current Budget Year Request**	(d) **Year Two Request**	(e) **Year Three Request**	(f) **Year Four Request**	(g) **Year Five Request**
	Land /Building Acquisition							
(2)	Land Acquisition/Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(3)	Building Acquisition/Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Consultants/Contactors	$ 1,500,000	$ -	**$ 1,500,000**	$ -	$ -	$ -	$ -
(6)	Quality Assurance	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(7)	Training	$ 100,000	$ -	**$ 100,000**	$ -	$ -	$ -	$ -
(8)	Leased Space (Temporary)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(9)	Feasibility Study	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(10)	Other Services/Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(11)	Inflation Cost for Professional Services	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(12)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(13)	***Total Professional Services***	$ 1,600,000	$ -	**$ 1,600,000**	$ -	$ -	$ -	$ -
	Associated Building Construction							
(14)	Cost for New (GSF):	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(15)	New $_____/GSF							
(16)	Cost for Renovate GSF:	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(17)	Renovate $_____/GSF							
(18)	Site Work/Landscaping	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(19)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(20)	Inflation for Construction	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(21)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(22)	***Total Construction Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Software Acquisition							
(23)	Software COTS	$ 800,000	$ -	**$ 800,000**	$ -	$ -	$ -	$ -
(24)	Software Built	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(25)	Inflation on Software	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(26)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(27)	***Total Software***	**$ 800,000**	**$ -**	**$ 800,000**	**$ -**	**$ -**	**$ -**	**$ -**
	Equipment							
(28)	Servers	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ 7,100,000	$ -	**$ 7,100,000**	$ -	$ -	$ -	$ -
(32)	Other (Licensing and support)	$ 500,000	$ -	**$ 500,000**	$ -	$ -	$ -	$ -
(33)	Miscellaneous	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 7,600,000	$ -	**$ 7,600,000**	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	**$ 10,000,000**	**$ -**	**$ 10,000,000**	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(36)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(37)	10% for Renovation		$ -	**$ -**	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	**$ 10,000,000**	**$ -**	**$ 10,000,000**	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 7,300,000	$ -	**$ 7,300,000**	$ -	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 2,700,000	$ -	**$ 2,700,000**	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	TOTAL	**10,000,000**	**-**	**10,000,000**	**-**	**-**	**-**	**-**

*Should match CC_IT-N Form

	Current	Estimated	Estimated Cost Per	Estimated Total Cost
PoE Ports	8064	13000	$208	$2,704,000
Non PoE Ports	17240	18000	$105	$1,890,000
Indoor WAPs	1350	2000	$1,045	$2,090,000
Outdoor WAPs	20	200	$1,457	$291,400
Border Router	2	2	$57,500	$115,000
Hardware Total				$7,090,400
NAC Appliances and software		2	$400,000	$800,000
Professional Services				$1,500,000
Other				$600,000
Services Total				$2,900,000

$9,990,400

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DEPARTMENT OF HIGHER EDUCATION

FY 2024-25 CAPITAL IT PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	$7,300,000	
Cash Fund Amount (CF):	$2,700,000	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Colorado School of Mines	
Project Title:	Network Modernization and Refresh	
Project Phase (Phase _of_):	1 of 1	
State Controller Project Number (if continuation):		
Project Type:	x	Technology Hardware
	x	Technology Software
Year First Requested:	FY 2024 - 25	
Priority Number (Leave blank for continuation projects):		
Name & Title of Preparer:	Amanda Mojica, Chief of Staff, Office of the CIO	
E-mail of Preparer:	Amojica@mines.edu	
Institution Signature Approval:	DocuSigned by: kirsten Volpi 5B67EDFDE634483...	5/24/2023 Date
OSPB Signature Approval:		Date
CDHE Signature Approval:		Date

A. PROJECT SUMMARY/STATUS:

Provide a brief scope description of the project and explain the status of the prior appropriated phases. See instructions for further detail.

Colorado School of Mines (Mines) requests state funding to replace our network infrastructure to advance the institution and provide services that will enhance the current and future learning style of higher education. A more modern system will allow us to address the changing information technology landscape, support and enhance the student experience, and streamline university business processes. Our students deserve a campus network that provides pervasive coverage and can support the connection of multiple laptops, smartphones, tablets, and smart watches. The network infrastructure is integral to any university's campus operations.

Our current network infrastructure is no longer sufficient to meet the demanding needs of our institution and is not competitive in the current technology landscape. Mines is dependent on its network infrastructure for all business operations, student engagement and learning, faculty instruction, and research activities. Mines leadership, stakeholders, and networking staff have identified the following gaps with our current network infrastructure:

- Our equipment is no longer supported, which causes a significant risk of potential downtime.
- We lack strong interoperability across our networking systems.
- We must enhance our network security across campus.
- Our current bandwidth and allowed density are insufficient and cannot meet campus needs.
- The wireless network coverage around campus is inconsistent.

Mines has released a request for proposal (RFP) for the full replacement of the campus Edge access (wired and wireless) network infrastructure, the campus Border Routers, and an implementation of a network access control (NAC) or zero trust network access (ZTNA) system. Prior to the development of the RFP, Mines engaged CommunicaOne—a wireless survey firm experienced in the current wireless technologies that Mines is utilizing—to conduct an objective wireless survey of the entire campus. This work identified gaps in wireless coverage and efficiencies that will be used to design a wireless system that is pervasive and will enhance the student and faculty experience.

The accepted proposal will replace and modernize the campus network by implementing a modern design with increased coverage, resiliency, enhanced security, and a partnership with a vendor to ensure reliable and responsive support to enhance student and faculty experience while simplifying management overhead.

B. SUMMARY OF PROJECT FUNDING REQUEST:

Funding Source	Total Project Cost	Total Prior Appropriation	Current Budget Year Request	Year Two Request	Year Three Request	Year Four Request	Year Five Request
Capital Construction Funds (CCF)	$7,300,000	$0	$7,300,000	$0	$0	$0	$0
Cash Funds (CF)	$2,700,000	$0	$2,700,000	$0	$0	$0	$0
Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
Total Funds (TF)	**$10,000,000**	**$0**	**$10,000,000**	**$0**	**$0**	**$0**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

Provide a detailed description of the project, phases, funding and any other information relevant to the project. Include information on best practices. Describe how the project fits in with the Higher Education Master Plan goals.

Due to numerous factors, including shifts in technology, supply chain issues due to the pandemic, and uncertainty around the impacts of remote work, a large portion of our campus network equipment have become obsolete from both a support and technology perspective.

Mines is conducting a campus-wide network modernization project to align with industry best practices and replace all the campus Edge access (wired and wireless) network infrastructure, the campus Border Routers, and implement a network access control (NAC) or a zero-trust network access (ZTNA) system. Mines will also expand wireless network coverage to areas where coverage is currently lacking or unavailable. The results of this initiative will address the health and security of the network by replacing older and no longer supported hardware, which presents an urgent and serious security risk due to the lack of updates and patches, as well as a risk of severe hardware failure. A requirement of the project is integration with our newly implemented SSO and MFA systems to better align with industry standards surrounding authentication. Mines is seeking a unified solution to ensure full support across the campus edge access stack.

This project will align with industry best practices and include redundant connections to separate data centers for redundant distribution across campus. Further, we are requesting redundant Border Routers to be in both data centers. Mines' uplinks to their service provider reside in both data centers as well. Mines is also requesting cloud management options for network resources. With these considerations, coupled with Mines' current Spine/Leaf Fabric architecture, redundancy exists and will continue to exist to align with disaster recovery systems.

The network infrastructure also supports the Mines public address system (PAS), surveillance cameras, and connectivity for Mines Police which allows them to address life safety issues. The network infrastructure also provides connectivity to systems like surveillance cameras, call boxes, and telephones, which are critical tools related to the safety of Mines students, faculty, and staff. Further, Mines is using the Edgar Experimental Mine, to test network-connected lighting that will provide an innovative way to direct miners to a safe exit in the case of a cave-in.

The initiative will also allow students, researchers, and faculty to be more agile with the location where they participate in online courses, collaborate, study, and unwind. The project also intends to utilize modern technology and wireless standards to enhance the speed and capacity of the wireless networks to allow a better and more efficient customer experience when accessing the wireless system.

To support Colorado's Strategic Plan for Higher Education, the Mines IT strategic plan, and Mines@150, we must align our infrastructure to advance the institution and provide services that will enhance the current and future learning style of higher education. The Colorado Strategic Plan for Higher Education focuses on providing valuable education and skills to students to prepare them for successful careers. A reliable, fast, and secure network provides our students with safe and efficient access to information, resources, and tools to help them be successful at our institution and beyond.

To that point, this project is also intended to further support Mines' cloud-first initiative. As resources are shifted to the cloud, the need for more granular access (to be supported by a NAC or ZTNA) and greater bandwidth (supported by upgrading Mines service to 100Gb and a new Border Router) become paramount. Utilizing a cloud management option for network resources will reduce management costs and increase visibility for network resources

Mines decided to embark on the RFP to ensure that a full cost-benefit analysis could be performed and to ensure a positive outcome. The RFP process has allowed Mines to evaluate all alternative solutions and determine the best solution that will address the needs of the institution. The Mines IT department has a dedicated project management office with certified PMPs that will provide skilled oversight of the project and coordinate with the vendor's project team to help prevent time and cost overruns. We used a single RFP to include campus Edge access (wired & wireless), Border Routers, and network access controls to ensure that we implement a cohesive solution. Information regarding Mines' existing systems (firewalls & core networking) were provided to further ensure compatibility and cohesiveness.

Deployments will be planned during a time that has the least amount of impact on the Mines Community.

Project components:

- Network Switches (about 9000 PoE capable multi-gig ports and 18000 non-PoE ports)
- Wireless Access Points (roughly 1920)
- Border Routers (2 x 100Gb capable, each with 6+ ports of 100Gb)
- Network Access Control or ZTNA System

Currently, about 35% of the network switches are out of support and about 65% of the wireless access points are out of support. The network access control that we are using today is a solution that was developed in-house by a staff member. The Border Routers are between 14 and 17 years old (each component is a different age) and they are limited to 10Gb connectivity.

Project phases:

Phase 1 (FY 23-24):

- Pre-Design work
  - Wireless survey
  - RFP
  - Assessments with vendors
- Design work
  - Outdoor wireless design
  - Stadium wireless design
  - Set design standards
  - Design NAC solution
  - Design border routing
- Ordering Equipment
  - Switches & optics
  - Access points
  - Border Routers & optics
- Deploy NAC Solution
- Outdoor Wireless Deployment
  - Add cabling where needed
  - Deploy access points
- Stadium wireless deployment
- Coordinate FRGP upgrade to 100G

Phase 2 (FY 24-25)

- Deploy solution into test building (1600 Jackson)
- Deploy border routers
- Deploy wired and wireless to academic buildings

Phase 3 (FY 25-26)

- Deploy wired and wireless to administrative buildings
- Deploy wired & wireless to residential buildings
- Deploy wired & wireless to remaining areas

Funding:

Mines IT has worked diligently to acquire as much diverse and alternative internal funding for this project as possible. Over the past few years, we have been selective about what was spent from our equipment refresh budget. This has allowed us to save enough money to contribute to the project from this fund while still being able to fund other needs like replacing cabling and other minor infrastructure purchases. We have also reserved funding for IT projects and programs that will be used for this initiative. The Colorado School of Mines can contribute $2,700,000 from multiple cash fund sources which totals over 25% of the total project cost of $10,000,000 for the Network Modernization and Refresh project.

D. PROGRAM INFORMATION:

Provide a description of the programs within the institution that will be impacted by this request.

All programs at Mines will be impacted by this request. Mines is an R1 institution that conducts research for various entities, including the Federal Government. Network infrastructure is a vital part of the programs offered by Mines as it ensures interconnectivity, access to internal and external resources that are utilized for instruction, studies, and research. Mines has deployed a 10G underground network at the Edgar Experimental Mine to support research and safety innovation, as it applies to mining. Network connectivity allows the researchers to collect data from wirelessly connected sensors in real-time. As the data increases, the need for more bandwidth increases, and high-speed connectivity allows for research data to be collected, stored, and processed both internally and externally to Mines. The Mines network also provides services for HPC (high-performance computing or supercomputing), research on Edge Computing, IoT research, and distributed computing.

Further, the importance of secure access to maintain compliance with FERPA, HIPPA, and PCI, as well as protecting students and faculty from bad actors cannot be understated. Mines network infrastructure also provides access to resources that allow resident students to unwind after rigorous studies, which can be mentally taxing. Reliable, pervasive, and fast connectivity will enhance the overall student and faculty experience allowing Mines to provide the top-tier STEM education that they deserve.

E. CONSEQUENCES IF NOT FUNDED:

Provide a description of consequences if this project is not funded. See instructions for further detail.

Students will have increased challenges with the network at Mines, which will directly disrupt the teaching and learning experience at Mines.

Currently, a large portion of the campus edge access hardware has reached end-of-support status, which limits important security updates and puts the hardware resources at risk. Further, supporting multiple vendor systems can create human resource issues leading to delays and ultimately poor customer experience. Aligning our solution will ensure Mines' ability to provide the best service possible.

Currently, Mines 10G connectivity is often fully utilized by researchers, faculty, staff, and students, often competing with enterprise IT operations. Without 100G connectivity, Mines will not be able to fully leverage cloud resources for backup and disaster recovery, both requiring higher bandwidths to lower Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO).

F. ASSUMPTIONS FOR CALCULATIONS:

Describe the basis for how the project costs were estimated. Include inflation assumptions. See instructions for further detail.

Mines has utilized recent quotes from our current vendors to come up with estimates of hardware costs. Software costs were researched and estimated based on web results from other network infrastructure implementations. Professional services are an estimate. We are confident that the numbers provided below are consistent with fair market value.

Below is a breakdown of the calculations which were broken down into a 3-year project:

	Current Qty	Estimated Qty	Estimated Cost Per Item	Estimated Total Cost

PoE Ports	8064	13000	$208	$2,704,000
Non PoE Ports	17240	18000	$105	$1,890,000
Indoor WAPs	1350	2000	$1,045	$2,090,000
Outdoor WAPs	20	200	$1,457	$291,400
Border Router	2	2	$57,500	$115,000
Hardware Total				$7,090,400
NAC Appliances and software		2	$400,000	$800,000
Professional Services				$1,500,000
Other				$600,000
Services Total				$2,900,000

G. OPERATING BUDGET IMPACT:

Detail operating budget impacts the project may have. See instructions for further detail.

Once this project is completed, ongoing support renewals will need to be assessed. Equipment currently in production that is unable to be replaced immediately will also need to maintain support, where possible. The timeline for this project is up to 3 years. Additional costs will also be realized based on the expansion of the network, as well as additional systems such as network access control, which may also justify at least a partial FTE.

H. PROJECT SCHEDULE:

Identify project schedule by funding phases. Add or delete boxes as required for each phase. See instructions for further detail.

Phase 1 of 3	**Start Date**	**Completion Date**
Pre-Design	**January 2023**	**June 2023**
Design	**July 2023**	**December 2023**
- Outdoor Wireless Design		
- Stadium Wireless Design		
- Set Design Standards		
- Design NAC Solution		
- Design Border Routing		
Start Ordering Equipment	**August 2023**	**June 2024**

- Switches & Optics		
- Access Points		
- Border Routers & Optics		
Deploy NAC Solution	**September 2023**	**December 2023**
Outdoor Wireless Deployment	**March 2024**	**June 2024**
- Add Cabling where needed		
- Deploy Access Points		
Stadium Wireless Deployment	**March 2024**	**June 2024**
Coordinate FRGP Upgrade to 100G	**January 2024**	**June 2024**

Phase 2 of 3	**Start Date**	**Completion Date**
Deploy Solution into Test Building (1600 Jackson)	**July 2024**	**August 2024**
Deploy Border Routers	**July 2024**	**August 2024**
Deploy Wired and Wireless to Academic Buildings	**August 2024**	**June 2025**

Phase 3 of 3	**Start Date**	**Completion Date**
Deploy Wired and Wireless to Administrative Buildings	**July 2025**	**November 2025**
Deploy Wired & Wireless to Residential Buildings	**November 2025**	**April 2026**
Deploy Wired & Wireless to Remaining Areas	**April 2026**	**June 2026**

I. ADDITIONAL INFORMATION:

J. COST SAVINGS / IMPROVED PERFORMANCE OUTCOMES:

Describe the cost savings or improved performance outcomes as a result of this project. Please clearly identify and quantify anticipated administrative and operating efficiencies or program enhancements and service expansion through cost-benefit analyses and return on investment calculations.

Replacement of aging equipment and addressing single points of failure are risk mitigation strategies to avoid unintended network outages. These outages would result in a loss of critical business and educational services for our students, faculty, and staff. By investing in these infrastructure updates, we expect to decrease the number of outages, minimizing time and work lost as a result. Unanticipated hardware failures can also result in rushed purchases, shipping, and installation, which generally have a higher cost than a pre-planned replacement.

Greatly improved performance will be realized as the new system is implemented. Modern technologies allow for greater bandwidth with the implementation of 2.5Gb – 5Gb multi-gig ethernet (currently 1Gb), 802.11ax wireless to include 6GHz technology (currently 802.11ac), up to 25Gb uplinks to switches and up to 100Gb uplinks for a Border Router connection (currently 10Gb).

This increased bandwidth will allow students, faculty, and researchers to be more effective and efficient. The limited campus capabilities create bottlenecks to reach internal resources such as large-capacity storage devices and network shares. Additionally, 10G data transfers to external resources (eg. Other Universities, National Labs, cloud environments, etc.) are currently restricted to a fraction of their maximum speed due to competing

processes. Increasing bandwidth overall would decrease the time-to-science bottleneck and ensure users maintain adequate connectivity, while also supporting many strategic initiatives related to cloud infrastructure.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

The network modernization and refresh will provide us with network equipment capable of supporting modern security architecture and best practices. New network innovations such as Dynamic Segmentation, role-based access, dynamic role assignment, device fingerprinting, and micro-segmentation are all features found in new switching products. These advanced features will enable Mines to provide a reliable, scalable, and secure network capable of supporting the ever-increasing number of wireless devices on campus.

Currently, Mines 10G connectivity is often fully utilized by researchers, faculty, staff, and students, often competing with enterprise IT operations. Increasing bandwidth to 100G will allow Mines to fully leverage cloud resources for backup and disaster recovery, both requiring higher bandwidths to lower Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO).

L. BUSINESS PROCESS ANALYSIS:

As an infrastructure-focused initiative, this project proposal is designed to ensure the ongoing availability of Mines academic and business services which rely on IT systems to succeed.

Replacement of campus networking equipment has been recognized as a need, but to date, competing priorities have superseded a concerted infrastructure modernization effort. As a result, much of the university's network equipment has exceeded its anticipated lifespan – in some cases, dramatically so.

Mines Information and Technology Solutions (ITS) recommends a 5-year lifecycle for network infrastructure, which aligns with many industry recommendations. However, the equipment deployed on campus today carries a median age of 6 years, with 60% of production network switches exceeding 5 years in service, 40% exceeding 7 years, and components of border routers as old as 16 years.

With these considerations in mind, ITS performed an analysis of the current environment, including multiple internal meetings and work sessions, and consulted with several external independent vendors. From these efforts, the proposed phases were generated and appropriate levels of consulting support – intended to supplement staff time and ensure project success – were identified. By pursuing the phases as specified, Mines will be able to leverage greater purchasing power and minimize the additional workload for procurement team members while simultaneously delivering the maximum benefit to the campus community on a compressed timeline.

Given the pace of change in network equipment, architecture, and capabilities, Mines intends to begin the project with a final consultant-supported design review to ensure that the proposed architecture and specified equipment remain best-of-breed and will provide the maximum return on investment for the University.

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2024-25 CAPITAL IT PROJECT REQUEST- *Scoring Appeal (CC_IT-A)*		
Institution Name:	Colorado School of Mines	
Project Title:	Network Modernization and Refresh	
Project Type:	x	Technology Hardware
	x	Technology Software
Name & Title of Preparer:	Amanda Mojica, Chief of Staff to OCIO	
Email of Preparer:	amojica@mines.edu	

A. AREAS FOR APPEAL:

Please indicate which of the following evaluation criteria you wish to appeal.

Evaluation Criteria	Appeal Requested (Y/N)
IT Health, Safety, and Industry Standards	*Y*
Other Fund Sources	
Quality of Planning/Proposal	*Y*
Achieves Goals	
Governing Board Priority	

B. ADDITIONAL INFORMATION:

Please provide the appropriate documentation for the desired appeal category below if additional or revised information was requested.

IT Health, Safety, and Industry Standards

It is very important to us that the technology implemented with this project will withstand the test of time. We are focused on ensuring that whatever solution that is chosen will provide us with the features and functionality that will last us for years and are aligned with industry standards.

Listed below are standards that will be used for this project:

- IEEE SA (Standards Association)
  - 802.3 => Ethernet
  - 802.1x => Port-base network access control (PNAC)
  - 802.11ax => WiFi 6 & WiFi6E
    - Backwards compatible with 802.11a, b, n, g, ac
  - 802.1ax => Link Aggregation
  - 802.11r,k,v => Enables wireless roaming
  - 802.1q => VLAN trunking
- IETF (Internet Engineering Task Force)
  - RFC 1918 => Private IP Addresses
  - RFC 2865, RFC 3576, RFC 5176 => RADIUS
  - RFC 3580 => VLAN Assignment)
  - RFC 5280 => PKI Certificates

- RFC 4388 => DHCP

If the IT systems associated with proposed project are fully supported by developer

Mines published a request for proposal (RFP) asking for a unified (vendor) solution that includes campus access switching, campus wireless, border routing and network access control (NAC)/zero trust network architecture (ZTNA). Mines received numerous proposals from vendors/developers and value-added resellers (VAR). The proposals have been reviewed and each solution has been designed by the vendor/developer specifically for the applications mentioned above. They consist of current technologies that each vendor/developer fully supports. Furthermore, each proposal included 5 years of licensing and support for the solutions. Mines will be working very closely with the vendor and VAR to implement and maintain the solution chosen.

If the cybersecurity of IT systems/devices associated with project is up to industry standards (e.g. two-factor authentication), does not compromise FERPA compliance, etc.

As part of this project, Mines will be implementing multiple layers of security such as enhancements to physical security of networking data closets, network access control (NAC) and security service edge (SSE) with an overall vision to move closer to a zero-trust network architecture (ZTNA). NAC is a component of the network that will allow Mines to implement role-based networking that will utilize our identity system, Okta, to assign network permissions based in a user's role, as opposed to mainly address/device-based security that we have in place today. One goal of the project is to move towards an SSE/ZTNA model which would push the security boundary to the edge device, based on the role of the user utilizing it. The solutions also allow micro segmentation to further reinforce the SSE/ZTNA model. Combining these solutions with our Palo Alto next generation firewalls (NGFW) and our efforts to move to the cloud, our security will no longer be reliant on individual engineers. The proposed solution would ensure that entire data lakes of information will be utilized to enhance Mines' security posture, which will allow greater compliance with FERPA, HIPPA, and PCI.

Part of the requirements of the RFP was support for multi-factor authentication (MFA) and single sign-on (SSO). With our recent deployment of Okta, this will integrate seamlessly to simplify the authentication and enhance Mines security posture.

<u>Quality of Planning/Proposal</u>

Cost-benefit analysis performed with positive outcome

Mines published a request for proposal (RFP) asking for a unified (vendor) solution that includes campus access switching, campus wireless, border routing, and network access control (NAC)/zero trust network architecture (ZTNA). Mines received numerous proposals from vendors/developers and value-added resellers (VAR). As part of the RFP, each submission was required to provide a pricing breakdown for their solution. The pricing was given a score by the RFP review committee, which was part of the overall scoring process that was used to choose the top 4 solutions. Comparing the pricing of the current solution that Mines has in place, combined with the security and technology enhancements along with the project management, professional services and training, the overall cost is going to be reasonable and more affordable than purchasing directly from state contracts. That is not to mention the positive impact the security enhancements will have on Mines' cyber security and reduced operational costs. We expect the student experience to be greatly enhanced by this updated technology and benefit student retention and attract additional students to Mines.

By the numbers, the current wired access solution that Mines uses costs just under $225 per port. Mines has almost 18,000 ports, which would cost over $4m to just replace the hardware, port for port. Mines also has approximately 1400 wireless access points, which averages around $1000 per indoor access point. To replace existing hardware with the same type of technology we are already using would cost around $1.4m. These numbers reflect Mines as it is today and does not include the 2 new buildings about to open, additional buildings that are planned, additional security enhancements and re-architecture of the Mines network, or a robust outdoor wireless network, allowing for anywhere connectivity for Mines students and faculty.

Alternatives analyzed

During the review process of the RFPs, Mines reviewed 11 different solutions, including traditional network deployments and network-as-a-service (NaaS) solutions. The committee scored each proposal by pricing, methodologies, ability to fulfill scope of work, value-added options, project management services, and the overall best fit for Mines. The committee reviewed solutions from 7 different vendors, offered by 11 different VARs. After scoring, Mines brought back the top 4 vendors for on-site presentations of their solution. Mines is currently in discussion of the top 4 solutions. The top 2 are going to present again in the coming weeks, after which a decision will be made.

C: JUSTIFICATION:

Please provide us with a justification on why each desired appealed criterion should be amended.

IT Health, Safety, and Industry Standards

Since the initial state funding request submission, we have received vendor submissions for our Network Modernization and Refresh project. Upon review of 11 RFPs, Mines has a better understanding of the proposed solutions in the context of possible campus networking architectures and subsequent deployment. The additional information provided in this state capital request amendment was directly related to the vendor proposal within the RFP. The final two vendors, though different in their approaches, utilize industry standards and will meet the needs of Mines for the foreseeable future.

Quality of Planning/Proposal

Since the initial state funding request submission, we have received vendor submissions for our Network Modernization and Refresh project. Upon review of 11 RFPs, Mines has a better understanding of the proposed solutions in the context of possible campus networking architectures and subsequent deployment. The additional information provided in this state capital request amendment was directly related to the vendor proposal within the RFP. The process of receiving and reviewing the RFP submissions allowed Mines to gain a better understanding of alternative networking options and the varying costs, pros, and cons for viable networking solutions.

Auraria Campus Network Infrastructure Modernization

Auraria Higher Education Center

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Five-Year Capital Information Technology (IT) Project Plan FY 2024-25 to FY 2028-29 (CC_IT-5P)

(A)	(1) **Institution Name:**	Auraria Higher Education Center (AHEC)	(2) **Institution Signature Approval:**	Colleen Walker 5-17-23
(B)	(1) **Name & Title of Preparer:**	Ron Mitchell	(2) **CDHE Signature Approval:**	Date
(C)	(1) **E-mail of Preparer:**	ron.mitchell@ahec.edu		

(D)	***GRAND TOTALS***	***(b) Total Project Cost***	***(c) Total Prior Appropriation***	***(d) Current Budget Year Request***	***(e) Year Two Request***	***(f) Year Three Request***	***(g) Year Four Request***	***(h) Year Five Request***
	Capital Construction Funds (CCF)	$8,360,731	$0	$4,614,341	$3,746,390	$0	$0	$0
	Cash Funds (CF)	$0	$0	$0	$0	$0	$0	$0
	Reappropriated Funds (RF)	$0	$0	$0	$0	$0	$0	$0
	Federal Funds (FF)	$0	$0	$0	$0	$0	$0	$0
	Total Funds (TF)	**$8,360,731**	**$0**	**$4,614,341**	**$3,746,390**	**$0**	**$0**	**$0**

(1)	**Project Title & No. of Phases:**	Auraria Campus Network Infrastructure Modernization. Phase 1 of 2						
(2)	**Brief Description of Project:**	This project entails updating the components at the core of the Auraria Campus Institutions' combined networking infrastructure. Every program offered by the institutions, within 36 buildings will be impacted by the project upgrades network infrastructure, replacing aging wired and wireless network equipment and ethernet cabling throughout several shared classrooms and office buildings on the Auraria Campus, used by AHEC, Community College of Denver (CCD), CU Denver and MSU Denver. In addition to providing a more stable and reliable foundation for our combined enterprise networks, updating to a modern network platform will provide greater monitoring capabilities and security measures for increased cyber security, improving technological resources for students, staff and faculty for all institutions on campus.						
(3)	**Intercept Program? (Yes/No):**	**No**						
(4)	(a) **Priority Number:**	AHEC - 1		IT Request	(c) **Gross Square Feet:**		**36 - Buildings**	
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$8,360,731	$0	$4,614,341	$3,746,390	$0	$0	$0
(7)	Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$8,360,731**	**$0**	**$4,614,341**	**$3,746,390**	**$0**	**$0**	**$0**

(1)	**Project Title & No. of Phases:**							
(2)	**Brief Description of Project:**							
(3)	**Intercept Program? (Yes/No):**							
(4)	(a) **Priority Number:**		(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$0	$0	**$0**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

(1)	**Project Title & No. of Phases:**							
(2)	**Brief Description of Project:**							
(3)	**Intercept Program? (Yes/No):**							
(4)	(a) **Priority Number:**		(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$0	$0	**$0**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 5/17/2023

FY24-25 CAPITAL INFORMATION TECHNOLOGY PROJECT REQUEST- *COST SUMMARY (CC_IT-C)**

(A)	(1) **Funding Type (Cash, CCF, Cash & CCF):**	**CCF**	(2) **Intercept Program Request? (Yes/No):**	No
(B)	(1) **Institution:**	AHEC	(2) **Name & Title of Preparer:**	RON MITCHELL
(C)	(1) **Project Title:**		(2) **E-mail of Preparer:**	ron.mitchell@ahec.edu
(D)	(1) **Project Phase (__ of __):**	1 of 2	(2) **State Controller Project # (if continuation):**	
(E)	(1) **Project Type (IT):**	Capital IT	(2) **Institution Signature Approval:**	Colleen Walker 17-May-23
(F)	(1) **Year First Requested:**	FY2024-25	(2) **CDHE Signature Approval:**	Date
(G)	(1) **Priority Number (Leave blank for continuation projects):**	AHEC - 1	(2) **OSPB Signature Approval**	Date

(1)		(a) **Total Project Costs**	(b) **Total Prior Year Appropriation(s)**	(c) **Current Budget Year Request**	(d) **Year Two Request**	(e) **Year Three Request**	(f) **Year Four Request**	(g) **Year Five Request**
	Land /Building Acquisition							
(2)	Land Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Consultants/Contactors	$ 1,038,600	$ -	**$ 573,210**	$ 465,390	$ -	$ -	$ -
(6)	Quality Assurance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Training	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(8)	Leased Space (Temporary)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Feasibility Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Other Services/Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(11)	Inflation Cost for Professional Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(13)	***Total Professional Services***	$ 1,038,600	$ -	**$ 573,210**	$ 465,390	$ -	$ -	$ -
	Associated Building Construction							
(14)	Cost for New (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(15)	New $_____/GSF							
(16)	Cost for Renovate GSF:	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(17)	Renovate $_____/GSF							
(18)	Site Work/Landscaping	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(19)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(20)	Inflation for Construction	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(21)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(22)	***Total Construction Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Software Acquisition							
(23)	Software COTS	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(24)	Software Built	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(25)	Inflation on Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(27)	***Total Software***	**$ -**	**$ -**	$ -	**$ -**	**$ -**	**$ -**	**$ -**
	Equipment							
(28)	Servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ 6,924,000	$ -	**$ 3,821,400**	$ 3,102,600	$ -	$ -	$ -
(32)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(33)	Miscellaneous	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 6,924,000	$ -	**$ 3,821,400**	$ 3,102,600	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	**$ 7,962,600**	**$ -**	**$ 4,394,610**	**$ 3,567,990**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(36)	5% for New	$ 398,131	$ -	**$ 219,731**	$ 178,400	$ -	$ -	$ -
(37)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 398,131	$ -	**$ 219,731**	$ 178,400	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	**$ 8,360,731**	**$ -**	**$ 4,614,341**	**$ 3,746,390**	**$ -**	**$ -**	**$ -**
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 8,360,731	$ -	**$ 4,614,341**	$ 3,746,390	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	**8,360,731**	-	**4,614,341**	**3,746,390**	-	-	-

*Should match CC_IT-N Form

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2024-25 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$8,360,731**	
Cash Fund Amount (CF):	$0 - exempt	
Funding Type:	State Funded	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Auraria Higher Education Center (AHEC), Community College of Denver (CCD), University of Colorado Denver (CU Denver), and Metropolitan State University Denver (MSU Denver)	
Project Title:	Auraria Campus Network Infrastructure Modernization	
Project Phase (Phase _of_):	1 of 2	
State Controller Project Number (if continuation):	N/A	
Project Type:	X	Technology Hardware
		Technology Software
Year First Requested:	FY 2024 -25	
Priority Number (Leave blank for continuation projects):	AHEC - 1	
Name & Title of Preparer:	Ron Mitchell – Director of Information Technology	
E-mail of Preparer:	Ron.Mitchell@ahec.edu	
Institution Signature Approval:	Colleen Walker	5/17/2023
OSPB Signature Approval:		Date
CDHE Signature Approval:		Date

A. PROJECT SUMMARY/STATUS:

This project entails the components at the core of the Auraria Campus Institutions' combined networking infrastructure. Every program offered by the institutions, within 36 buildings will be impacted by the project upgrades associated with this network infrastructure, replacing aging wired and wireless network equipment and ethernet cabling throughout several shared classrooms and office buildings on the Auraria Campus, used by the Auraria Higher Education Center (AHEC), Community College of Denver (CCD), University of Colorado - Denver (CU Denver) and the Metropolitan State University of Denver (MSU Denver). In addition to providing a more stable and reliable foundation for our combined enterprise networks, updating to a modern network platform will provide greater monitoring capabilities and security measures for increased cyber security, improving technological resources for students, staff, and faculty for all institutions on campus.

AHEC has started the process of modernizing the wired and wireless network delivered to the shared Tivoli Student Union on the Auraria Campus to support the latest technologies used by student learning spaces, study lounges, institutional offices, and event spaces throughout the building. Funding of this project will allow AHEC to modernize the wired/wireless network in several buildings throughout campus that offer a multitude of services for the Auraria Campus and surrounding local community, including the Auraria

Campus Police, Parking, ID Station, Early Learning Childcare Center, Facility and Grounds Maintenance Services, shared General Assignment Classrooms, and several Event spaces.

CCD has been upgrading classrooms with the latest technology to support technical requirements for learning pathways and is in the process of upgrading the Boulder Creek building to support the latest technology for their medical and stem programs. The AurariaNet network upgrades will support CCD's mission to provide a quality learning environment for our students.

CU Denver

By submitting this project as a coordinated effort, this will provide a seamless networking experience for students, staff and faculty and other organizations across the campus.

MSU Denver started modernizing network infrastructure to address deferred maintenance and outdated infrastructure. This program will enable MSU Denver to complete upgrades in the 4 remaining buildings by replacing edge/access and distribution layer switches, and wireless access points to align with existing upgrades and with the other campus institutions. Additionally, these improvements would provide a more robust and stable network environment capable of supporting the university's evolving needs in a scalable and secure manner.

No prior appropriation exists as this is a new project for buildings that have not been previously upgraded.

B. SUMMARY OF PROJECT FUNDING REQUEST:

Funding Source	Total Project Cost	Total Prior Appropriation	Current Budget Year Request	Year Two Request	Year Three Request	Year Four Request	Year Five Request
Capital Construction Funds (CCF)	$8,360,731	$0	$4,614,341	$3,746,390	$0	$0	$0
Cash Funds (CF)	$0	$0	$0	$0	$0	$0	$0
Reappropriated Funds (RF)	$0	$0	$0	$0	$0	$0	$0
Federal Funds (FF)	$0	$0	$0	$0	$0	$0	$0
Total Funds (TF)	$8,360,731	$0	$4,614,341	$3,746,390	**$0**	**$0**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

AHEC, CCD, CU Denver and MSU Denver are collaboratively supporting the request for state funds for the first phase of a two-phase project to modernize our network infrastructure, address deferred maintenance and to provide more current network infrastructure to support emerging technology for Hybrid Classrooms, Virtual Reality, Robotics for Simulated Medical/Surgery Labs. This project would fund the replacement of the following items:

AHEC	**Count**
Access/Edge Switches (Cisco 9300)	107
Distribution Routers/Switches (Cisco 9300)	8
Layer 3 Switches (Cisco 9300)	35
Meraki MR46 Access Point	72
Dual Cat 6a Cable Runs	72
CCD	
Access/Edge Switches (Meraki MS355)	20
Distribution Routers/Switches (Meraki MS425)	8
Meraki MR46 Access Point	90
Dual Cat 6a Cable Runs	90
Campus Building Fiber Installation	3
CU Denver	
Access/Edge Switches (Cisco 9200)	381
Distribution Routers/Switches (Cisco Router)	22
Mist Access Points	462
Dual Cat 6a Cable Runs	231
MSU Denver	
Access/Edge Switches (Cisco 9200)	70
Distribution Routers/Switches (Cisco 9300)	7
Meraki MR46 Access Point	176
Meraki MR86 W/ ANT2513P4M-N	17
Meraki MR86 W/ANT20	2
Dual Cat 6a Cable Runs	149

These improvements would provide a more robust and stable network environment capable of supporting the Campus' evolving needs, and future technology improvements in a scalable and secure manner.

Phase I funding will include:

- Initial installation of Cat 6a cabling, throughout 36 buildings on campus.
- Initial installation of edge, distribution, and access level switches, and routers.
- Use of contracted labor, design, and implementation services.

Phase II funding will include:

- Final installation of Cat 6a cabling, throughout 36 buildings on campus.
- Final installation of edge, distribution, and access level switches, and routers.
- Use of contracted labor, design, and implementation services.

D. PROGRAM INFORMATION:

All AHEC, CCD, CU Denver, and MSU Denver students, faculty and staff would benefit from this modernization project. The campus network infrastructure provides all network and telephony services, which in turn support the business of all campus institutions and all student-facing services, including admissions, registration, academic advising, financial aid, and online education programs. These services facilitate the delivery of learning content as well as support the recruitment, retention, and academic success of both traditional and non-traditional students.

E. CONSEQUENCES IF NOT FUNDED:

This project would address deferred maintenance of wired and wireless network infrastructure in 36 buildings and classrooms utilized by the entire campus community. Failure to fund the request would have an impact on the successful delivery of several advanced technology based educational programs being planned for student learning, including Health Institute Simulation Labs, Robotics, Remote/Hybrid and Virtual Reality Classroom Learning, etc.

Additionally, failure to fund this project will have a huge impact on the ability to align the campus networking infrastructure with the Strategic Plans being executed at all four campus institutions.

Failure to fund this project would increase the likelihood of equipment failure as our equipment continues to age and would not address the single points of failure in our network infrastructure. Both could result in unintended network outages and loss of critical business and academic services for students, faculty, and staff campus wide.

F. ASSUMPTIONS FOR CALCULATIONS:

Estimated switch and wireless access point costs are based on the number of devices and the average cost per device. Estimated installation and cabling costs are based on existing designs and conduit paths.

Expected Costs – with the understanding that prices increase year over year by 10%.

AHEC	Count	Expected Price	Phase I Equipment Counts	Phase I Expected Cost	Phase II Equipment Counts	Phase II Expected Cost	Phase I and II Total Cost
Access/Edge Switches (Cisco 9300)	107	$7,000	54	$378,000	53	$371,000	$749,000
Distribution Routers/Switches (Cisco 9300)	8	$9,000	8	$72,000	0	$0	$72,000
Layer 3 Switches (Cisco 9300)	35	$9,000	35	$315,000	0	$0	$315,000
Meraki MR46 Access Point	72	$1,150	72	$82,800	0	$0	$82,800
Dual Cat 6a Cable Runs	72	$1,000	72	$72,000	0	$0	$72,000
				$919,800		**$371,000**	**$1,290,800**
CCD							
Access/Edge Switches (Meraki MS355)	20	$11,000	10	$110,000	10	$110,000	$220,000
Distribution Routers/Switches (Meraki MS425)	8	$14,000	4	$56,000	4	$56,000	$112,000
Meraki MR46 Access Point	90	$1,150	45	$51,750	45	$51,750	$103,500
Dual Cat 6a Cable Runs	90	$1,000	45	$45,000	45	$45,000	$90,000
Campus Building Fiber Installation	3	$50,000	3	$150,000	0	$0	$150,000
				$412,750		**$262,750**	**$675,500**
CU Denver							
Access/Edge Switches (Cisco 9200)	381	$7,000	191	$1,337,000	190	$1,330,000	$2,667,000
Distribution Routers/Switches (Cisco Router)	22	$25,000	11	$275,000	11	$275,000	$550,000
Mist Access Points	462	$1,150	231	$265,650	231	$265,650	$531,300
Dual Cat 6a Cable Runs	231	$1,000	116	$116,000	115	$115,000	$231,000
				$1,993,650		**$1,985,650**	**$3,979,300**
MSU Denver							
Access/Edge Switches (Cisco 9200)	70	$7,000	35	$245,000	35	$245,000	$490,000
Distribution Routers/Switches (Cisco 9300)	7	$9,000	4	$36,000	3	$27,000	$63,000
Meraki MR46 Access Point	176	$1,150	88	$101,200	88	$101,200	$202,400
Meraki MR86 W/ ANT2513P4M-N	17	$2,000	9	$18,000	8	$16,000	$34,000
Meraki MR86 W/ANT20	2	$20,000	1	$20,000	1	$20,000	$40,000
Dual Cat 6a Cable Runs	149	$1,000	75	$75,000	74	$74,000	$149,000
				$495,200		**$483,200**	**$978,400**
Combined Capital IT Request Totals				$3,821,400		$3,102,600	$6,924,000
Contractor Services (15% of total request)				$573,210		$465,390	$1,038,600
Total FY24/25 Combined Capital IT Request				**$4,394,610**		**$3,567,990**	**$7,962,600**
Plus 5% Contingency				**$4,614,341**		**$3,746,390**	**$8,360,730**

G. OPERATING BUDGET IMPACT:

Funding this project positively impacts/benefits the operating budgets, as end of life, or near end-of-life equipment is replaced, reducing annual maintenance costs and funding needed for equipment repairs. There are no material impacts to the current FTE, as these resources are being utilized across multiple workstreams, and while this modernization effort will have a short-term demand on the staff to deploy, it will not negatively impact workload after upgrading the equipment (steady state FTE levels are not impacted by this approval). After successful integration, the Auraria campus network will be able to provide a more stable and reliable foundation for our combined enterprise networks, with greater monitoring capabilities and security measures for increased cyber security, all without negatively impacting operating budgets or FTE levels.

H. PROJECT SCHEDULE:

Phase _1_of_2_	Start Date	Completion Date
Pre-Design	**7/1/2024**	**8/14/2024**
Design	**8/10/2024**	**9/11/2024**
Build Out/Implementation	**9/14/2024**	**6/30/2025**

Phase _2_of_2_	Start Date	Completion Date
Build Out/Implementation	**7/1/2025**	**6/30/2026**

I. ADDITIONAL INFORMATION:

Three-year roll forward spending authority is required:	**Yes**
Request 6-month encumbrance waiver:	No
Is this a continuation of a project appropriated in a prior year:	No
State Controller Project Number (if continuation):	

J. COST SAVINGS / IMPROVED PERFORMANCE OUTCOMES:

Replacement of aging equipment and addressing single points of failure are risk mitigation strategies to avoid unintended network outages. These outages would result in the loss of critical business and educational services for our students, faculty, and staff across the entire shared Campus. Additionally, this upgrade will align the wireless technology and make the wireless experience seamless for all students on campus. In addition, students, staff and faculty all experience poor network performance and this is impacting their ability to do their jobs. Unifying the network will allow for cost savings through common backend management tools and shared experience. Additional cost and outcomes content is also shared in section L.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

This project would enable implementation of a more secure authentication process for users joining the shared campus wireless network, which reduces the number of vulnerabilities attackers can use within the wireless network. Also, the new design will provide more detailed wireless device information and logging to aid in assessing cyber security vulnerabilities on the shared campus wireless network.

The upgraded campus network will improve the shared campus camera surveillance system by supporting advanced features like facial recognition and video analytics. It will improve the ability to use new and advanced features in the shared campus Door Access and Electronic Security/Intrusion Detection systems connected to the campus networks. It will also improve the performance of systems related to building HVAC, Temperature Monitoring used for labs and biological storage, and shared Library services and computers.

In addition, this project would provide modern network equipment capable of supporting modern Cybersecurity architecture and current best practices. New network innovations such as Dynamic Segmentation, Role Based Access, Dynamic Role Assignment, Device fingerprinting, and Micro Segmentation are all features found in new switching products. These advanced features would enable the campus institutions to provide a reliable, scalable, and secure network capable of supporting the ever-increasing number of wireless devices on campus.

L. BUSINESS PROCESS ANALYSIS:

As an infrastructure-focused initiative, this project proposal is designed to ensure ongoing availability of all AHEC, CCD, CU Denver, and MSU Denver academic and business services, which rely on IT systems to succeed.

Replacement of campus networking equipment has been recognized as a need, but to date, competing priorities have superseded a concerted infrastructure modernization effort. As a result, much of the campus network equipment has exceeded its anticipated lifespan – in some cases, dramatically so.

AHEC, CCD, CU Denver, and MSU Denver's Information Technology Departments recommend a five-year lifecycle for network infrastructure, which aligns with many industry recommendations. However, most of the networking equipment deployed on campus today is outdated, has reached, or is rapidly approaching its EOL. Statistics for each institution's equipment ages are below:

AHEC – Networking Equipment

- Median age of equipment deployed is over 15 years.
- 95% production network switches exceed 5 years.
- 80% production network switches exceed 10 years.
- 90% of our devices were purchased prior to 2008

CCD – Networking Equipment

- Median age of equipment deployed is over 6 years.
- 95% production network switches exceed 5 years.
- 80% production network switches exceed 8 years.
- 90% of our devices were purchased prior to 2015.

CU Denver – Networking Equipment

- 5% older than 10 years (2960s)
- 50% about 8 years old (2960xr)
- 30% about 6 years old (3650)
- 15% about 3 years old (9300)

MSU Denver – Networking Wireless Technology

- The wireless technology (Aerohive) that's used in the (4) MSU Denver buildings slated for this upgrade are outdated and unable to provide current technology like Wi-Fi 6 and the support of emerging technologies like robotics, virtual reality, etc.

Continuing to operate equipment deemed to be past the End-of-Life (EOL) date (determined by the equipment manufacturer) is very risky and is not best practice. This means that the equipment may no longer be serviceable and is not eligible for updates that provide security patches to mitigate cybersecurity vulnerabilities. Devices purchased prior to 2008 run an outdated version of the Cisco operating system software which has not received security or feature updates since early 2013.

With these considerations in mind, AHEC, CCD, CU Denver, and MSU Denver performed an analysis of the current environment, including multiple internal meetings and work sessions, as well as consultation with external, independent vendors. From these efforts, the proposed phases were generated and appropriate levels of consulting support – intended to supplement staff time and ensure project success – were identified. By pursuing the phases as specified, AHEC, CCD, CU Denver, and MSU Denver will be able to leverage greater purchasing power and minimize additional workload for procurement team members while simultaneously delivering the maximum benefit to the campus community on a compressed timeline.

Given the pace of change in network equipment, architecture, and capabilities, if the project is funded, AHEC, CCD, CU Denver, and MSU Denver intend to begin the project with a consultant-supported design review to ensure that the proposed architecture and specified equipment remain best-of-breed and will provide the maximum return on investment for the Campus.

Another important aspect of this project is the addition of fiber optic cabling infrastructure on the Auraria Campus. This proposal includes the implementation of additional network links to create direct fiber connections between the Confluence, Boulder Creek, and Clear Creek buildings. Currently, the network connections for these (3) buildings are routed through a “daisy chain” of multiple fiber patch connections at several campus buildings. This inefficient design causes network performance loss and complicates ongoing maintenance and service. The installation of direct fiber optic links will provide improved network, telephony, and emergency calling services for the Confluence, Boulder Creek, and Clear Creek buildings as well as network redundancy and resilience in the event of a major service disruption. Network stability and performance will be of high importance given the heavy reliance on web-based video calls and meetings as well as the fact that the CCD Executive Suite will eventually be housed within the Clear Creek building.

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2024-25 CAPITAL IT PROJECT REQUEST- *Scoring Appeal (CC_IT-A)*		
Institution Name:	Auraria Higher Education Center (AHEC)	
Project Title:	Technological Infrastructure Core Modernization	
Project Type:	X	Technology Hardware
		Technology Software
Name & Title of Preparer:	Zach Hermsen / Ron Mitchell	
Email of Preparer:	zach.hermsen@ahec.edu / ron.mitchell@ahec.edu	

A. AREAS FOR APPEAL:

Please indicate which of the following evaluation criteria you wish to appeal.

Evaluation Criteria	Appeal Requested (Y/N)
IT Health, Safety, and Industry Standards	*Y*
Other Fund Sources* (see note below)	*N*
Quality of Planning/Proposal	*Y*
Achieves Goals	*Y*
Governing Board Priority	*N*

B. ADDITIONAL INFORMATION:

Please provide the appropriate documentation for the desired appeal category below if additional or revised information was requested.

1. IT Health, Safety, and Industry Standards

IT systems associated with proposed project are fully supported by developer.

The Wired/Wireless Networking devices associated with the project are up to current industry standards, are brand new models that are still available for sale, and are fully supported by the OEM Manufacturers (Cisco). These devices will be covered by annual support maintenance agreements with the manufacturer, which grants eligible access to the latest updates and patches for the components to ensure the ongoing Cyber Security of the systems for their useable life, which is the industry standard.

Cybersecurity of IT systems/devices associated with the project is up to industry standards.

Agency users connecting to institutional systems and devices will continue to use two-factor authentication where required. Use of these systems with the latest OEM Manufacturer cyber security updates/patches will not compromise any of the institutions' compliances (FERPA, HIPPA, PCI, etc.).

The project has a life safety function.

The Wired/Wireless Networking devices associated with the project have a life safety function as they facilitate the functionality and/or future implementation of various key systems used by the Auraria Campus Police Department, such as Video Surveillance/Analytics, Dispatch Center Communications, Campus Wide Access Control systems as well as HVAC and environmental monitoring systems. In addition, the devices associated with the project will support 300+ proposed new network-connected life safety devices, including panic buttons, security panels/keypads and motion detectors, etc.

At the Community College of Denver, these new wireless access points and devices provide a life safety function. Several areas on the campus have been found to have insufficient coverage, and the new wireless access points and devices will provide additional wireless coverage in areas previously not covered. The increased wireless coverage brings additional wireless networking capability for camera safety, panic buttons, security panels, and motion detectors in an urban campus where going to class in the evenings and weekends does pose some safety concerns. In addition, this wireless access will lay the foundations for future access to additional security features, panels, and keylocks.

Additionally, an upgraded wireless network will provide redundancy for cellular devices that are configured to perform Wi-Fi Calling features. In the past, Rave and other Emergency notifications were unable to reach campus users due to holes in cellular network coverage across the campus.

2. Other Funding Sources:

AHEC is exempt from the cash match category, which is why this section is N/A. As a note, and a matter of clarification and supplemental information, AHEC is acting as the convenor, project manager and consolidated source of submission for this proposal. As is the case with all AHEC capital submissions (Construction, I/T, Controlled Maintenance etc…), all funds that AHEC receives are put back into the Auraria Campus, which has direct benefit to all three (3) institutions on campus. In this case, AHEC is driving this project, leading the Auraria Campus Technology Committee through the data collection and submission process, and will act as the overall project manager on the project. In conversations with the three (3) institutions, we/they reserve the right to put in a cash match if the collective committee(s) feel this is the most advantageous (or clear) way to proceed.

3. Quality of Planning / Proposal

Cost-benefit analysis performed with a positive outcome.

As an infrastructure-focused initiative, this project proposal is designed to ensure the ongoing availability of all Auraria Campus academic and business services which rely on IT systems to succeed.

Additionally, the analysis estimates that the following benefits will be realized from this capital request:

- Improved student wireless experience with a seamless/unified wireless network.
- Improved wireless availability with a more robust, stable, and reliable network environment.
- Current-level network equipment that meets industry and security standards.
- Improved pricing on equipment by issuing an RFP.
- Reduced maintenance costs on aging technology, which improves in year operating expense budgets.
- Through collaboration and network peering policies, each campus institution will be able to utilize the wireless networking equipment of the other institutions. This will be a huge cost benefit as this will eliminate the need to duplicate wireless technology implementations within all campus buildings/spaces.

Proposal articulates how this project fits in with the institution's strategic IT plan.

AHEC

Implementation of the Network Modernization Project is crucial to meeting the goals of the AHEC IT Mission/Strategic Plan. Apart from a few recent upgrades to our networking edge equipment (firewalls and routers), the majority of the AHEC Networking Infrastructure is in dire need of an upgrade to modern, manufacturer supported wired/wireless equipment that is eligible for critical cyber security patches and updates. Several AHEC IT Mission Goals that can/will be met through this project include:

3.3.1. Designing, selecting, acquiring, implementing, and approving technology that enables and supports the strategic goals of all campus AHEC departments.

3.3.2. Effectively managing the performance and accessibility of all internal agency AHEC information systems as well as external systems that face the campus community.

3.3.4. Continually improving the performance, security, ease of use, and reliability of campus networks, systems, and services.

3.3.5. Implementing and maintaining IT security tools to protect the sensitive data of AHEC and its constituents.

3.3.6. Ensure that systems implemented conform to required data security, auditing, and compliance standards.

Additionally, this project will allow AHEC to further the successful implementation of its Strategic Plan by supporting the four pillars of the plan:

1. Exemplary Service – "As the stewards of the Auraria Campus, it will always be our top priority as AHEC to provide excellent customer service to the students, faculty, and staff on this campus." The project will allow AHEC to provide fast, reliable and secure wired/wireless networking services for students, staff, faculty and campus visitors in the buildings which AHEC hosts the networking infrastructure (Tivoli

Student Union, General Assignment Classrooms, Auxiliary Operation and Event spaces throughout campus.

2. Activated Partnerships - "A founding tenant of AHEC was to facilitate cooperation among our partners." Through the collaborative work of the ACTC Committee and Wireless Subcommittee, the Campus IT teams have developed a cohesive design to revitalize the existing networking infrastructure on campus. This new design incorporates the technological needs of all campus partners, simplifies and unifies the wireless connection process and provides the networking infrastructure needed to facilitate future "high-tech" educational tools planned to be implemented by all institutional partners.
3. Vibrant Environments – "By modernizing our academic facilities, establishing connections to downtown to activate the campus, and enhancing the vibrancy of our common areas, we hope to achieve an environment that draws our community in." The project's improvements to the wired/wireless networking environments throughout campus will have a great impact by raising the level of internet interconnectivity, its performance, reliability, and coverage making the campus and its technological resources attractive to campus constituents and the surrounding community.
4. Sustainable Funding – "AHEC will explore alternative funding strategies, focus on economic development, and maximize existing assets." The collaborative approach to this project will maximize State funding and investment by addressing the lack of coverage and inefficiencies with the current wired and wireless network equipment and design in use. For example, CCD currently does not have direct wireless access to several shared buildings on campus. Through the implementation of a new network peering design made possible by the improvements offered through this project, CCD students, staff, and faculty will gain full access to wireless networking throughout every building on campus without the need for procuring, installing, and maintaining networking equipment of their own. The project will allow the institutions to leverage each other's networks to eliminate the duplication of resources.

CCD

The Community College of Denver's ITS strategic plan of modernizing the infrastructure and utilizing state of the art technology in the Joint Technology Committee project relies on a solid wireless/wired networking foundation. The ability to extend wireless technology within the classrooms is critical for the performance of blended (onsite/offsite) classroom instruction. Blended classes and instruction is a foundational technology necessary to retain students and generate additional revenue in tuition. Due to the age of buildings, the networking project has identified areas of the CCD campus buildings that have deficient wireless coverage.

The CCD modernization plan identifies specific projects for transformation of blended instruction, meetings, and the move of the Lowry Health Science location to the Auraria Campus. In the phases of facility consolidation, CCD will need to relocate current Lowry

tenants to brand new locations while their new space is being built. During the planning phase of this project, the assumption was made that access was adequate. After a campus-wide access study, CCD discovered there were significant areas of the campus not covered adequately by wireless access. Additional wireless access points in several of the buildings on campus will facilitate this relocation, saving funds in rewiring and poise staff for adequate access and successful operations.

The cost savings analysis on the network coverage this project provides for the moved individuals is estimated to be the entire proposed budget of adding additional access points to the campus. In addition, the capabilities of students and instructors to access one ubiquitous network (Auraria2.0) in the event of a campus security incident have immeasurable cost savings.

A solid wired/wireless infrastructure allows faculty to grow their curriculum by supporting modern technology such as virtual reality classrooms which can be utilized for various learning outcomes.

CU Denver

The CU Denver Strategic IT plan, which parallels the larger CU-Denver 2030 Strategic plan, focuses on providing the necessary infrastructure and services to enable students, staff, and faculty to successfully fulfill their academic goals. To enable such success, the CU Denver IT plan has three core pillars: 1) Outreach and Communications, 2) Infrastructure, and 3) Services. This proposal supports each of these pillars, but aligns specifically with the Infrastructure pillar, which states the need, "to provide a core broadband infrastructure that meets or exceeds the service needs of all users". A solid Wi-Fi infrastructure is the foundation on which classroom technologies depend. While we know that our students use our wireless networks in the classroom, this is only part of its critical use. Many of our students do not have adequate (or any) broadband access at home, so the campus network is a lifeline allowing them to study, access specific software and computing resources, as well as work online with fellow students and communicate with faculty. Obviously, our staff and faculty also rely heavily on this network to provide additional services to our students and to fulfill other academic needs.

Because the Auraria Campus is really three campuses geographically co-mingled and interdependent, it is critical that our IT strategies converge on a unified vision. To this end, the IT leadership from each of the institutions meets biweekly to strategize and execute on a variety of efforts to assure that we are following a logical modernization effort. While this starts with us needing to have adequate wireless and wired networks, that is just the start. Additionally, we have undergone an effort to unify on a common set of identity, authentication, and authorization mechanisms to allow our students, staff, and faculty to easily move across the larger Auraria campus, while still being able to get to specific network resources unique to the individual campuses. This enables us to collectively share infrastructure while still supporting unique IT strategic needs of each campus.

MSU Denver

MSU Denver Strategic Plan outlines a strategic theme that focuses on infrastructure transformation. The MSU Denver campus technology must adapt to effectively support new solutions and clients/students that rely on technology infrastructure as a tool that enables productivity rather than being an obstacle which is what exist today.

The Auraria Campus Network Modernization program encompasses a refresh/upgrade of MSU Denver's network infrastructure in 4 buildings by replacing network switches and obsolete wireless access points to align with existing upgrades and with other campus institutions. Additionally, these improvements will provide a more robust and stable network environment capable of supporting the university's evolving needs in a scalable, reliable, and secure manner as outlined in the ITS Strategic Plan.

Alternatives analyzed.

Through the Auraria Cooperative Technology Committee (ACTC), IT systems/devices from alternative vendors were analyzed and do not offer the same level of functionality and compatibility with existing systems. Networking components were selected that are compatible with each of the (4) campus institutions to enable the implementation of a single campus wireless network SSID to be broadcast across the campus, regardless of the building location or which institution hosts the wireless network, as designed by the ACTC Wireless Subcommittee. The result is a seamless/unified wireless network for all students, staff, faculty, and campus visitors. Also, there would be an impact on the budget and implementation timelines to train existing staff in different technology platforms.

Proper measures in place to prevent time and cost overruns.

An on-premises Site Survey was conducted for each floor of every building included in the Network Modernization Project to assess the existing wired/wireless systems in use and to develop a predictive design and bill of materials for the new network and its components. The scope of the Site Survey included the following:

1. On-premises RF Site Survey utilizing Ekahau software and associated test equipment to document the current Wi-Fi RF environment.
2. Wi-Fi network constructability validation.
3. Current backend IT network and infrastructure survey assessing core and edge switching, controllers, routers, firewalls, and DNS/DHCP appliances.
4. RF Design with a Selective Ekahau Predictive design and AP placement documentation as a deliverable.
5. AP Naming Conventions.
6. Network Topology Drawings.
7. Post-Survey and Design review meetings with AHEC.
8. Once the budget is approved, we will have regular oversite of spending, project timelines, etc. by the ACTC Committee and each institution's IT Departments.

Additional time/cost overrun measures include:

1. Dedicated Project Management at each institution's IT Department.
2. Project oversite by the Chief Business Officer (CBO) committee.
3. Competitive Bid processes and Procurement procedures at the associated institutions.
4. Estimates were obtained under current State Pricing Guidelines. Additionally, we plan to submit an RFP to minimize pricing fluctuations.
5. Proper agency IT staffing levels as well as the use of professional services from OEM Manufactures/System Resellers where needed.
6. The project plan has been divided across two fiscal years to allow each institution's IT Department's resources to complete all tasks/goals within a feasible timeframe.

4. Achieves Goals

Articulate the request's alignment with one or more of the strategic goals in the Colorado Higher Education Strategic Plan, Colorado Rises.

The Colorado Commission on Higher Education and the Colorado Department of Higher Education released a statewide plan focused on advancing the economic mobility of Colorado's learners and earners by aligning postsecondary talent development with industry and statewide needs.

Through campus-wide collaboration between AHEC, CCD, CU Denver, and MSU Denver, the Network Modernization Project creates a ubiquitous network and robust wireless/wired infrastructure to assist with postsecondary talent development through the blended delivery of their courses. The network and IT services will assist students with blended learning and full access to educational services while on and off campus, increasing the capability for learning delivery and accessibility. A ubiquitous network also allows learners to increase the usage of their own devices in the delivery of education and brings an efficient platform for learners. In addition, the campus-wide collaboration also focuses on equitable access and allows more learners access to the tools they need to succeed.

C: JUSTIFICATION:

Please provide us with a justification on why each desired appealed criterion should be amended.

Though all of the criteria were included in various forms in the original narrative, more detail and specific language has been given to fully explain each aspect deemed "Not Included" in the original request.

AHEC, CCD, CU Denver, and MSU Denver have all collaborated on this project's input and acknowledge the importance of streamlining and updating the wireless access across the Auraria Campus to one ubiquitous network. Covid has required each institution to pivot the delivery of their IT Services to accommodate gaps in the facility technology, blended education delivery, and safety issues and to support new types of technology utilized in the classrooms and campus facility to ensure student success, aligning with the Colorado Rises strategic plan.

The project teams would appeal the previous scoring based on the three scoring sections identified below:

- IT Health, Safety, and Industry Standards
- Quality of Planning/Proposal
- Achieves Goals

Based on the consolidated justifications submitted, we respectfully request reconsideration of the scoring and we sincerely appreciate the process and our ability to appeal the original score.

Classroom Security Access Software and Computer Equipment Upgrades

Otero Junior College (CCCS)

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 4/17/2023

Five-Year Capital Information Technology (IT) Project Plan FY 2024-25 to FY 2028-29 (CC_IT-5P)

(A)	(1) Institution Name:	Otero College	(2) Institution Signature Approval:	Jennifer Johnston 4/17/2023 Date
(B)	(1) Name & Title of Preparer:	Jennifer Johnston Vice President Admin Svcs	(2) CDHE Signature Approval:	Date
(C)	(1) E-mail of Preparer:	jennifer.johnston@otero.edu		

(D)	GRAND TOTALS	(b) Total Project Cost	(c) Total Prior Appropriation	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
	Capital Construction Funds (CCF)	$2,898,000	$0	$438,000	$560,000	$600,000	$625,000	$675,000
	Cash Funds (CF)	$545,000	$0	$80,000	$90,000	$100,000	$125,000	$150,000
	Reappropriated Funds (RF)	$0	$0	$0	$0	$0	$0	$0
	Federal Funds (FF)	$0	$0	$0	$0	$0	$0	$0
	Total Funds (TF)	**$3,443,000**	**$0**	**$518,000**	**$650,000**	**$700,000**	**$750,000**	**$825,000**

(1)	Project Title & No. of Phases:	Classroom Security Access Software and Computer Equipment Upgrades - Phase 1 of 1						
(2)	Brief Description of Project:	Update technology equipment and software to keep abrest of current state of the art information technology and campus safety						
(3)	Intercept Program? (Yes/No):	No						
(4)	(a) Priority Number:	1	(b) Project Type:		(c) Gross Square Feet:			
(5)	(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(6)	Capital Construction Funds (CCF)	$438,000	$0	**$438,000**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$80,000	$0	**$80,000**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$518,000**	**$0**	**$518,000**	**$0**	**$0**	**$0**	**$0**

(1)	Project Title & No. of Phases:	Technology and Equipment Upgrades to Equipment and Software - Phase 1 of 1						
(2)	Brief Description of Project:	Update technology equipment and software to keep abrest of current state of the art information technology						
(3)	Intercept Program? (Yes/No):	No						
(4)	(a) Priority Number:	1	(b) Project Type:		(c) Gross Square Feet:			
(5)	(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(6)	Capital Construction Funds (CCF)	$560,000	$0	**$0**	$560,000	$0	$0	$0
(7)	Cash Funds (CF)	$90,000	$0	**$0**	$90,000	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$650,000**	**$0**	**$0**	**$650,000**	**$0**	**$0**	**$0**

(1)	Project Title & No. of Phases:	Technology and Equipment Upgrades to Equipment and Software - Phase 1 of 1						
(2)	Brief Description of Project:	Update technology equipment and software to keep abrest of current state of the art information technology						
(3)	Intercept Program? (Yes/No):	No						
(4)	(a) Priority Number:	1	(b) Project Type:		(c) Gross Square Feet:			
(5)	(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(6)	Capital Construction Funds (CCF)	$600,000	$0	**$0**	$0	$600,000	$0	$0
(7)	Cash Funds (CF)	$100,000	$0	**$0**	$0	$100,000	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$700,000**	**$0**	**$0**	**$0**	**$700,000**	**$0**	**$0**

(1)	**Project Title & No. of Phases:**	Technology and Equipment Upgrades to Equipment and Software - Phase 1 of 1						
(2)	**Brief Description of Project:**	Update technology equipment and software to keep abrest of current state of the art information technology						
(3)	**Intercept Program? (Yes/No):**	No						
(4)	**(a) Priority Number:**	1	**(b) Project Type:**		**(c) Gross Square Feet:**			
(5)	**(a) Funding Source**	**(b) Total Project Cost**	**(c) Total Prior Appropriation**	**(d) Current Budget Year Request**	**(e) Year Two Request**	**(f) Year Three Request**	**(g) Year Four Request**	**(h) Year Five Request**
(6)	Capital Construction Funds (CCF)	$625,000	$0	**$0**	$0	$0	$625,000	$0
(7)	Cash Funds (CF)	$125,000	$0	**$0**	$0	$0	$125,000	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$750,000**	**$0**	**$0**	**$0**	**$0**	**$750,000**	**$0**

(1)	**Project Title & No. of Phases:**	Technology and Equipment Upgrades to Equipment and Software - Phase 1 of 1						
(2)	**Brief Description of Project:**	Update technology equipment and software to keep abrest of current state of the art information technology						
(3)	**Intercept Program? (Yes/No):**	No						
(4)	**(a) Priority Number:**	1	**(b) Project Type:**		**(c) Gross Square Feet:**			
(5)	**(a) Funding Source**	**(b) Total Project Cost**	**(c) Total Prior Appropriation**	**(d) Current Budget Year Request**	**(e) Year Two Request**	**(f) Year Three Request**	**(g) Year Four Request**	**(h) Year Five Request**
(6)	Capital Construction Funds (CCF)	$675,000	$0	**$0**	$0	$0	$0	$675,000
(7)	Cash Funds (CF)	$150,000	$0	**$0**	$0	$0	$0	$150,000
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$825,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$825,000**

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 5/24/2023

FY24-25 CAPITAL INFORMATION TECHNOLOGY PROJECT REQUEST- *COST SUMMARY (CC_IT-C)**

(A)	(1) **Funding Type (Cash, CCF, Cash & CCF):**	**Cash & CCF**	(2) **Intercept Program Request? (Yes/No):**	No
(B)	(1) **Institution:**	Otero College	(2) **Name & Title of Preparer:**	Jennifer Johnston Vice President of Admin Services
(C)	(1) **Project Title:**	Classroom Security Access Software and Computer Equipment Upgrades	(2) **E-mail of Preparer:**	jennifer.johnston@otero.edu
(D)	(1) **Project Phase (__ of __):**	1 of 1	(2) **State Controller Project # (if continuation):**	N/A
(E)	(1) **Project Type (IT):**	Capital IT	(2) **Institution Signature Approval:**	Jennifer Johnston 4/17/23 Date
(F)	(1) **Year First Requested:**	FY 2024	(2) **CDHE Signature Approval:**	Date
(G)	(1) **Priority Number (Leave blank for continuation projects):**	__1__ of __1__	(2) **OSPB Signature Approval**	Date

(1)		(a) **Total Project Costs**	(b) **Total Prior Year Appropriation(s)**	(c) **Current Budget Year Request**	(d) **Year Two Request**	(e) **Year Three Request**	(f) **Year Four Request**	(g) **Year Five Request**
	Land /Building Acquisition							
(2)	Land Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Consultants/Contactors	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Quality Assurance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Training	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(8)	Leased Space (Temporary)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Feasibility Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Other Services/Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(11)	Inflation Cost for Professional Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(13)	***Total Professional Services***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Associated Building Construction							
(14)	Cost for New (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(15)	New $_____/GSF							
(16)	Cost for Renovate GSF:	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(17)	Renovate $_____/GSF							
(18)	Site Work/Landscaping	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(19)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(20)	Inflation for Construction	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(21)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(22)	***Total Construction Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Software Acquisition							
(23)	Software COTS	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(24)	Software Built	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(25)	Inflation on Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(27)	***Total Software***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Equipment							
(28)	Servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ 453,000	$ -	$ **453,000**	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(32)	Other (Specify) - Software	$ 65,000	$ -	$ **65,000**	$ -	$ -	$ -	$ -
(33)	Miscellaneous	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 518,000	$ -	$ **518,000**	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	**$ 518,000**	**$ -**	$ **518,000**	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(36)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	**$ 518,000**	**$ -**	$ **518,000**	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 438,000	$ -	$ **438,000**	$ -	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 80,000	$ -	$ **80,000**	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	**518,000**	-	**518,000**	-	-	-	-

*Should match CC_IT-N Form

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2024-25 CAPITAL IT PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$438,000**	
Cash Fund Amount (CF):	$80,000	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Otero College	
Project Title:	Classroom Security Access Software and Computer Equipment Upgrades	
Project Phase (Phase _of_):	Phase 1 of 1	
State Controller Project Number (if continuation):	N/A	
Project Type:	Yes	Technology Hardware
	Yes	Technology Software
Year First Requested:	FY 2024 - 2025	
Priority Number (Leave blank for continuation projects):	1 OF 1	
Name & Title of Preparer:	Jennifer Johnston Vice President of Administrative Services	
E-mail of Preparer:	Jennifer.johnston@otero.edu	
Institution Signature Approval:	Jennifer Johnston 4/17/23	Date
OSPB Signature Approval:		Date
CDHE Signature Approval:		Date

A. PROJECT SUMMARY/STATUS:

Otero College is requesting a total of $518,000 ($438,000 capital construction funds and $80,000 cash funds) for technology, software, and equipment upgrades.

B. SUMMARY OF PROJECT FUNDING REQUEST:

Funding Source	Total Project Cost	Total Prior Appropriation	Current Budget Year Request	Year Two Request	Year Three Request	Year Four Request	Year Five Request
Capital Construction Funds (CCF)	$438,000	$0	**$438,000**	$0	$0	$0	$0
Cash Funds (CF)	$80,000	$0	**$80,000**	$0	$0	$0	$0
Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
Total Funds (TF)	**$518,000**	**$0**	**$518,000**	**$0**	**$0**	**$0**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

The Technology, Software, and Equipment Upgrades project funding will provide Otero College with the financial ability to replace and upgrade end of life technology equipment and maintain state of the art technology in our computer laboratories, library, and classrooms. The funding will also allow the College to invest in a significant number of computers to be made available for students to check out and utilize for an entire semester at no charge to allow them access online, streaming capabilities, and remote delivery reception. This would help Otero accomplish Goal 1 of our Strategic Plan of enhancing the student's experience. The funding would also allow Otero to purchase software for classroom security access. This software would allow classrooms to be locked at all times but allow the student to have access to specific classrooms based on their class schedule.

The significant advances in availability of information via technology such as the internet, electronic textbooks, instructional aids, virtual demonstrations, and programming structured for specific subjects, as well as improvements in speed, reliability, and accuracy in transmitting data have made it imperative for Otero College to maintain the ability to receive, process, and accurately disseminate this information. To provide educational opportunities our students demand and pay for; the College must invest in the most current technology so that we can offer the latest learning and teaching techniques to our students and instructional staff. This environment is continually evolving and requires the College to make significant monetary investment on a regular basis to attract and retain students and remain viable as an educational institution of higher learning.

The safety of our students, faculty, staff, and visitors has always been a priority for Otero College. This funding would allow Otero to obtain software that would align with our current door lock system. The software would provide an extra level of security for our campus community. This software would allow for all classroom doors to be locked and shut at all times. With this software student's identification cards would be programed to their class schedule, allowing only those students enrolled in the class to have access to those rooms during specific class times. This would eliminate the need for teachers to prop doors open for the first 15 minutes of class for students that arrive late.

D. PROGRAM INFORMATION:

Implementation of the Technology and Equipment Upgrades Project will be administered by the Computer Center Staff at Otero College. Our staff will be supported by the Colorado Community College System Information Technology staff as well as IT staff at individual Colleges within the Community College System. We anticipate vendors from whom we will purchase equipment and software will be available for consolation and installation support. The majority of the improvements and upgrades will be "behind the scenes" so end users will continue to operate the technology they use as well as the upgrades with very little interruption. Once upgrades are completed, training will be scheduled for end users to ensure familiarity with the new processes. This project will positively affect all students, faculty, staff, visitors, and programs on our Campus providing cutting edge technology to enhance learning, safety, and success across the entire College.

E. CONSEQUENCES IF NOT FUNDED:

Otero College strives to maintain state of the art teaching and learning techniques. Our students and staff require up to date tools and information to teach effectively and have the relevant opportunities to learn, be successful, and not be hindered by outdated technology. If the College does not maintain a high level of availability and access/delivery of information, enrollment will most likely decline and the

ability to attract quality instruction staff will be diminished. In addition, recent domestic and world events have dictated rural and urban colleges must take action to mitigate the changes of adverse events taking place on campuses. Our campus community safety is a priority and without these funds we will not be able to take the steps needed to provide an additional level of safety for our students, faculty, staff, and visitors. State of the art technology and software applications are of the utmost importance in development and implementation of effective day to day procedures and, more importantly, the processes associated for dealing with adverse conditions on campuses.

F. ASSUMPTIONS FOR CALCULATIONS:

Project cost estimates are based on current market value of items requested. Installation and fine tuning of equipment, software, and process development will be the responsibility of the Otero College management staff, the College's Information Technology staff, along with the Colorado Community College System IT staff and equipment/software provider consultants as deemed necessary. Please see accompanying detail of equipment and related items requested, quantity, unit price, extended price and projected contribution in funding by the Otero College Technology Fee assessment.

G. OPERATING BUDGET IMPACT:

The College already has the support infrastructure in place to service the equipment upgrades associated with this project. Manufacturer warranties and support coupled with the expertise of the Otero and System staff along with maintenance agreements already in place will mitigate impact on the operating budget of the College. We anticipate the support structure currently available will be sufficient to maintain the equipment and software associated with this project with minimal additional cost to the College.

H. PROJECT SCHEDULE:

Identify project schedule by funding phases. Add or delete boxes as required for each phase. See instructions for further detail.

Phase 1 of 1	**Start Date**	**Completion Date**
Pre-Design	**July, 2024**	**July, 2024**
Design	**July, 2024**	**July, 2024**
Construction	**N/A**	**N/A**
FF&E /Other	**October, 2024**	**June, 2026**
Occupancy	**N/A**	**N/A**

Phase __of__	**Start Date**	**Completion Date**
Pre-Design		
Design		
Construction		
FF&E /Other		
Occupancy		

Phase __of__	**Start Date**	**Completion Date**
Pre-Design		
Design		
Construction		

FF&E /Other		
Occupancy		

I. ADDITIONAL INFORMATION:

Three-year roll forward spending authority is required:	X Yes	❑ No
Request 6-month encumbrance waiver:	Exemption Request	**Project<$2,000,000**
Is this a continuation of a project appropriated in a prior year:	❑ Yes	X No
State Controller Project Number (if continuation):	N/A	

CONTINUATION HISTORY: (DELETE IF NOT APPLICABLE)

	FY 2XXX-XX Appropriated	FY 2XXX-XX Appropriated	FY 2XXX-XX Appropriated	**Total Appropriations**
Total Funds				
General Fund				
Cash Funds*				
Reappropriated				
Federal Funds				

J. COST SAVINGS / IMPROVED PERFORMANCE OUTCOMES:

There will most likely be no cost savings associated with this project. After initial cost to purchase equipment, software, and installation, there will be minimal new and ongoing costs such as maintenance agreements, software updates, possible license renewals, and general repair and maintenance due to wear and tear under normal use. These costs will be absorbed within the general fund budget. We anticipate little or no increase in that the current general fund budget for the items replaced will transfer to the improvements.

Completion of this project will enable instruction staff to continue to teach with the most current information and processes available. In turn, the improvements will provide our students with opportunities for learning that are unprecedented. For student success and, in turn success of the College, it is vital technology available to students and staff be made available to allow instructor to teach and students to learn and become prepared to take advantage of opportunities that are present now and become available in the future. The safety piece of this project is crucial to our campus community to help mitigate the chances of adverse events from taking place on our campus.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

The Colorado Community College System has implemented significant portions of an overall security and backup system as well as disaster recovery that include all of the Community Colleges in the System. Otero College also has local backup systems in place including numerous uninterruptable power sources and backup generators that keep our computer systems and telephone/notification systems operational in case of power failures.

L. BUSINESS PROCESS ANALYSIS:

This project is designed to satisfy an immediate need for state-of-the-art technology equipment and software to ensure we are able to provide required teaching and learning tools for our staff and students. Along with providing an additional level of safety. College Instructors and Students expect and demand the latest technology be available for those involved to perform at their highest level,

both teaching and learning. The college strives to provide the latest technology available yet recognized the importance of financial planning to maintain the financial health of the College. The College utilizes tools available to us to minimize costs and maximize quality. State of Colorado purchasing negotiates low prices balanced by quality products that we are able to take advantage of in most all of our purchasing processes. In order for Otero college to remain a viable institution of higher education, we must balance quality service to our customers (staff and students) with economies of scale in purchasing the tools necessary to satisfy a student's appetite for learning and an instructor's desire to teach effectively. While also providing the utmost safety precautions available to our community.

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2024-25 CAPITAL IT PROJECT REQUEST- *Scoring Appeal (CC_IT-A)*		
Institution Name:	**Otero College**	
Project Title:	Classroom Security Access Software and Computer Equipment Upgrades	
Project Type:	X	Technology Hardware
	X	Technology Software
Name & Title of Preparer:	Jennifer Johnston – Vice President of Business and Administrative Services	
Email of Preparer:	Jennifer.Johnston@otero.edu	

A. AREAS FOR APPEAL:

Please indicate which of the following evaluation criteria you wish to appeal.

Evaluation Criteria	Appeal Requested (Y/N)
IT Health, Safety, and Industry Standards	Y
Other Fund Sources	N
Quality of Planning/Proposal	Y
Achieves Goals	Y
Governing Board Priority	N

B. ADDITIONAL INFORMATION:

IT Health, Safety, and Industry Standards:
The requested software is fully supported by the developer in that software updates are provided, and IT support is readily available. The developer will also address any security concerns posed and replacement parts are available through the manufacturer.

The upgrade to security software is vital to the safety of students and staff as presently we are unable to limit access to classrooms and buildings. This software upgrade will also allow for tracking of access in each room to assist law enforcement if there is ever unauthorized entry due to stolen key cards.

Achieves Goals:
By upgrading computer equipment across campus, the ability to provide remote delivery of course content increases significantly and aligns the strategic goals of Colorado's Strategic Plan for Higher Education, including increasing credential completion, erasing equity gaps, improving student success, and investing in affordability and innovation. Students will be able to access their course from home and in their own time to increase completion rates and thus improve upon student success. Also, this project would provide laptops and iPads students can checkout if they are unable to afford this technology equipment on their own which helps remove equity gaps and invests in the affordability of higher education. In alignment with Colorado's Strategic Plan for Higher Education, upgrading the technological equipment, equitable and ease of access to data will promote student learning and increase completion and retention rates.

Finally, by upgrading security software, data will be more secure, and security will be maintained efficiently to continue to ensure student success and allow Otero to measure the success of not only our Hispanic/Latino students, but all the students served by the College.

Quality of Planning/Proposal:

A cost-benefit analysis explained by our IT department shows to improve student enrollment, retention, and completion rates, we need to stay up to date with industry standards of software and devices. Otero also strives to recruit top of the industry employees to teach our students and it is proven that having state of the art technology draws in potential employees. If we continue utilizing outdated devices and software, we run the risk of losing enrollment as well as prospective employees which is detrimental to the longevity of Otero College.

One of Otero College's strategic goals is to transform the workplace. Upgrading this software will transform how employees safely access areas on campus, adapt to a new work environment post-pandemic by offering new mobile devices (specifically laptops & iPads/tablets) for efficiency, and promote a sense of much needed security as we head into the new normal of the workplace.

Alternatives were analyzed and due to the current infrastructure and continued partnership with CCCS, the proposed project is the most cost-effective, time effective, and will be easier to mitigate issues to prevent cost overruns.

C: JUSTIFICATION:

Otero's focus on student growth, development, retention, graduation, and safety is pivotal to the success of the community it serves. By allowing this amendment, it brings Otero College a step closer to ensure these focuses can be achieved.

CSU Human Capital Management

Colorado State University

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Five-Year Capital Information Technology (IT) Project Plan FY 2024-25 to FY 2028-29 (CC_IT-5P)

(A)	(1) **Institution Name:**	Colorado State University System	(2) **Institution Signature Approval:**	Date
(B)	(1) **Name & Title of Preparer:**	Brandon Bernier, CIO	(2) **CDHE Signature Approval:**	Date
(C)	(1) **E-mail of Preparer:**	brandon.bernier@colostate.edu		

(D)	***GRAND TOTALS***	*(b) Total Project Cost*	*(c) Total Prior Appropriation*	*(d) Current Budget Year Request*	*(e) Year Two Request*	*(f) Year Three Request*	*(g) Year Four Request*	*(h) Year Five Request*
	Capital Construction Funds (CCF)	$26,260,074	$0	$11,015,322	$14,552,818	$691,934	$0	$0
	Cash Funds (CF)	$7,215,941	$0	$3,477,656	$1,680,671	$2,057,614	$0	$0
	Reappropriated Funds (RF)	$0	$0	$0	$0	$0	$0	$0
	Federal Funds (FF)	$0	$0	$0	$0	$0	$0	$0
	Total Funds (TF)	**$33,476,015**	**$0**	**$14,492,978**	**$16,233,489**	**$2,749,548**	**$0**	**$0**

(1)	**Project Title & No. of Phases:**	CSU Work 2027						
(2)	**Brief Description of Project:**	align Human Resources IT systems across Fort Collins, Pueblo, SPUR campuses						
(3)	**Intercept Program? (Yes/No):**	**No**						
(4)	(a) **Priority Number:**	1	(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$26,260,074	$0	**$11,015,322**	$14,552,818	$691,934	$0	$0
(7)	Cash Funds (CF)	$7,215,941	$0	**$3,477,656**	$1,680,671	$2,057,614	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$33,476,015**	**$0**	**$14,492,978**	**$16,233,489**	**$2,749,548**	**$0**	**$0**

(1)	**Project Title & No. of Phases:**							
(2)	**Brief Description of Project:**							
(3)	**Intercept Program? (Yes/No):**							
(4)	(a) **Priority Number:**		(b) **Project Type:**		(c) **Gross Square Feet:**			
(5)	(a) **Funding Source**	(b) **Total Project Cost**	(c) **Total Prior Appropriation**	(d) **Current Budget Year Request**	(e) **Year Two Request**	(f) **Year Three Request**	(g) **Year Four Request**	(h) **Year Five Request**
(6)	Capital Construction Funds (CCF)	$0	$0	**$0**	$0	$0	$0	$0
(7)	Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(8)	Reappropriated Funds (RF)	$0	$0	**$0**	$0	$0	$0	$0
(9)	Federal Funds (FF)	$0	$0	**$0**	$0	$0	$0	$0
(10)	**Total Funds (TF)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 8/9/2023

FY24-25 CAPITAL INFORMATION TECHNOLOGY PROJECT REQUEST- *COST SUMMARY (CC_IT-C)**

(A)	(1) **Funding Type (Cash, CCF, Cash & CCF):**	**CCF**	(2) **Intercept Program Request? (Yes/No):**	No
(B)	(1) **Institution:**	Colorado State University	(2) **Name & Title of Preparer:**	Brandon Bernier, CIO
(C)	(1) **Project Title:**	CSU Work 2027	(2) **E-mail of Preparer:**	brandon.bernier@colostate.edu
(D)	(1) **Project Phase (__ of __):**	1 of 3	(2) **State Controller Project # (if continuation):**	
(E)	(1) **Project Type (IT):**	Capital IT	(2) **Institution Signature Approval:**	Date
(F)	(1) **Year First Requested:**	FY __25_____	(2) **CDHE Signature Approval:**	Date
(G)	(1) **Priority Number (Leave blank for continuation projects):**	_____ of _____	(2) **OSPB Signature Approval**	Date

(1)		(a) **Total Project Costs**	(b) **Total Prior Year Appropriation(s)**	(c) **Current Budget Year Request**	(d) **Year Two Request**	(e) **Year Three Request**	(f) **Year Four Request**	(g) **Year Five Request**
	Land /Building Acquisition							
(2)	Land Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition/Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Consultants/Contactors	$ 5,486,212	$ -	$ 3,407,656	$ 1,411,282	$ 667,274	$ -	$ -
(6)	Quality Assurance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Training	$ 201,729	$ -	$ 70,000	$ 87,389	$ 44,340	$ -	$ -
(8)	Leased Space (Temporary)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Feasibility Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Other Services/Costs	$ 1,000,000	$ -	$ -	$ -	$ 1,000,000	$ -	$ -
(11)	Inflation Cost for Professional Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(13)	***Total Professional Services***	**$ 6,687,941**	**$ -**	**$ 3,477,656**	**$ 1,498,671**	**$ 1,711,614**	**$ -**	**$ -**
	Associated Building Construction							
(14)	Cost for New (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(15)	New $_____/GSF							
(16)	Cost for Renovate GSF:	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(17)	Renovate $_____/GSF							
(18)	Site Work/Landscaping	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(19)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(20)	Inflation for Construction	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(21)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(22)	***Total Construction Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Software Acquisition							
(23)	Software COTS	$ 23,788,074	$ -	$ 10,586,751	$ 12,163,389	$ 1,037,934		$ -
(24)	Software Built	$ -	$ -	$ -			$ -	$ -
(25)	Inflation on Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(27)	***Total Software***	**$ 23,788,074**	**$ -**	**$ 10,586,751**	**$ 12,163,389**	**$ 1,037,934**	**$ -**	**$ -**
	Equipment							
(28)	Servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(32)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(33)	Miscellaneous	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	**$ 30,476,015**	**$ -**	**$ 14,064,407**	**$ 13,662,060**	**$ 2,749,548**	**$ -**	**$ -**
	Project Contingency							
(36)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ 3,000,000	$ -	$ 428,571	$ 2,571,429	$ -	$ -	$ -
(38)	***Total Contingency***	$ 3,000,000	$ -	**$ 428,571**	$ 2,571,429	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	**$ 33,476,015**	**$ -**	**$ 14,492,978**	**$ 16,233,489**	**$ 2,749,548**	**$ -**	**$ -**
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 26,260,074	$ -	**$ 11,015,322**	$ 14,552,818	$ 691,934	$ -	$ -
(41)	Cash Funds (CF)	$ 7,215,941	$ -	**$ 3,477,656**	$ 1,680,671	$ 2,057,614	$ -	$ -
(42)	Reappropriated Funds (RF)		$ -	$ -			$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	**33,476,015**	**-**	**14,492,978**	**16,233,489**	**2,749,548**	**-**	**-**

*Should match CC_IT-N Form

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2024-25 CAPITAL IT PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$11,015,322**	
Cash Fund Amount (CF):	$3,477,656	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Colorado State University	
Project Title:	CSU Human Capital Management	
Project Phase (Phase _of_):	1 of 3	
State Controller Project Number (if continuation):		
Project Type:		Technology Hardware
	X	Technology Software
Year First Requested:	FY 2024 - 2025	
Priority Number (Leave blank for continuation projects):	___ OF ___	
Name & Title of Preparer:	Brandon Bernier	
E-mail of Preparer:	Brandon.bernier@colostate.edu	
Institution Signature Approval:		Date
OSPB Signature Approval:		Date
CDHE Signature Approval:		Date

A. PROJECT SUMMARY/STATUS:

Provide a brief scope description of the project and explain the status of the prior appropriated phases. See instructions for further detail.

Colorado State University (CSU) is aligning IT across the Ft. Collins, Pueblo, and Spur campuses, along with the CSU-System Office, to partner on the replacement of multiple, outdated, and at risk, Human Resources systems. CSU's primary goal is to develop a shared multi-campus Human Capital Management service with a modern, cloud-based solution that will meet the growing and diverse needs of CSU's campuses, allowing our institutions to attract, develop, and motivate a modern workforce that is charged with fulfilling the academic, research, and outreach missions that serve the state of Colorado. This proposal seeks funding for software acquisition and related contingency planning. CSU is committed to funding the staff backfill and professional services costs.

Over the course of this three-year project, CSU campuses will work together to replace the antiquated HR systems in use today, which range between 20 – 30 years old. These systems have all long-passed their viability to serve the needs of CSU and represent substantial business continuity and cybersecurity risks across the CSU System.

By implementing a state-of-the-art Human Capital Management (HCM) system, the Division of IT will enable the CSU System to:

- Adopt strategic, forward-thinking approaches to facilitating human capital management.
- Recruit and retain high quality faculty and staff members necessary to support the University's mission of teaching and learning, research, and outreach.
- Provide efficiency for processing many critical functions, including recruitment, onboarding, performance management, payroll, time tracking, and more.

- Align operations for Human Resources across the CSU campuses to reduce business continuity and cybersecurity risks, as well as reduce the number and complexity of the HR enterprise systems and customized technologies in use today.

B. SUMMARY OF PROJECT FUNDING REQUEST:

Funding Source	Total Project Cost	Total Prior Appropriation	Current Budget Year Request	Year Two Request	Year Three Request
Capital Construction Funds (CCF)	$26,260,074	$0	$11,015,322	$14,552,818	$691,934
Cash Funds (CF)	$7,215,941	$0	$3,477,656	$1,680,671	$2,057,614
Reappropriated Funds (RF)	$0	$0	$0	$0	$0
Federal Funds (FF)	$0	$0	$0	$0	$0
Total Funds (TF)	**$33,476,015**	**$0**	**$14,492,978**	**$16,233,489**	**$2,749,548**

*A detailed budget with a range of vendors with varying capabilities was created by the Tambellini Group. To ensure success, we are including vendor costs at the upper end of the range. If expected costs through competitive bidding come in lower, CSU will revert funds back to the state.

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

Provide a detailed description of the project, phases, funding, and any other information relevant to the project. Include information on best practices. Describe how the project fits in "Building Skills in an Evolving Economy" Strategic Plan as of Feb 2023. https://highered.colorado.gov/about-us/cche/strategic-plan

Following directions established by the CSU Board of Governors, the CSU-System has been aligning our IT services and systems across our campuses in an effort to increase efficiency and drive down costs. Recently, a larger CSU-System IT Alignment Initiative was started that will formally combine the organizational structures, budgets, services, and systems for IT across CSU-Ft. Collins, CSU-Pueblo, CSU-Spur, and our CSU-System Office.

A major strategy in our CSU-System IT Alignment Initiative is to create a shared services model for HCM across those campuses. In November 2022, CSU hired the Tambellini Group, an independent technology research, analyst, and advisory firm dedicated exclusively to higher education, to conduct an assessment of its current Human Resources system. Over the course of 12 weeks, Tambellini met with approximately 45 key stakeholders and produced a final report more than 100 pages in length that provides insight into the criticality of this work, including a recommended path forward. This recommendation analyzed various alternatives including:

- Options to continue with current operations and systems v. acquiring new systems.
- National evaluation of mid and large market HCM vendors for higher education.
- Needs analysis for following best practices instead of customizing software to current processes.
- Requirements needed for success including pre and post implementations phases.

Building Skills in an Evolving Economy:

CSU campuses provide employment opportunities for a significant number of students in a given academic year. The new HCM platform will include an application process for student employment, where students will be required to submit a resume and (potentially) a cover letter, while participating in a job interview. These skills, as well as those skills the students obtain while working side-by-side with CSU employees, offer valuable life lessons for future employment. The CSU Career Center will also rely on the HCM platform to deliver programming for students, offering opportunities to obtain skills in customer service, problem-solving, communication, and teamwork that employers often cite as essential skills. Finally, the new platform will ultimately better prepare CSU to create the workforce of the future, which in turn, will support Northern Colorado's economic growth, local communities, and families.

Assessment / Stakeholder Engagement:
As a part of the initial assessment and stakeholder engagement that Tambellini led for CSU, they conducted in-depth interviews with the following departments, who will rely heavily on the new HCM system:

CSU Departments:

- Controller's Office and Office of Budgets
- Foreign Tax Office
- Division of Human Resources
- Employee Services and Compensation
- Employee Services and Relations
- Human Resources Records
- Payroll Office
- Talent Development
- Time and Leave Management
- Student Employment and Services
- Enterprise Applications and Infrastructure

Throughout the assessment process, Tambellini discovered several significant deficiencies with the current HR Systems:

- Systems do not provide adequate functionality for many core business functions (Ex. Recruitment process, time and leave tracking, salary adjustments, and total compensation) that has led to the licensing and integration of 14 different systems and heavily customized programming, which is difficult to sustain.
- The manual, burdensome, and duplicative processes CSU is forced to utilize today, are requiring HR staff to endure large administrative overhead costs, thus, creating adverse effects on HR processing times and increasing the likelihood for data entry errors, which in turn, lead to exposed risks.
- The technical debt and instability of the current systems have become more complex and error prone. Recently, there were severe issues that caused the Fort Collins system to be restored from an old backup, losing days' worth of work and data, causing great confusion and frustration with a near miss in successfully running payroll.

- Reporting capabilities are mostly manual (rather than automated) and often require substantial programming for producing individual reports. The current systems also lack essential functionality for reporting purposes, such as dashboards and metrics useful to supervisors and leaders.

Gap Analysis / Key Challenges:
The key challenges that this project will address through the implementation of a modern, cloud based HCM solution include:

1. Manual Business Processes:
    a. Day-to-day operations at CSU are significantly inhibited by manual HR processes, and in many cases, limited by the current technology solution.
    b. Staff are focused on completing manual, transactional work and cannot focus sufficiently on strategic HR activities in a very challenging employment environment.
2. Limited Reporting and Analytics Capabilities:
    a. Users do not have the information they need to perform their work, resulting in spreadsheet-based tracking of processes and employees, creating additional institutional risk and cost. Though real-time reporting is required in many cases, most of the reporting available is based on nightly feeds to the data warehouse.
3. Data Access Silos:
    a. Users report not having access to the data they need to perform their jobs. Various workarounds are used to address this lack of access, creating more privacy and security risk than the risk of allowing direct, auditable access to the data.
4. Limited System Integrations:
    a. The platforms used to accomplish HR tasks are not fully integrated, causing users to rekey, track locally, and perform double work to perform basic transactions.
    b. HR business processes are rigid and difficult to change, often containing numerous levels of steps and approvals that do not support CSU's current or future needs.
5. Poor User Experience:
    a. Due to the multiple platforms and outdated user experience, administrative users and employees must use multiple systems (bolt-on technologies that come at additional costs) to accomplish tasks, reducing user effectiveness. In addition, users report having to click through multiple screens to maintain and retrieve basic information.
    b. End-user experiences for faculty, staff, and HR professionals are disjointed, complex, and nonintuitive, reducing the effectiveness of the technology.
6. Mitigate IT Risks:
    a. The current on-premises HR system is incredibly complex, made up of 14 disparate systems, and is troublesome to maintain. Critical patches for security and feature sets are difficult to implement. In the past 5 years, the system has experienced several multi-day downtimes and full recovery from back up. In the last 4 years, consultants have been held on retainer and brought in to help with major upgrades.
7. Lacking Life Safety Considerations:
    a. The HCM system is the system of record for employees and stores emergency contact information in the event of a campus emergency. While emergency information can be leveraged by other life safety systems to contact employees in the event of a natural disaster or campus threat, the current method is cumbersome and difficult to maintain, leading to potential risks in managing life-threatening situations.

Guiding Principles

The transition from an on-premises environment to a modern cloud solution is a significant undertaking. Institutional agreement on principles and preparation before implementation activities begin with the partner is critical to project success. To assist with this, the campus executive teams have taken part in briefing sessions where they learned about the project and guiding principles, and also came to agreement on following industry best practices. Tambellini recommended, and CSU has committed to, the following principles and activities as foundations for the HCM initiative.

- Understand that technology is a community effort. The work to enhance technology systems benefits the entire institutional community and is not just an IT project. CSU will provide strong IT governance to prioritize, oversee, advocate, and provide transparency into technology initiatives.
- Embrace a "Best Practices as Delivered" mindset. Platform solution providers have invested in the development and implementation of highly effective processes and workflows. CSU will embrace these whenever possible.
- Standardize business processes. With the implementation of a new platform, CSU will begin the process of understanding the changes necessary to utilize the target best- practices workflows for higher education. As much as possible, prepare to change existing processes to realize the efficiencies and control provided by the vendor platform.
- Minimize the number of core systems. Minimizing solutions simplifies the user experience, improves performance, and reduces the cost and complexity of system and security administration.
- Simplify your applications strategy. Strive to replace custom and third-party systems with functionality in the new system to reduce costs, required skills, effort, and integrations.
- Consolidate essential third-party systems. Eliminating duplicate systems used for payment processing, reporting, and other functions will simplify the implementation, reduce the number of integrations, and increase efficiency.
- Develop an enterprise-wide integration strategy. Point-to-point integrations are inefficient to develop and difficult to maintain. As noted above, CSU has implemented Boomi as its iPaaS for managing data flow between Kuali Financial System and its ancillary systems, as well as between some of the other CSU systems. CSU recognizes that iPaaS solutions provide a more robust and reliable integration approach, with much less effort spent maintaining integrations once they are in place and plans to expand the use of the tool system wide.
- Develop mature data governance. Access to accurate data by the right people at the right time is essential for effective data-driven decision-making. CSU will commit resources to ensure trust in the data itself, understanding of and transparency into data sources, appropriate and timely access, and oversight into its use.

Project Timeline and Backfill

Tambellini estimates the project timeline for implementing a modern, cloud based HCM solution to be **30 months**.

Phase 1: Project Initiation scheduled to begin July 1, 2024.

The associated budgetary estimate assumes six months of internal preparation and project initiation activities beginning July 1, 2024, with HCM implemented over 18 months starting in January 1, 2025 and go-live on July 1, 2026. Additionally, there will be 6 months of post-go live work to be completed by January 1, 2027.

Tambellini recommends that CSU complete the following activities before beginning its work with an implementation partner on July 1, 2024:

- HR data review and cleanup
- Limited business process standardization
- Expanding the use of Boomi, CSU's iPaaS tool
- Short-term work on the recruiting process and technology

Change management activities should also begin before CSU's work with an implementation partner and continue through the life of the initiative.

Phase 2: Implementation of Selected Solution (January 1, 2025, through July 1, 2026)

In general, timelines are similar for large scale vendors capable of supporting the CSU campuses. For some vendors, modules (e.g., Planning and Learning) can be implemented after other modules are deployed simultaneously at a calendar year-end or fiscal year-end. For others, implementations can be staggered and deployed by module in the most beneficial order for the institution.

CSU should consider that significant business process change requires more time for process design than simply recreating current processes in the new system. The implementation team and campus stakeholders will have to learn and adapt to new processes.

Additionally, HCM implementations affect every employee, including faculty, staff, and student workers, so they are more involved and affect a much larger population of users, and require more staff involvement than finance system implementations.

Backfill needs are highly contextualized by departments and their current staffing. CSU should expect to provide backfill to augment day-to-day HCM and IT operations of the critical staff involved in the implementation. In addition to IT backfill, HCM functional areas include

- Payroll
- Hiring
- Classification and Compensation
- Benefits

Suggested vendor solutions should be provided as Software as a Service and need to be fully supported by reputable software development companies. In addition, options must meet modern security requirements (encryption, two factor authentication), and compliance guidelines (FERPA, HIPAA, GDPR, ETC).

Modern vendors at this level provide best practice disaster-recovery functions with geographically separated sites. As the selection process is executed, recovery point and time objectives will be established to meet the critical business needs at Colorado State University. The cloud-based disaster recovery system will complement existing on-premises disaster recovery processes.

Phase 3: Post-Production Stabilization and Support (July 1, 2026 – January 1, 2027)

Postproduction support will consist of stabilizing new processes and technical solutions during the implementation period. Final modification to integrations, reports, and process flows will be adjusted, as multiple new business processes acclimate to work together seamlessly. Troubleshooting production issues will be critical and is anticipated after any large-scale system implementation.

D. PROGRAM INFORMATION:

Provide a description of the programs within the institution that will be impacted by this request.

The campuses and organizations associated with them that will be impacted through the implementation of a modern, cloud based HCM system are listed below. It is expected that all University employees, including student employees, will be affected.

- Colorado State University- Ft. Collins, a world-leading research university employs 7,299 full time employees, 8,844 part-time employees, and has an annual payroll of ~$70m. The University has world-leading programs in veterinary medicine, translational medicine, animal cancer, agriculture sciences, and more than a century of prominence in water research. CSU-Ft Collins also oversees Colorado Extension and Agricultural Experiment Station networks, including 4-H, and the Colorado State Forest Service.

- Colorado State University, Pueblo is a regional comprehensive institution that employs 1,326 FTE including 616 students with an annual payroll of~42m. CSU-Pueblo is a federally designated Hispanic Serving institution with leading programs in nursing, social work, and sociology/criminology. CSU-Pueblo also oversees the Southern Colorado Institute of Transportation Technology and Cannabis Research Institute.

- Colorado State University, Spur is a one-of-a-kind, public campus with three newly constructed buildings that are located at the National Western Center in Denver, offering year-round education, career exploration, and family-friendly fun focused on food, water, and human and animal health.

- Additionally, the CSU-System Office houses and supports the North American Agricultural Advisory Network, Colorado Futures Center, Salazar Center for North American Conservation, Center for the New Energy Economy, and Together We Grow.

E. CONSEQUENCES IF NOT FUNDED:

Provide a description of the consequences if this project is not funded. See instructions for further detail.

Given the mission critical nature of this system, and the risks that exist with the current HCM environment, the institutions would need to move forward without state support requiring us to pass along costs of the system in the form of a combination of tuition increases and internal reallocations.

F. ASSUMPTIONS FOR CALCULATIONS:

Describe the basis for how the project costs were estimated. Include inflation assumptions. See instructions for further detail.

CSU and the Division of IT partnered with Tambellini Group for an independent assessment of our current Human Resources Systems, that entailed the use of statistical data and development of the project's cost using estimates of competing HR vendors, as well as technology consultant input, and information shared among comparative higher education institutions of similar size and enrollment. Estimates for migrating to a new HR platform, including implementation services, were provided with a complete 114-page report available for review.

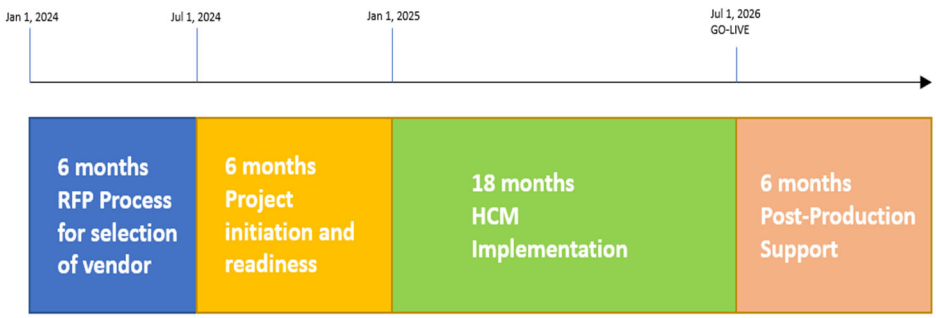
It is important to note that the ongoing cost of leveraging cloud-based HR solutions will be offset by reducing the expense of supporting numerous software, data storage, data backup systems, manual data entry and associated data-center infrastructure costs will offset continuing operational expenses.

G. OPERATING BUDGET IMPACT:

Detail operating budget impacts the project may have. See instructions for further detail.

	FY 1 12 months	FY 2 12 months	FY 3 6 months	Total
	6 months project initiation and 6 months implementation	12 month HR implementation	6 months post-production	
Internal Project Costs				
Oracle	$7,104,470	$9,302,969	$2,156,656	$18,564,095
Workday	$14,492,978	$16,233,489	$2,749,548	$33,476,015

H. PROJECT SCHEDULE:



Phase __1of_3_	Start Date	Completion Date
Procurement RFP	**01/01/2024**	**07/01/2024**
Design	**07/01/2024**	**12/31/2024**
Implementation	**01/01/2025**	**06/30/2025**
Testing		
Go Live		

Phase _2_of_3_	Start Date	Completion Date
Implementation	**07/01/2025**	**06/30/2026**
Testing	**01/01/2026**	**06/30/2026**

Phase _3_of_3_	Start Date	Completion Date
Go Live	**07/01/2026**	**12/31/2026**
Post Production	**07/01/2026**	**12/31/2026**

I. ADDITIONAL INFORMATION:

Three-year roll forward spending authority is required:	X Yes q No
Request 6-month encumbrance waiver:	X Yes q No
Is this a continuation of a project appropriated in a prior year:	q Yes X No
State Controller Project Number (if continuation):	

J. COST SAVINGS / IMPROVED PERFORMANCE OUTCOMES:

Describe the cost savings or improved performance outcomes as a result of this project. Please clearly identify and quantify anticipated administrative and operating efficiencies or program enhancements and service expansion through cost-benefit analyses and return on investment calculations.

As a result of the proposed HCM implementation, workflows will be streamlined and routine tasks that once required substantial time for employees to complete will be simplified, allowing for greater efficiency in processing critical HR functions; therefore, reducing the overall cost in staff time that would be realized in future years.

Many of the current HR system technologies (totaling 17 disparate systems) that were purchased to address gaps with the current platform will also be decommissioned, allowing for cost reinvestment to sustain the new environment at an estimated total of $1,000,000.

Ultimately, by providing automated, integrated processes, CSU faculty, staff, and HR professionals will be able to execute transactions quickly and accurately, allowing more time to focus on the value-added work that includes high-quality recruiting efforts, employee onboarding, performance management, payroll, position management, compensation, and classification processes that are critical to the success of CSU's institutional strategy in the current employment environment.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

Describe the data protection and disaster recovery considerations factored into the plan. Indicate any cybersecurity implications if applicable.

The security benefits of a cloud-based HCM would be substantial because the HR system would no longer be run on-premises in the CSU Data Center. Any cloud vendor would be dedicating substantial staffing resources to their security architecture, which an educational institute simply cannot do at that scale. Through solid contract language, we believe that we could obtain sufficient commitments from the vendor to protect our institutional data. We would also provide oversight and audit functions with our third-party hosting environment.

Modern vendors at this level provide best practice disaster recovery with geographically separated sites. As the selection process is executed, recovery point and time objectives will be established to meet the critical business needs at Colorado State University.

L. BUSINESS PROCESS ANALYSIS:

Describe alternatives analyzed, cost-benefit analysis, and measures in place to prevent time and cost overruns. Articulate how the proposed project fits in with the institution's strategic IT plan.

Colorado State University (CSU) has identified human resource transformation as a critical component of the university's strategic plan, and is therefore pursuing next-generation capabilities for a Human Capital Management (HCM) system that will support:

- Strategic, forward-thinking approaches to human capital management
- Recruitment and retention of excellent faculty and staff
- Managing Human Resources (HR) workflow for employee recruiting and onboarding, performance management, payroll, time tracking, etc.

At a high level, many modern HCM offerings capable of supporting the CSU campuses are almost functionally equivalent, although there are differences in the level of specific requirements. Though Tambellini's analysis shows that multiple solutions can meet the vast majority of CSU's requirements, the university will need to review detailed functionality and prioritize specific differentiators in order to identify the best fit.

Tambellini recommends a standard implementation period of 18 months. Initial areas of focus will include establishing administrative best practices and addressing manual processes. The project has an aggressive timeline that will require significant focus from CSU Information Technology to complete the work on time.

A critical success factor in any core system migration is people. A typical lesson learned from peer institutions that have recently undergone these kinds of transformations is the importance of having the right team to represent a culture for change. A strong partnership between human resources, payroll, finance, student-facing offices, and IT is critical. Productive collaboration with functional stakeholders is also vital. Project owners in successful transformation institutions include the president, vice president of finance, vice president of academic affairs, and chief information officer.

Successful higher education digital transformations require a mindset that embraces culture change. High-visibility system implementation areas include the following actions:

- Executive support and mandates for implementation of best practices
- Educating the campus on the need to change the way they may be doing things today versus expecting a new system to work the same old way
- Meeting project deadlines and milestones through rapid decision-making
- Providing an appropriate level of backfill for project team members
- Willingness to review current processes to avoid implementing new technology in the same old way
- Sticking to the prescribed scope so the team does not lose interest

Understanding and knowing how to navigate the full spectrum of transformation is pivotal to success. The message to the institution is critical. Staff will be constrained, and the level of service internally will be limited for periods during the project. Rigorous IT governance and project management are needed to ensure that resources are allocated and leveraged to ensure success for this and other critical initiatives.

Finally, an institution's data is one of its critical assets and the underpinning of its enterprise system. Before migrating essential data from the legacy system to the new solution, it must be clean. Cleaning a dataset involves reviewing it for missing data points, incorrect formatting, inconsistencies, contradictions, and other issues. CSU has already started a data governance initiative with a broad understanding of the importance of data stewardship and responsible use of institutional data.