COLORADO

Department of Higher Education

FY 2020-2021 Capital IT Request

– Non-prioritized State Funded Budget Request –

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

DIGITAL TRANSFORMATION INITIATIVE, ADAMS STATE UNIVERSITY, FORT LEWIS COLLEGE, AND WESTERN COLOARDO UNIVERSITY

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

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:**	Adams State University Fort Lewis College Western State University	(2) **Name & Title of Preparer:**	Kevin Daniel (Adams), Matt McGlamery (FT Lewis), Chad Robinson (Western)
(C)	(1) **Project Title:**	Digital Transformation Initiative for Rural Higher Education: A collaboration of ASU, FLC and WCU	(2) **E-mail of Preparer:**	ksdaniel@adams.edu, mcglamery_m@fortlewis.edu, crobinson@western.edu
(D)	(1) **Project Phase (__ of __):**	1 of 2	(2) **State Controller Project # (if continuation):**	
(E)	(1) **Project Type (CC or CR):**	CC_IT	(2) **Institution Signature Approval:**	See attached cover letter for Institution Signature Approvals for all three Institutions
(F)	(1) **Year First Requested:**	FY 21	(2) **CDHE Signature Approval:**	9/27/19 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	$ 13,000,000	$ -	**$ 4,300,000**	**$ 8,700,000**	**$ -**	$ -	$ -
(6)	Quality Assurance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Training	$ -	$ -	$ -		$ -	$ -	$ -
(8)	Leased Space (Temporary)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Feasibility Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Other Services/Costs -	$ 1,000,000	$ -	**$ 350,000**	**$ 650,000**	$ -	$ -	$ -
(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***	$ 14,000,000	$ -	**$ 4,650,000**	**$ 9,350,000**	$ -	$ -	$ -
	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	$ 5,900,000	$ -	**$ 4,000,000**	**$ 1,900,000**	$ -	$ -	$ -
(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***	**$ 5,900,000**	**$ -**	**$ 4,000,000**	**$ 1,900,000**	**$ -**	**$ -**	**$ -**
	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***	**$ 19,900,000**	**$ -**	**$ 8,650,000**	**$ 11,250,000**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(36)	5% for New	$ 995,000	$ -	**$ 432,500**	**$ 562,500**	**$ -**	**$ -**	**$ -**
(37)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 995,000	$ -	**$ 432,500**	**$ 562,500**	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	**$ 20,895,000**	**$ -**	**$ 9,082,500**	**$ 11,812,500**	**$ -**	**$ -**	**$ -**
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 20,686,050	$ -	**$ 8,991,675**	**$ 11,694,375**	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 208,950	$ -	**$ 90,825**	**$ 118,125**	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	**20,895,000**	**-**	**9,082,500**	**11,812,500**	**-**	**-**	**-**

COLORADO
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STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$8,991,675**	
Cash Fund Amount (CF):	$90,825	
Funding Type:	CC_IT	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Adams State University, Fort Lewis College, Western Colorado University	
Project Title:	Digital Transformation initiative for Rural Higher Education: A collaboration of Adams State University, Fort Lewis College, and Western Colorado University	
Project Phase (Phase _of_):	1 of 2	
State Controller Project Number (if continuation):	N/A	
Project Type:		Technology Hardware
	X	Technology Software
Year First Requested:	FY 2021	
Priority Number (Leave blank for continuation projects):	1 of 1	
Name & Title of Preparer:	Kevin Daniel (Adams), Matt McGlamery (FT Lewis), Chad Robinson (Western)	
E-mail of Preparer:	ksdaniel@adams.edu, mcglamery_m@fortlewis.edu, crobinson@western.edu	
Institution Signature Approval:	See attached cover letter for Institution Signature approvals from all three Institutions	
OSPB Signature Approval:		Date
CDHE Signature Approval:	9/30/19	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.

This project, the *Digital Transformation Initiative for Rural Higher Education: A Collaboration of Adams State University, Fort Lewis College, and Western Colorado University*, is intended to radically increase

the efficiency and effectiveness of our respective institutions by modernizing our legacy enterprise information and student information systems. After considerable informal research and reviewing the results of a formal Request for Information (RFI), we believe the modern cloud-based software solutions now available offer improvements large enough to make the enormous effort of changing worthwhile. This is a new request for $20,895,000. It is not mandated.

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)	$20,686,050	$0	$8,991,675	$11,694,375	$0	$0	$0
Cash Funds (CF)	$208,950	$0	90,825	$118,125	$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)	**$20,895,000**	**$0**	**$9,082,500**	**$11,812,500**	**$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.

Title:

Digital Transformation Initiative for Rural Higher Education: A Collaboration of Adams State University, Fort Lewis College, and Western Colorado University

Goal:

This project intends to radically increase the efficiency and effectiveness of our respective institutions by modernizing our legacy enterprise information and student information systems.

Introduction:

Enterprise Resource Planning systems (ERPs) exist to help manage the core operations of an institution or business. Most ERP systems manage at least the human resources (positions, benefits, timekeeping, timekeeping, etc.) and finance (budgeting, accounts payable, accounts receivable, payroll, etc.) aspects of an operation. Institutions of higher education have an additional core operation: managing the business of educating our students. This expansion of the standard ERP is generally referred to as a student information system, or SIS. This system addresses education-specific needs like admissions, registration, course management, scheduling, degree planning, faculty assignments, transcripts, degrees and the myriad of other tasks involved in managing the matriculation, education, graduation and often the ongoing relationship with our students and alumni.

All the public (and likely all the private) institutions of higher education in Colorado employ ERP/SIS systems in some form and have done so since at least the early 1980s. The partners in this project, Adams State University, Fort Lewis College, and Western Colorado University, acquired their current ERP/SIS solution, Ellucian Banner, in 1992, 1989, and 1992, respectively. All three institutions currently host most or all of their ERP/SIS components at their respective institutions.

In the decades since, while there have been innumerable upgrades, the basic structure of the Banner system has remained unchanged: a traditional database backend coupled with an administrative mid-layer and a web-based front end for our end users (students, faculty, and staff). Concurrently, we have also added supplemental systems to augment the function of the core to allow for new features and capabilities that were either not available from the ERP or were deemed too costly.

For the last 30 years, Banner was considered the leading (if not the only) ERP/SIS system available for institutions of higher education. Currently, 15 out of the 16 public institutions of higher education in Colorado use Banner. In the last few years, we have observed what we consider to be viable competitors emerge, and after reviewing these alternative solutions, we believe it is time to pursue other options.

The Partnership:

While Adams, Fort Lewis, and Western are inarguably unique, as small, rural, geographically remote, comprehensive four-year institutions, we share many of the same needs and face many of the same challenges. Joining to effectively create an entity of more than 11,000 students, faculty and staff allows us to realize better volume-based pricing. By collaborating on implementation, we save time and expense by sharing and standardizing business processes that can be built once and shared among the institutions. We estimate the direct savings realized by a joint project to be 30-40% for implementation and 23% for ongoing costs. By sharing a common digital platform, the ongoing collaboration and sharing of best practices and processes will yield dividends for years, if not decades.

The Project:

This project is the replacement our legacy ERP/SIS with a modern, customer-centric, intuitive, cloud-based, scalable, forward thinking, low maintenance, cost-effective product that provides as many solutions for our collective institutional needs as possible. Ancillary to, but perhaps equally important, is the comprehensive re-evaluation and improvement of essentially all current business practices. To initiate the project, ASU, FLC, and Western prepared and solicited responses from vendors through an RFI (request for information) process in the Spring of 2019. The information requested from the vendors sought to assist in establishing an ERP/SIS initiative that will:

- Provide modern, state-of-the-art solutions to the ERP and SIS systems at each institution for operating the human resources, finance, and student educational aspects of the organizations;
- Simplify and standardize business processes across all three institutions where possible;
- Eliminate department and system specific “shadow” systems, such as MS Excel spreadsheets, MS Access databases, manual reports, and forms that staff use due to current systems and processes not meeting the needs;
- Reduce the number of vendor products and integrations;

- Reduce manual processes and duplicative data entry;
- Eliminate multiple sources of the same data, information, and other electronic content;
- Improve or upgrade reporting and analytics tools;
- Provide modern methods and documentation for integrating the ERP/SIS system with third-party vendors and systems; and
- Enable ASU, FLC, and Western to make significant progress toward the Colorado Department of Higher Education strategic goals to:
    - Increase Credential Completion;
    - Erase Equity Gaps;
    - Improve Student Success; and
    - Invest in Affordability and Innovation.

Funding:

Funding from sources outside our respective institutional budgets is essential to this project. Upgrading an institutional ERP/SIS system is challenging, time-intensive and expensive. Our budget for this project is based on estimates provided by the vendors' responses to the RFI and reflect what we consider the maximum we would need to expend. The partnership intends to contribute 1% of their own funds from reserves.

In parallel with this funding request process, we will continue to assess our institutional business needs and investigate vendors/solutions throughout 2019 and early 2020. During that refinement process, we will develop far more accurate cost estimates. **We fully expect the actual funding required to be less than our initial request.** We plan on the final selection of a vendor/solution coinciding with the start of the funding for the project.

As mentioned in the introduction, we expect substantial savings by collaborating on this project. This is true for both the up-front implementation and ongoing costs. If we were to pursue this independently, the total estimated cost of the projects would be $19.5 to $25.5 million. By pursuing this collaboratively, we expect the costs to be between $15 and $20 million, saving between $4.5 and $5.5 million. Beyond this project, by realizing economies of scale on the subscription costs, we expected to save between 20-25% annually.

Project Schedule:

This project will take approximately four years in total to implement. We are requesting funding in two distinct phases. The solutions we have investigated thus far have three major sections, Human Resources (HR), Finance, and Student. HR and Finance are typically implemented together, followed by the more complicated Student module.

Pre Award Investigation, Selection & Planning
Present to March 2020
Continue to assess our institutional business needs and investigate vendors/solutions and construct a comprehensive Request for Proposal.

Phase 1.
Implementation: HR and Finance
July 2020 – June 2021

Human Resources and Finance modules will lead, as they are typically less complex. The cost for *Phase 1* is $9,082,500, representing approximately 43% of the total cost of implementation.

Phase 2.

Implementation: Student Services

July 2021 – June 2023 (if funded subsequently)

As the most complex (and unique to higher education), the student module will be implemented after HR and Finance. Exact timing will vary depending on vendor/solution, but will roughly follow the student lifecycle, beginning with Admissions and Recruiting. The cost for *Phase 2* is $11,812,500 and represents the remaining 57% of the total cost.

Finalization and Transition to Normal Operations

July 2023 - June 2024

Assess the implementation, reconcile problems and move into normal operations. Complete the final decommissioning of our legacy systems.

Alignment with Colorado Rises:

This project strongly aligns with all four Strategic Goals of the Colorado Rises Higher Education Master Plan: to Increase Credential Completion, Erase Equity Gaps, Improve Student Success, and Invest in Affordability and Innovation.

Goal #1: Increase Credential Completion

By implementing and utilizing a modern Student Information System, students at all three universities will be equipped with modern tools that will simplify and streamline the administrative functions they must perform to stay on-target to complete their credentials. From easier and faster admissions applications and processing to a seamless financial aid experience, intuitive registration and academic scheduling capabilities, students will be able to handle the business of being a student more simply and quickly, which will allow them to dedicate more time to their coursework, co-curricular activities and scholarly endeavors en route to earning their credentials and degrees. Additional tools such as automated degree progress monitoring and data analytics and insights will help indicate when students may need help, and will allow our institutions to proactively help students navigate difficulties and barriers to their successful credential completion throughout their tenure at our institutions.

Goal #2: Erase Equity Gaps

A large percentage of the students enrolled at the three institutions face significant challenges that make degree attainment more difficult. These include many factors, including coming from low-income households, being the first in their families to seek a degree, and representing communities historically underserved by colleges and universities. Further, Adams State University is a federally designated Hispanic Serving Institution (HSI), and Fort Lewis College is a designated Native American Serving Non-Tribal Institution, which clearly illustrates that our missions and operations are in full support of serving these student populations throughout their higher education pursuits. We currently work diligently to erase equity gaps in educational attainment rates that affect so many of our students. This project will enable our institutions to acquire a modern system with an intuitive user-interface and multilingual support so we are well positioned to continue erasing these equity gaps.

Goal #3: Improve Student Success

We expect to improve student success by acquiring and implementing a system with a modern and intuitive user interface with advanced mobile features, simplified all-in-one architecture, built-in student communication tools and by repurposing staff time now spent on manual, outdated processes. Modern ERP/SIS solutions are designed with the customers, our students, and faculty in mind, rather than the staff-centric design of our legacy system. New systems feature an intuitive interface and advanced mobile features that have the look and feel of mainstream commercial products (Amazon, Facebook, etc.), which allow students to quickly and easily take care of the administrative tasks required for successfully navigating to a degree. Modern systems are more comprehensive (all-in-one) so a student can apply for admission, register, get their grades, pay their bills, plan their degrees, and apply for graduation all within the same system and often entirely from their mobile device. Perhaps most importantly, by introducing a more capable system that includes modern features like workflow, document management, data visualization tools, analytics, self-service reporting, mobile device time entry, electronic signatures and other features, we will dramatically reduce the time required to do routine (often paper-based) tasks. This liberated time will be repurposed to focus on tasks and projects (retention, tutoring, advising, etc.) that contribute directly to student success.

Goal #4: Invest in Affordability and Innovation

Affordability: Modernizing our ERP/SIS system is expected to contribute to affordability by slowing the rate of cost increases by avoiding on-premise infrastructure costs, getting more value per dollar, allowing for ongoing collaboration, and reducing the need to compete for personnel.

By moving to the cloud, we avoid the costs of buying and maintaining servers, storage and other datacenter expenditures. The cloud services are subscription-based, allowing us to avoid the capital purchase of software licenses. We expect to get better value as modern systems are able to bundle what are now considered 'basic' components all in one system. Our legacy solution often requires paying extra for new components as well as paying for the consulting services to implement them, despite being in the same system. Over time, we have also had to acquire additional software for features the primary system did not have, or were slow to produce. Beyond the direct benefits of system modernization itself, by collaborating, we are able to realize some economies of scale that will further reduce our costs in the short and long term (see *The Partnership*). Finally, and the change that will likely have the greatest financial impact over time, will be the decrease in need to hire and retain the highly skilled and compensated employees that maintain and upgrade the complex combination of software and hardware needed to support the legacy system.

Innovation: By investing in modern cloud architecture, our ERP/SIS system will always be on the most current version, assuring our students and staff have access to innovative features and benefits in the shortest possible timeline. Our current legacy ERP system requires extensive effort from our IT staff to perform routine system and security patching and updating. Modern ERP systems eliminate this burden by performing all updates in their cloud-hosted environments. Further, new functionality and critical security updates are introduced and delivered to the system much more rapidly due to this new technology architecture.

D. PROGRAM INFORMATION:

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

This project will affect, to varying degrees, the entirety of all three institutions. Specifically, the core operations of our institutions including human resources (positions, benefits, timekeeping, etc.), finance (budgeting, accounts payable, accounts receivable, payroll, etc.), as well as the functions required for educating students (admissions, registration, financial aid, courses, scheduling, degree planning, faculty assignments, transcripts, degrees), and other tasks involved with managing the matriculation, education, graduation and ongoing relationships with our students and alumni. Additionally, the entire digital experience for students and faculty will be modernized and improved through the new system.

E. CONSEQUENCES IF NOT FUNDED:

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

Adams State University, Fort Lewis College, and Western Colorado University face many challenges due to our small staff size, available resources and rural locations. If this project is not funded, in the short term we will continue with business as usual, with the disadvantages outlined above. Compounding these problems, the ERP/SIS industry is moving to a cloud-based model due to the many benefits and advantages that it affords. If we are unable to take advantage of this new technology paradigm, we will struggle to remain competitive as the majority of new development and improved tools and functions will be for cloud users.

Without funding, given the inevitability of the industry migration to the cloud, this project will remain a looming challenge for our respective institutions. At some point in the near future, we will be forced to look at other options for acquiring funding independently, including raising tuition, pursuing a bond, increasing student technology fees or spending reserves. This would lead to higher expense and further loss of efficiency by remaining with our legacy system for a longer time period. Increasing tuition or fees would be contrary to the goal of affordability and would negatively affect the competitiveness of our institutions. Spending reserves or issuing debt to pay for this transition would place our institutions at higher levels of financial vulnerability, increasing the likelihood of negative impacts on our financial ratios, bond ratings and institutional accreditation.

F. ASSUMPTIONS FOR CALCULATIONS:

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

The project costs are based on budgetary estimates obtained from the Spring 2019 Request for Information (RFI), which included a request for budgetary estimates of ongoing and implementation costs. Six potential vendors responded to the RFI with preliminary cost estimates for annual recurring costs and overall implementation cost estimates. We aggregated and reviewed the results, and are confident that the amount requested is sufficient to complete the project once a final vendor selection has been made. As we continue to gather and review information, we anticipate having more precise estimates. Current estimates provided in the cost worksheet assume that we would enter into a contract at the stated rate, which would not have any variable inflation costs.

G. OPERATING BUDGET IMPACT:

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

There is no expected impact on operating appropriations for each institution. By the end of the project, the current expenses of the on-premise legacy systems will be replaced by the ongoing subscription costs of the cloud-based systems. No additional FTE will be required to operate the systems, however, some FTE will be repurposed to work on strategic initiatives and priorities.

H. PROJECT SCHEDULE:

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

	Start Date	Completion Date
Pre-Design	**Present**	**March 2020**
Phase 1 of 2: HR/Finance	**July 2020**	**June 2021**
Phase 2 of 2: Student	**July 2021**	**June 2023**
Finalization	**July 2023**	**June 2024**

I. ADDITIONAL INFORMATION:

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

***Direct Cost Savings**:*

In the short term, there will be little in the way of direct cost savings as most of what we currently spend on our ERP/SIS will be redirected into the new system. Into perpetuity, we will realize substantial cost avoidance for infrastructure and personnel costs associated with maintaining an on-premise solutions.

Improved Performance Outcomes:

Operational efficiency and effectiveness. We expect an increase in overall operational efficiency from moving to the cloud, adopting a more inclusive solution, improving flexibility and extensibility, and modernizing the user interface to a more robust, intuitive and user-friendly experience.

By moving to a cloud-based system, we dramatically reduce the time required for upgrades, managing performance, security, database management and infrastructure maintenance. The cloud model assures we are always using the most current version, so we gain the benefits of improvements immediately.

By adopting a more inclusive solution with nearly all the basic functions needed to effectively manage an institution in one place, we reduce the need to maintain complex integrations, simplify data management, improve access to data for decision makers, simplify reporting, and decrease the number of applications our end users need to learn.

By moving to a solution with a more modern and intuitive interface, employees will be more productive faster with less training (less ongoing functional training costs) and will no longer need to supplement the ERP/SIS with external systems (e.g. MS Excel) to make the data useful to non-expert users (executives, managers, faculty, etc.). Newer ERP systems typically include report and workflow libraries and templates based on best-practices that enable easily created and configured workflows and automation.

Specific examples of areas we expect to realize improvement include:

- At Adams State University, several opportunities for significant improvement over our current processes exist. Most significant would be through taking advantage of a modern system with built-in workflow and business process automation functions. Currently, we process a significant amount of work through paper-based processes, such as hiring forms and approvals, purchasing approvals, travel, and many more. Modern ERP systems, combined with best-practice implementation and collaboration with Fort Lewis and Western would greatly reduce the time and effort required to process these basic administrative functions. With respect to our students, a new and modern interface that is intuitive and mobile-device friendly would greatly improve their experience and satisfaction with our services as they progress through their academic journey. Our campus support staff would be able to locate the information students need much more quickly through the new system, which would allow more meaningful interactions with students regarding their academic progress and future versus the significant time it takes to help students within our current legacy ERP. This benefit links strongly with our institution-wide initiative, the “Adams Experience.” Also, ASU would realize a significant efficiency improvement by taking full advantage of the cloud software-as-a-service (SaaS) architecture of a modern ERP system. Currently, a significant level of effort and time is required by our highly technical staff on building, upgrading, testing, securing, and integrating other systems with our legacy ERP. These positions are exceedingly difficult to fill, and often remain open for months, if not years. By moving to a modern system and vendor who performs these tasks, our staff would be able to focus their talents and efforts on ASU-specific projects and initiatives that may have a much more significant impact on the recruitment and retention of our students. Lastly, ASU has been unable to afford some of the additional “bolt-on” and

third-party systems that integrate with our legacy system, such as robust analytics and business process workflow tools. Implementing a modern ERP/SIS system that has these services and features built-in would greatly improve our toolset and abilities to more effectively operate our institution and support our students.

- At Fort Lewis College, we utilize several products to manage the student curriculum and student experience. This can lead to confusion and inconsistent information for the student. The modern systems include as a core feature, degree auditing and curriculum management. Once a student maps out a degree path, that information is easily displayed to the student keeping them on track to completion. The degree paths are then used as data to predict future class sizes and faculty needs, offering students the classes when they need them in their academic career. This also facilitates registration of classes for students, giving them the option to easily choose classes which meet their timelines and objectives while efficiently keeping them on track to graduate. The systems also facilitate curriculum development, giving the administration the information necessary to design new classes and curriculum and to model changes in the curriculum. Besides curriculum management, the modern systems also include student success incorporated into the core product verses adding on as an additional product. The student success functionality provides both the student and administration key indicators on a student's progress and allows the college to proactively help students to achieve their academic and professional goals. This provides for a better student experience, student retention, and increased administrative efficiencies.

- At Western, we currently manage expense reimbursement through a cumbersome paper process that takes several days to more than a week to complete. It often requires days in inter-office mail being routed for signatures, getting to accounts payable. It is not uncommon for the paper documents to go missing and the process restarted. A modern solution, leveraging a mobile app, digital workflow and digital document management could easily reduce the time it takes to complete the same process by 90%. In addition, the accountability is far improved and the data and supporting documents (digital photo of receipts) are stored together. We have dozens of similar processes (employee onboarding, changing academic majors, requesting accounting changes, etc.) that can be made more effective. In addition to specific process examples, Western currently maintains a complex separate set of systems to provide reporting, analytics and dashboarding. Any new solution we select will include that functionality natively, eliminating the maintenance of those systems and allow Western managers access to an intuitive reporting and analytics tool they can use to better manage their areas using real time data.

As the ERP/SIS so broadly affects the institution, is difficult to precisely quantify an estimate of the impact of improvement. However to put it into perspective: ASU, FLC and Western employ about 761 staff and 420 faculty. Accounting for variations in contract length, the institutions combine for 2,236,520 work hours per year. For every 1% increase in efficiency, we realize 25,214 work hours, or approximately 10.75 FTE (see table below). In their RFI responses, some vendors claim efficiency increases in selected areas of up to 90%. We do not think it is unreasonable to expect efficiency gains on the order of 5% campus-wide, freeing over 100,000 work hours that will be dedicated to more valuable activity and progress toward our respective strategic goals.

Hours returned annually by increasing the efficiency of the combined workforce of the partner institutions.

Efficiency Improvement	Hours Returned (annually)
1%	25,214
3%	75,642
5%	126,070

Student Success:

Modern, cloud-based, intuitive solutions with sophisticated mobile apps, will simply make it easier for students to navigate the complexities of a higher education institution. They will apply for admission, register for classes, plan their degrees, access their schedules, pay their tuition, apply for graduation, and request their transcripts all through one system, often using only their phone. Beyond the direct impact afforded by ease of use, modern solutions include tools that improve communication with the students, helping the institution engage more readily and recognize students that need assistance. By utilizing the integrated analytics capabilities, early analysis of risk factors may lead to successful interactions with students, enabling them to be more successful in their pursuit of a degree at our institutions. More details toward improving student success are outlined in Section C, Alignment with Colorado Rises Higher Education Master Plan Goals.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

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

Data Protection:

Modern cloud systems are designed with data protection as a core design principal. Data is encrypted:

- At rest while stored in the database and auxiliary storage. Backups are encrypted by the vendor, relieving the customer of this responsibility and workload.
- In transit while moving between servers, over the network and to the end user.
- In use by the end user devices through industry standard encryption and certificates.

Data is protected:

- From unauthorized use and display by security roles. Security roles reduce the complexity of data administration, by reducing the complexity, manual mistakes are eliminated and the workload to maintain proper data authorization is greatly reduced.

Data is logged:

- Systems are capable of effectively logging and reporting on every interaction with the data, be it creating, viewing, updating, or deletion.

Disaster Recovery:

Modern cloud systems are architected with disaster recovery as a core design principal. Data is replicated and distributed between physical data centers, which are geographically disbursed. Data replication assures that minimal or no disruption of services occurs when inevitable problems or failures arise. The cloud vendors are responsible for the ultimate disaster recovery backups, which are contractually guaranteed. Due to the cloud service, should a major disaster happen at an institution, the systems would continue to operate as normal.

Cybersecurity Impacts:

For a cloud vendor, security is core to the business model. The vendors have security teams much larger than any individual college or university. In a multitenant cloud or Software as a Service (SaaS) environment, all customers are impacted and benefited by the security measures of the system. The vendors regularly monitor, test, and update the system at a pace far greater than individual colleges and universities are capable of. This increased security at the system and application levels reduces the workload of the colleges and universities, allowing them to redistribute that effort to other areas such as cyber security awareness training and compliance.

Compliance:

The modern cloud systems are compliant with the multitude of compliance regulations to which higher education is subject. These include FERPA, HIPAA, PCI, Sarbanes-Oxley, Red Flag, ADA and many others. The vendors' responsibility is to maintain compliance and upgrade, test and implement the compliance features. Because the vendors are upgrading the systems on a regular basis, this removes the burden from the institutions to implement and maintain the upgrades. Compliance is attained faster and easier than our current on-premise systems.

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	Pros	Cons

Stay with current system and vendor	• Well-established vendor with long track record in higher education • Current market leader • Well understood by functional and IT staff • Widely used by our peers in Colorado and nationwide • Mature, functional product • Peer support system in place	• On-premise solution • Requires skilled personnel to update and manage whom are currently expensive and scarce • Incomplete base system that requires either 'bolt-on' external system or purchase of additional modules • Additional functionality expensive to purchase, configure and maintain • User interface is dated and unintuitive for new personnel • Requires expensive functional training for users to be proficient • Legacy design (application + database) requires separate management and expense • Analytics must be handled externally • Experiences with poor documentation and vendor support being unable to provide required security features or resolution to major errors in their system in a timely or complete fashion • Turnover in the vendor's support structure • Large number of defects and bug-fixes, requiring on-site IT staff to perform continual updates to keep product functioning • Minimal out-of-the-box reports; creating and modifying reports requires an external report writing product or IT support

Move to the cloud with existing vendor	• Well understood by functional and IT staff • Additional functionally included in baseline offering • Cloud architecture • Application always up to date • Predictable costs	• Larger operational cost • Feature parity between old and new system is not exact and will require training • User interface remains dated and unintuitive • "Bolt-on" products must be reintegrated • Missing features which require purchase of additional products limited to ones provided by vendor • IT staff must learn new architecture • Must migrate to 3rd party systems supported by vendor • Migration is costly and time consuming • Implementing a very large IT project is difficult and poses a risk to the institution • Experiences with poor documentation and vendor support being unable to provide required security features or resolution to major errors in their system in a timely or complete fashion • Turnover in the vendor's support structure • Large number of defects and bug-fixes requiring continual updates to keep product functioning • Minimal out-of-the-box reports; creating and modifying reports requires an external report writing product or IT support
Move to the cloud new vendor	• Modern underlying technology • Contemporary user interface • Cloud architecture • Intuitive user interface (less functional training cost) • Fully integrated ERP and SIS solution by design • Predictable costs • Baseline product has far greater functionality • Implementation of best practices in all business processes enabling more efficiency for functional users • Integrated analytics for data informed decision making • Enhanced cyber security and compliance	• Entire campus must learn new system • IT staff must learn new architecture • Migration is costly and time consuming • Implementing a very large IT project is difficult and poses a risk to the institution • Products not replaced by new system must be integrated

	• Future proofing for new technologies such as artificial intelligence and machine learning • All three universities gain advantage of pooling resources and know-how among institutions allowing for further collaboration • Report and workflow libraries and templates based on best-practices that enable easily created and configured workflows and automation	

Overrun Prevention:

Information technology projects of this size are difficult, complex, expensive, and the path to success is less predictable than in a typical construction project. We have identified the primary risks to this project that fall in the following categories; leadership, vendor, operational and external.

Leadership Risk: This project will be sponsored at the Cabinet and Board level. The implementation team will provide regular reports to the Cabinet and/or the Board of Trustees. The President will inform and formally charge the campus to dedicate the time and resources necessary to complete the project. The respective CIOs will be accountable for the project completing on time and within budget.

Vendor Risk: To mitigate vendor risk, we will select vendors that have been in business for at least 10 years, have at least 50 higher education clients, have a stable or increasing market share and sufficient assets to persist for at least 10 years. We will hire an outside consultant to assist in building the final Request for Proposal and during the contracting process. Additionally, we have included funds (contingency) to deal with insufficiencies in the vendor's product that were not anticipated.

Operational Risk: To offset operational risks, we will hire only the most experienced consultants, recommended and backed by the vendor we select, to manage the implementation. Working with the consultant, we will develop a comprehensive project plan and timeline with specific milestones. These consultants are expected to provide a dedicated certified professional project manager for the duration of the project. Adams, Fort Lewis, and Western will each dedicate a member of our respective staffs to project management. Also requested in our proposal are funds to hire temporary staff to backfill key positions at each institution.

External Risk: Examples of external or objective risks include unexpected drop in enrollments, sharp reduction in operational funding or unanticipated changes in state or federal requirements. As the vast majority of this project will be outside our respective institutional budgets, this project should be buffered.

Alignment with IT Strategic Plan:

Adams State University: The IT Strategic Plan for Adams State University for 2016-2020 has two overarching strategic initiatives that are directly in alignment with the goals of this project: Operational Innovations and Campus Engagement.

- *Operational Innovations:* Initiatives related to the continual evaluation and implementation of technology to gain efficiency, improve performance, increase security and improve automation of our existing infrastructure and core services.

- *Campus Engagement:* Initiatives done in partnership with campus constituents to identify new technologies and systems and transformative changes to existing services.

As detailed above, by modernizing our ERP/SIS system, ASU is positioned to truly transform our operational environment by taking advantage of the numerous technical and business process transformations that occur when implementing a modern ERP solution. Throughout the project thus far, Adams State University faculty, staff, and students have been active in our conversations and early investigations into ERP solutions. ASU has gathered feedback directly through surveying, department meetings, system user meetings and campus-wide open forums. Involvement by the Executive Council and the President's Cabinet at the University has been clearly defined and articulated for the project, and ongoing communication throughout the project so far has been in place.

Fort Lewis College: Implementation of modern cloud-based systems highly aligns with the four pillars of the Fort Lewis College Strategic plan. Examples include:

- STUDENTS AT THE CENTER: Modern SIS systems are designed to meet the needs and expectations of today's students. They are mobile friendly and work on any device the students own. They are intuitive to use and are built using modern interfaces which students are familiar with. They use common language, instead of saying "Bursar Hold" they say, "you have a bill to pay at the cashier's office." They have degree planning systems integrated into the core of the system, allowing students to plan out their degree, easily compare degree paths between majors given the courses they have completed. They automate and simplify tasks such as registering for classes, making payment or allowing parents to see their grades and pay their bills. Modern systems have student success built into them, they allow advisors, faculty and support staff to immediately engage students in ways which students expect and respond.

- KNOWLEDGE AS ACTION: Modern SIS systems are integrated with the Learning Management Systems (LMS) such as Canvas. They allow for data to easily move from the LMS to the analytics and student success engines of the SIS. They empower students to explore their degree paths and understand the academic options available to them. The systems can allow the College to become nimble in providing new curriculum, certificates, badges and non-traditional credentials. Analytics is built into the core of new systems, tracking and reporting and monitoring data in ways which are not easily accomplished today.

- COMMUNITY AND REGIONAL PARTNERSHIPS: The collaboration between Fort Lewis College, Adams State University, and Western State University is expected to pave the way for future collaboration in other areas. The implementation of the new system will provide internship opportunities for students with the implementation partners and industry using the same vendor software.

- SYSTEMS TO FACILITATE SUCCESS: A modern HR, Finance and Student Information System will directly support the initiatives related to Systems to Facilitate Success.

- Build an evaluation dashboard (collecting and using data) into all initiatives
  - Analytics are built into the new systems with dashboard capability on all reports and pages. Dashboard creation and data tracking is standardized and simplified.
- Create systems to streamline communications to students
  - Student dashboards and mobile applications are native to the new systems and provide real time updates and information to the students. Information is delivered to the students when and how they choose to have it delivered.
- Build capacity to better understand the quality of FLC academic programs and improve tracking of students
  - The new systems are one data source or database which facilitates tracking and reporting of students. The systems are capable of consuming external data to add to the existing reporting and dashboards. Functionality such as calculating the cost of instruction is included with most of the systems.
- Develop systems to leverage knowledge across campus
  - The new systems are one data source which makes available the same data to everyone with appropriate authority to view the data.
- Review communication processes to eliminate redundancy and better align current policies
  - The individual student and employee dashboards provided with the systems allow for a common and consistent communication method. The new systems have automated workflows and consistent processes to compliment College policy.
- Provide consistent training to all faculty and staff
  - The new systems automate the on-boarding of employees from the time they submit an application through employment. Training is automatically assigned and tracked through the systems.
- Develop evaluation and compensation systems that align with the College's goals
  - The new HR systems have best practices functionality built in for compensation and evaluation systems. Tracking is done within the systems eliminating manual forms and processes.

Western Colorado University: Implementation of a modern ERP/SIS broadly aligns with the Western Colorado University 2018-2023 strategic plan by freeing up time spent on inefficient processes to be repurposed on strategic initiatives. This project specifically aligns with Goal 3: Student Experience and Goal 4: Fiscal Sustainability.

- *Goal 3: Student Experience*
  Enhancing the student experience is critical to student success at Western. Capitalizing on the strengths of the University, Western will continue to develop and provide challenging engagement-oriented programming and supportive services for students that will assist in successful academic, leadership and career achievements. In coordination with Goal 2, outcomes for this goal include Western achieving retention rates and graduation rates at or above peer averages. Metrics for student engagement and satisfaction with student support services will be developed in the first year of this strategic plan.

- *Goal 4: Fiscal Sustainability*

  Western embraces growth as measured in a variety of ways, including growth in enrollment, in our program offerings, in student services, in the institution's benefit to the community and the state of Colorado, and in the people who engage with us to support the institution. Western will improve fiscal sustainability by growing revenue and capturing operational efficiencies. Outcomes for this goal include Western maintaining operational efficiencies below our peer average as measured by the percentage of administrative costs to total costs. Western will also measure growth in total number of gifts received and total funds raised.

Combined Institution Signature Approval for Capital Information Technology Project Request

Project Title: Digital Transformation Initiative for Rural Higher Education: A collaboration of Adams State University, Fort Lewis College, and Western Colorado University

Below, please find the Institutional Signature Approval from each of the three partner institutions for this collaborative project. These signatures indicate approval from each respective institution for the following project request forms:

CC_IT-5P	Five-Year Capital Information Technology Renewal Plan
CC_IT-N	Information Technology Project Request - Narrative
CC_IT-C	Information Technology Project Request - Cost Summary

Institution Signature Approval:

Adams State University: _____ Date: 6/7/19

Heather Heersink, Chief Financial Officer

Fort Lewis College: _____ Date: 6/7/2019

Steve Schwartz, Vice President of Finance and Administration

Western Colorado University: _____ Date: 6/7/19

Brad Baca, Executive Vice President, Chief Operating Officer

Please contact: Kevin Daniel ksdaniel@adams.edu, Matt McGlamery mcglamery_m@fortlewis.edu or Chad Robinson crobinson@western.edu with any questions or concerns.

NETWORK SECURITY AND RESILIENCY, COLORADO MESA UNIVERSITY

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 6/18/2019

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

(A)	(1) **Funding Type (Cash, CCF, Cash & CCF):**	**State Funded**	(2) **Intercept Program Request? (Yes/No):**	No
(B)	(1) **Institution:**	Colorado Mesa University	(2) **Name & Title of Preparer:**	Laura Glatt, Vice President for Finance and Administration
(C)	(1) **Project Title:**	Network Security and Resiliency Project	(2) **E-mail of Preparer:**	lglatt@coloradomesa.edu
(D)	(1) **Project Phase (__ of __):**	Phase 1 of 1	(2) **State Controller Project # (if continuation):**	N/A
(E)	(1) **Project Type (CC or CR):**	Capital Construction (CC)	(2) **Institution Signature Approval:**	Laura Glatt 6/10/2019
(F)	(1) **Year First Requested:**	FY 2020-21	(2) **CDHE Signature Approval:**	L. E. Jones 6/18/19 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	$ 14,233	$ -	**$ 14,233**	$ -	$ -	$ -	$ -
(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***	**$ 14,233**	**$ -**	**$ 14,233**	**$ -**	**$ -**	**$ -**	**$ -**
	Equipment							
(28)	Servers	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ 2,458,184	$ -	**$ 2,458,184**	$ -	$ -	$ -	$ -
(32)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(33)	Miscellaneous	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 2,458,184	$ -	**$ 2,458,184**	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	**$ 2,472,417**	**$ -**	**$ 2,472,417**	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(36)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	**$ 2,472,417**	**$ -**	**$ 2,472,417**	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 2,249,898	$ -	**$ 2,249,898**	$ -	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 222,519	$ -	**$ 222,519**	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	TOTAL	**2,472,417**	**-**	**2,472,417**	**-**	**-**	**-**	**-**

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$2,249,898**	
Cash Fund Amount (CF):	$222,519	
Funding Type:	State funded	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Colorado Mesa University	
Project Title:	Network Security and Resiliency Project	
Project Phase (Phase _of_):	1 of 1	
State Controller Project Number (if continuation):		
Project Type:	X	Technology Hardware
		Technology Software
Year First Requested:	FY 2020-21	
Priority Number (Leave blank for continuation projects):	1 OF 1	
Name & Title of Preparer:	Laura Glatt, Vice President for Finance and Administration	
E-mail of Preparer:	lglatt@coloradomesa.edu	
Institution Signature Approval:	Laura Glatt	6/10/2019
OSPB Signature Approval:		Date
CDHE Signature Approval:	L. E. K	6/18/19 Date

A. PROJECT SUMMARY/STATUS:

Colorado Mesa University is requesting state funds to modernize the University's network to enhance resiliency, security and performance. The project improves the University's position to provide student and faculty reliable networked services by performing the following upgrades to the entire network core and campus network backbone:

- Upgrade the core network switch and add redundant top-of-rack 40 Gigabit Ethernet (GbE) switches to increase connectivity to virtualized server environments;
- Upgrade the main campus local area network backbone to 10GbE with redundant links to most buildings; and
- Upgrade edge switches in residence halls to upgrade all device ports to 1GbE with advanced features to support dynamic port segmentation for increased personal device security.

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)	$2,249,898	$0	**$2,249,898**	$0	$0	$0	$0
Cash Funds (CF)	$222,519	$0	**$222,519**	$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)	**$2,472,417**	**$0**	**$2,472,417**	**$0**	**$0**	**$0**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

Colorado Mesa University is proposing a project to replace a large-scale modular switch and add fixed-port switches in server enclosures for connecting virtualization servers running critical applications. Currently, the University runs an older Cisco 6509 core network switches to provide 1GbE connectivity in the datacenter to critical servers and 1GbE single path connections to buildings. This project upgrades the core network switch in the primary datacenter and adds a redundant core network switch in a secondary datacenter and installs redundant 40GbE capable switches to one enclosure in each datacenter. The new network architecture adds redundant backbone network links to campus buildings and extends network security enhancements to the building edge enabling the University to leverage its investment in HPE/Aruba ClearPass.

Currently, the University funds a single core network switch in its primary datacenter. This past year, a water incident impacted the core network switch, causing several buildings to go offline for most of a day. Redundant line card ports in the core network switch limited the effects of the water damage, but the need for higher network redundancy was identified. The University has determined with an increasing number of network-attached devices and internet-based services that network availability is a critical factor to student and faculty success inside and outside of the classroom. Further, the University needs to increase the network capacity to keep up with the growing number of networked devices, with the majority of students bringing two plus devices to campus, and the increase of network bandwidth released with wireless standards and increases in media file size and resolutions.

This project upgrades the core network switch and the campus network backbone to support redundant 10GbE links to each building IT room. The core network switch upgrade comprises of upgrading the core network in the primary datacenter and adding a redundant core switch in the secondary datacenter with dual 40GbE links between them. Installing two pairs of top-of-rack switches to support 40GbE connections to the enclosures of the University's primary and backup virtualized server environments is part of the core network switch upgrade. The campus network backbone includes purchasing 150 building switches to support redundant 10GbE links from each building IT room back to the core network switch to increase network capacity and resiliency by eliminating most single points of failure. The residence hall building switches will be installed in a network ring topology to further reduce the potential of a building network outage. The University has already implemented redundant Internet connections with two separate Internet service providers. However, the second Internet provider enters campus near the secondary data

center and connects back to the core network switch in the primary data center. As a result of the core network switch upgrade, the University would have fully redundant network connections to the Internet to support students, faculty and staff.

By upgrading edge switches in residence halls with the network core, the University will support HPE/Aruba's Dynamic Segmentation and add the capability of pushing firewall rules out closer to clients for added security. A total of 151 network switches that support the manufacturer's latest security enhancements, associated inter-switch cabling and optical interfaces, and required Aruba Mobility Controller and AirWave Management licenses would be purchased to deploy advanced Dynamic Segmentation security features and add 10GbE to residence halls. The University already uses Aruba Mobility Controllers with ClearPass software to improve Bring Your Own Device onboarding and device management. The Aruba ClearPass software dynamic network port segmentation, or colorless ports, enables us to isolate wired user devices that connect to the University's Local Area Network (LAN). Thousands of devices connect daily to online services through the University LAN such as smart TVs, gaming consoles, laptops, and Internet of Things (IoT) devices as well as an increasing number of Power over Ethernet (PoE) devices like security cameras

D. PROGRAM INFORMATION:

Every CMU administrative and academic program will benefit from this funding request. The main beneficiaries of the project will be students and faculty inside and outside of the classroom, whether in their residence hall or studying in a group study room, computer lab or research lab.

Overall the University campus community will benefit from:

- Improved network security. New security methodologies and features that have been limited in the past by hardware or firmware restrictions will be utilized to enhance the security stance of the network environment. For example, with the deployment of a HPE/Aruba homogenous network security features will be pushed out to edge switches where clients connect.
- Improved network uptime. Network redundancy will be significantly extended and in some cases redesigned in order to provide a more robust network with failover protection and improved uptime metrics. In addition to providing end users a more consistent experience and more reliable access to online services such as learning management systems, the upgrade has safety implications with improved Voice-over-IP calling availability in the case of equipment failure.
- Improved network performance. Additional network capacity will provide improved network data speeds as bandwidth needs increase due higher resolutions and larger media files, the number of devices connecting simultaneously to the network, and larger research data set computations and analysis. The time to deploy curriculum software to classrooms and labs through central computer imaging applications will also improve.
- Improved user experience. Student, resident and commuter, will connect to a home-like experience without sacrificing the security of the enterprise network. Students and visitors will access network services more quickly and with easier device registration.

The University's Information Technology Department will benefit from:

- Improved network management tools and the ability to push configurations with advanced security feature sets to the network edge.

- Improved network visibility of network equipment and devices connecting to the University's LAN.

This project supports the following Higher Education Master Plan goals:

- Increase Credential Completion and Improved Student Success. The University feels strongly that meeting student technology expectations, including providing necessary bandwidth and information security, is critical to a student's success at the institution and attaining a degree.
- Invest in Affordability and Innovation. The University understands the importance of adding network capacity—ultimately removing obstacles to online instructional material, research opportunities and progressive learning environments like virtual classrooms—to be critical to the development of modern learning techniques. As the University creates these new pedagogical methods of teaching for the 21st century learner, fast and reliable connectivity will be critical to the development of these modern teaching environments and to the student's learning experience.

IT Health, Security and Industry Standards

The IT systems associated with this project are fully supported by developer: Hewlett Packard Enterprise (HPE)/Aruba Networks is a recognized provider of security network solutions that has a strong adoption rate amount universities and colleges. The hardware specified with this project is fully supported and not at its end-of-life.

Cybersecurity of IT systems/devices associated with project is up to industry standards: HPE/Aruba Networking solution and security components deployed with this project, with its range of secure network hardware and network access control policy management, will help the University follow industry best practices and mitigate its overall risk with respect to information security. The more advanced security methodologies and features, that have been limited in the past by CMU's hardware or firmware, will be utilized to enhance the security stance of the University's network environment. For example, with the deployment of a HPE/Aruba homogenous network, security features will be pushed out to edge switches where clients connect.

Articulates how project fits in with current disaster recovery system: This project will improve overall network resiliency by providing redundant network and security services for the campus in the case of equipment failure. The CMU disaster recovery stance will also be enhanced by allowing automated failover to equipment with little to no interruption for the students, faculty and staff.

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): Currently, the University funds a single core network switch in its primary datacenter. This past year, a water incident impacted the core network switch, causing several buildings to go offline for most of a day. Redundant line card ports in the core network switch limited the effects of the water damage, but the need for higher network redundancy was identified. The University has determined with an increasing number of network-attached devices and internet-based services that network availability is a critical factor to student and faculty success inside and outside of the classroom.

Project has life safety function: In addition to providing end users a more consistent experience and more reliable access to online services such as learning management systems, the upgrade has safety implications with improved Voice-over-IP calling availability in the case of equipment failure.

Other Fund Sources
CMU is able to contribute 9% to the cost of the project.

Quality of Planning/Proposal
Cost-benefit analysis performed with positive outcome: Direct cost savings resulting from this project are difficult to estimate, the additional equipment and associated maintenance agreements would result in additional cost to Colorado Mesa University. However, the enhancements and service expansions are significant. The requested equipment would allow Colorado Mesa University to improve the security of the network and therefore provide a more secure environment of the user base. In addition, the redundancy and performance of the network would be improved with the implementation of more feature rich equipment. The integrated communications of the institution would specifically be improved due to the throughput increase afforded by the new equipment and the resiliency of the structure supporting communication.

Proposal articulates how the project fits in the with institution's strategic IT plan: CMU's 2016 Technology Master Plan establishes six major technology initiatives to help the University meet its strategic goals. Three of these technology initiatives are supported by the proposed Network Resiliency and Security Upgrade project: 1) Advance information security programs and business continuity planning; 2) Expand the digitization of content and services in support of the 21st century teacher/learner; and 3) Improve access to online services regardless of physical locations and time of day. The upgrade to a fully redundant network core and campus network backbone will improve the University's ability to provide students, faculty and staff access to online content and service with little to no downtime and with the data bandwidth they need for their academic success. Expanding the use of Aruba ClearPass by deploying edge switches capable of supporting the latest advanced security features and Dynamic Segmentation is essential to the University's commitment to the end user's online experience and the security of information to include the security and management of user devices whether wired or wirelessly connected.

Alternatives analyzed: Several of the most prominent network hardware manufactures were reviewed, and a short list of vendors provided hardware evaluation units to assist in determining the future direction of the campus network infrastructure.

Proper measures in place to prevent time and cost overruns: Colorado Mesa University developed the cost of the project around its existing HPE/Aruba network environment which it includes Aruba wireless infrastructure—Mobility Controllers, Wireless Access Points, and Airwave Management software—and Aruba ClearPass network access control solution. Appropriately negotiated discount levels were reflected in the budgetary pricing resulting in lower price points than the State, Local and Education (SLED) government pricing agreement, commonly used by state institutions, to realistically determine the overall cost without overestimating the cost of the project. The University expects to receive additional quantity discounts when the project is bid to authorized resellers of the specified equipment. Smaller items such as inter-switch connections and SFPs are included but there will undoubtedly some small ancillary components that will have to be purchased. These components will be covered by final volume discounted pricing. In addition, internal expertise will be utilized for the installation and configuration of the equipment to avoid contracting costs.

Proposed project is cohesive and is not a combination of smaller, unrelated projects: This funding request is based on the existing need for network improvement and resiliency as a single initiative. The funding

request is designed to accommodate the availability of staff and therefore, some separation of the project into managable sections is to be expected.

Clear Identification of Beneficiaries
This project will meaningfully affect anyone using internet on campus, all students, all faculty, all staff members, visitors to the campus as well as joint CU-Boulder students, thereby involving multiple institutions.

The category, "visitors to campus," can include many groups who are not either students or employees. High school students who take a course on campus, compete in CMU's facilities, attendees of sporting and arts events, and prospective students and parents are all visitors to campus. This group also includes children and parents who visit the Eureka! Math and Science Center on CMU's campus. The John McConnell Math & Science Center of Western Colorado (Eureka!) is housed in CMU's Confluence Hall. Eureka! is a world-class center that integrates teaching and hands-on excitement into a science, technology, engineering and math learning environment encompassing students, educators, families and community. Eureka! not only contributes to CMU's mission to serve the university's 14-county region by bringing more math and science to K-12 students through sophisticated hands-on experiments and interactive presentations, but it also provides opportunities for university students to provide support and an opportunity for future K-12 teachers to receive hands-on experience. Finally, this group includes parents and children who use CMU's child care facility, Little and Mini Mavs, which use CMU's network for their surveillance cameras.

Overall the University campus community will benefit from:

- Improved network security. New security methodologies and features that have been limited in the past by hardware or firmware restrictions will be utilized to enhance the security stance of the network environment. For example, with the deployment of a HPE/Aruba homogenous network security features will be pushed out to edge switches where clients connect.
- Improved network uptime. Network redundancy will be significantly extended and in some cases redesigned in order to provide a more robust network with failover protection and improved uptime metrics. In addition to providing end users a more consistent experience and more reliable access to online services such as learning management systems, the upgrade has safety implications with improved Voice-over-IP calling availability in the case of equipment failure.
- Improved network performance. Additional network capacity will provide improved network data speeds as bandwidth needs increase due higher resolutions and larger media files, the number of devices connecting simultaneously to the network, and larger research data set computations and analysis. The time to deploy curriculum software to classrooms and labs through central computer imaging applications will also improve.
- Improved user experience. Student, resident and commuter, will connect to a home-like experience without sacrificing the security of the enterprise network. Students and visitors will access network services more quickly and with easier device registration.

The University's Information Technology Department will benefit from:

- Improved network management tools and the ability to push configurations with advanced security feature sets to the network edge.
- Improved network visibility of network equipment and devices connecting to the University's LAN.

In addition to the benefits to the CMU campus, this project will benefit CU-Boulder engineering students as well. CMU and CU-Boulder have jointly delivered a BS in Mechanical Engineering degree since 2012. CMU offers the first two years and CU-Boulder provides the last two years of the program, which are taught by CU-Boulder faculty in residence in Grand Junction. CMU and CU-Boulder added a joint Electrical and Computer Engineering (ECE) program, which started in Fall 2018. Because CU-Boulder delivers engineering courses on CMU's campus, this project will affect CU-Boulder faculty and engineering students.

Achieves Goals
This project supports the following Higher Education Master Plan goals:

- Increase Credential Completion and Improved Student Success. The University feels strongly that meeting student technology expectations, including providing necessary bandwidth and information security, is critical to a student's success at the institution and attaining a degree. In addition, this project specifically assists with online learning and the cybersecurity initiative recently funded by the State of Colorado.
- Invest in Affordability and Innovation. The University understands the importance of adding network capacity—ultimately removing obstacles to online instructional material, research opportunities and progressive learning environments like virtual classrooms—to be critical to the development of modern learning techniques. As the University creates these new pedagogical methods of teaching for the 21st century learner, fast and reliable connectivity will be critical to the development of these modern teaching environments and to the student's learning experience.

Governing Board Priority
This project is CMU's first IT priority.

E. CONSEQUENCES IF NOT FUNDED:

If the request is not funded, CMU will continue with the existing infrastructure until such time the funds become available to implement an improved solution. In the interim, the existing network availability and device protection will remain functional, but less than optimal. For example, each building will have one connection with no redundancy for business continuity protection and will be limited to pulling no more than 1Gb at any one time.

F. ASSUMPTIONS FOR CALCULATIONS:

CMU's Network Administrators engineered a network topology to provide the University a robust data network and provided detailed network switch and part counts to determine hardware quantities for preparing costs. Hardware and software quotes were received from a platinum-level HPE/Aruba Networks vendor to establish the cost of the project. The pricing is based on HPE/Aruba's State, Local and Education (SLED) government pricing agreement, commonly used by state institutions, to realistically determine the overall cost without overestimating the cost of the project. The University expects to receive additional quantity discounts when the project is bid to authorized resellers of the specified equipment. Smaller items such as inter-switch connections and SFPs are included but there will undoubtedly some small ancillary components that will have to be purchased. These components will be covered by final volume discounted pricing.

G. OPERATING BUDGET IMPACT:

This request will increase the operating budget for CMU due to the increase in equipment volume and associated maintenance costs. In addition, the enhanced feature sets and capabilities of new technologies will allow CMU to pursue additional network and security methodologies. However, this will also allow CMU to enhance the overall experience of the user base with improved network speeds as well as provide enhanced data protection. In addition, the university is prepared and has planned to address this cost within the budget.

H. PROJECT SCHEDULE:

CORE SWITCH	Start Date	Completion Date
Pre-Design		
Design/Implementation	January 2020	April 2020
Construction		
FF&E /Other		
Occupancy		

10GbE LAN Backbone	Start Date	Completion Date
Pre-Design		
Design/Implementation	February 2020	December 2020
Construction		
FF&E /Other		
Occupancy		

Edge Switches in Residence Halls	Start Date	Completion Date
Pre-Design		
Design/Implementation	June 2020	December 2020
Construction		
FF&E /Other		
Occupancy		

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:

Direct cost savings resulting from this project are difficult to estimate, the additional equipment and associated maintenance agreements would result in additional cost to Colorado Mesa University. However, the enhancements and service expansions are significant. The requested equipment would allow Colorado Mesa University to improve the security of the network and therefore provide a more secure environment

of the user base. In addition, the redundancy and performance of the network would be improved with the implementation of more feature rich equipment. The integrated communications of the institution would specifically be improved due to the throughput increase afforded by the new equipment and the resiliency of the structure supporting communication.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

This project will improve overall network resiliency by providing redundant network and security services for the campus in the case of equipment failure. The CMU disaster recovery stance will also be enhanced by allowing automated failover to equipment with little to no interruption for the students, faculty and staff.

L. BUSINESS PROCESS ANALYSIS:

Colorado Mesa University developed the cost of the project around its existing HPE/Aruba network environment which it includes Aruba wireless infrastructure—Mobility Controllers, Wireless Access Points, and Airwave Management software—and Aruba ClearPass network access control solution. Detailed network switch and port counts were used in the development of the project to determine quantity and type of network switches required to fully implement a redundant core network and campus network backbone and deploy advanced security features of the product line like dynamic segmentation.

Several of the most prominent network hardware manufactures were reviewed, and a short list of vendors provided hardware evaluation units to assist in determining the future direction of the campus network infrastructure. It was determined that a homogenous network environment with increasing network redundancy and capacity/performance, that improves network security, visibility of devices connected to the University's network, and ease of managing network equipment to be advantageous to the University. The network hardware and software components included in the cost of the project are fully supported by HPE/Aruba Networks.

The University's *2020 Strategic Plan* identifies the development of advanced learning opportunities that are innovative, integrated, experiential and interdisciplinary as critical to making CMU the university of choice for students, faculty and staff with an emphasis on academic excellence. To accomplish this, investments must continue in technology and digital resources that enable faculty to develop innovative pedagogical approaches to make learning more personalized, engaging and active for students. Moreover, appropriate access to online content and services in the age of being connected is paramount for the success of students and the University. For these reasons, the ability to meet student and faculty expectations of anytime, anywhere access to information is essential to the recruitment and retention of students and faculty.

CMU's 2016 Technology Master Plan establishes six major technology initiatives to help the University meet its strategic goals. Three of these technology initiatives are supported by the proposed Network Resiliency and Security Upgrade project: 1) Advance information security programs and business continuity planning; 2) Expand the digitization of content and services in support of the 21st century teacher/learner; and 3) Improve access to online services regardless of physical locations and time of day. The upgrade to a fully redundant network core and campus network backbone will improve the University's ability to provide students, faculty and staff access to online content and service with little to no downtime and with the data bandwidth they need for their academic success. Expanding the use of Aruba ClearPass by deploying edge

switches capable of supporting the latest advanced security features and Dynamic Segmentation is essential to the University's commitment to the end user's online experience and the security of information to include the security and management of user devices whether wired or wirelessly connected.

CLASSROOM AND CONFERENCE ROOM TECHNOLOGY COMMUNITY COLLEGE OF DENVER

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

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:	Community College of Denver	(2) Name & Title of Preparer:	Chris Arcarese, IT Director
(C)	(1) Project Title:	Classroom and Conference Room Technology	(2) E-mail of Preparer:	chris.arcarese@ccd.edu
(D)	(1) Project Phase (1 of 3):	Phase 1 of 3	(2) State Controller Project # (if continuation):	
(E)	(1) Project Type (CC or CR):	CC	(2) Institution Signature Approval:	Kathryn R. Kaoudis, VP Admin Services/CFO Date 5.8.2019
(F)	(1) Year First Requested:	FY 20-21	(2) CDHE Signature Approval:	6/17/19 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	$ 1,428,819	$ -	$ 475,223	$ 462,349	$ 491,246	$ -	$ -
(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%	5.00%	5.00%	0.00%	0.00%
(13)	***Total Professional Services***	$ 1,428,819	$ -	$ 475,223	$ 462,349	$ 491,246	$ -	$ -
	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	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(32)	Other (Specify) - AV Equipment	$ 5,631,393	$ -	$ 1,813,545	$ 1,851,078	$ 1,966,770	$ -	$ -
(33)	Miscellaneous	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 5,631,393	$ -	$ 1,813,545	$ 1,851,078	$ 1,966,770	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	$ 7,060,212	$ -	$ 2,288,768	$ 2,313,427	$ 2,458,016	$ -	$ -
	Project Contingency							
(36)	5% for New	$ 353,011	$ -	$ 114,438	$ 115,671	$ 122,901	$ -	$ -
(37)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 353,011	$ -	$ 114,438	$ 115,671	$ 122,901	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	$ 7,413,222	$ -	$ 2,403,206	$ 2,429,099	$ 2,580,917	$ -	$ -
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 6,968,429	$ -	$ 2,259,014	$ 2,283,353	$ 2,426,062	$ -	$ -
(41)	Cash Funds (CF) - 6%	$ 444,793	$ -	$ 144,192	$ 145,746	$ 154,855	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	7,413,222	-	2,403,206	2,429,099	2,580,917	-	-

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$2,259,014 (Phase 1 of 3)**	
Cash Fund Amount (CF):	**$ 144,192 (Phase 1 of 3)**	
Funding Type:	Cash & CCF	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Community College of Denver	
Project Title:	Classroom and Conference Room Technology	
Project Phase (Phase _of_):	1 of 3	
State Controller Project Number (if continuation):		
Project Type:	X	Technology Hardware
		Technology Software
Year First Requested:	FY 20-21	
Priority Number (Leave blank for continuation projects):	1 OF 1	
Name & Title of Preparer:	Chris Arcarese, IT Director	
E-mail of Preparer:	Chris.arcarese@ccd.edu	
Institution Signature Approval:	Kathryn R. Kaoudis, VP Admin Services/CFO	Date 5.8.2019
OSPB Signature Approval:		Date
CDHE Signature Approval:		6/17/19 Date

A. PROJECT SUMMARY/STATUS:

Community College of Denver (CCD) is requesting $7,413,222 to replace, update, and standardize the College's classroom technology and conference room technology. We will implement the project in phases over 3 years. The project will enable innovation in teaching, standardize teaching and conferencing technology and refresh outdated equipment. In the words of students "the projectors are super old and half the time don't work."

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)	$6,968,429	$0	**$2,259,014**	$2,283,353	$2,426,062	$0	$0
Cash Funds (CF)	$444,793	$0	**$144,192**	$145,746	$154,855	$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)	**$7,413,222**	**$0**	**$2,403,206**	**$2,429,099**	**$2,580,917**	**$0**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

The Community College of Denver (CCD) is faced with aging and inadequate classroom and conference room technology while trying to meet changing needs of our students, faculty, and staff. Many of our faculty are already working to innovate in our classrooms and meeting significant barriers because of aging classroom technology offerings. The Classroom and Conference Room Technology project will replace and/or upgrade a majority of equipment in our 170 classrooms across 3 campuses. The project will include classroom projection, collaboration, audio and switching equipment. The increased capabilities include distance learning technology, wireless projection, instruction capture, digital whiteboards, and "BYOD" (bring your own device) connectivity to facilitate exchange of information in the classrooms.

This project directly impacts aspects of 4 goals in the 2017 CDHE Master Plan. CCD is strategically positioned to address these goals. This project will help CCD in efforts to address credential completion, student success, affordability and innovation, and the equity gaps in higher education. The project will address aspects of these concerns because it is in direct support of classroom function and capabilities. Faculty are working to improve teaching by utilizing more active learning in the classroom and need to be supported in those efforts.

The Educause Learning Initiative (ELI) wrote about why emerging technologies are significant for teaching and learning spaces in "7 Things You Should Know About Emerging Classroom Technologies" in April 2018.

> *"Emerging technologies for teaching and learning spaces are significant in three broad ways. First, they nurture further movement away from a "sage on the stage" model to one of collaboration and deeper student engagement in learning. Software that converts writing on whiteboards to digital form, for example, encourages learners to be co-creators of content and enables better interaction in group work. Second, they facilitate new, more vivid learning experiences, such as those that can be created using AR and VR and that enable students to experience places they could not otherwise visit. Third, their potential to improve cognition and engagement can enhance learning."*

Areas of impact for this project:

- *Simplify classroom technology and increase reliability to reduce loss of instruction time.*
- *Enable innovation or use of new technology to better reach students and increase student engagement.*
- *Implement universal design concepts that allow all students to have better access to classroom content.*
- *Allow more flexibility in learning space to increase opportunity for students to complete in a timely manner.*
- *Better support CCD STEM faculty that are pushing to use new technology in classrooms.*
- *Increase distribution of technology to impact our workforce training and certification programs.*
- *Correct issues related to diminished brightness in projection.*
- *Enable distance learning capabilities.*

CCD completed a student and faculty survey asking for direct feedback about classroom technology. The survey was completed in May 2019 toward the end of the semester while these issues are fresh on their minds. We received 41 responses to the survey.

Student comments include: "whiteboards/dry erase markers are very hard to see especially when they dry out which is often or are not available which is more often. Perhaps SMART boards or digital Epson projectors where the dry erase marker is digital and brighter."; "Better, more reliable projectors"; "Some kind of screen sharing, Bluetooth audio sharing device so that in discussion classes, students [can participate]."; "overhead which displays paper on projection screen, add smart boards."; "I'd like it to be easier to sync with the teacher's own laptop/tablet – perhaps through a secure wireless interface rather than with a wired setup."; "I think smartboards would be a substantial benefit to my learning."; "more technological interactive programs."

Faculty comments include: "It takes over 45 minutes to get help in the evenings, and things break frequently. Some rooms – the table is in a weird place and you have to choose between using the technology, and having the students see you. We need remote controls for the technology."; "When I need to show something from a desktop, I have to stop showing from doc cam. 2 screens should be adequate."; "Setting up math classrooms with smartboards."; "Also, the lighting in some classrooms is not ideal for projection. (It's either ALL LIGHTS OFF to be able to see projection, or ALL LIGHTS ON and the projections if barely visible. All classrooms should have multiple light switches with one for the front near the projection that can be turned off without turning off ALL the lights in the classroom, rendering it very dark.)"; "Classroom technology are processes, such as grades, content, announcements, etc. The missing piece is innovation, such as, student engagement software. Engagement software offers various activities, such as, project, questions, activities all related to student learning and engagement and a data analysis feature so faculty can track who is learning, and who may need extra help."; "Being able to project from the iPad pros if there is no suitable technology. Currently I have to use my own hdmi/rgb connector and cables. Means I can't walk round and interact with students."; "Having a hard time answering this, because my classroom routinely has issues."

D. PROGRAM INFORMATION:

This project will impact most academic and workforce programs across Community College of Denver. The project will replace, upgrade, and standardize technology across all classrooms and conference rooms. The positive impact will allow all faculty and part-time instructors to work with newer and more flexible technology. It will standardize connections making it easier to focus on instruction rather than how to get the technology to work. It will also allow additional capabilities to increase student engagement and outcomes across all 3 CCD campuses. This project has a direct impact on students and faculty at CCD.

E. CONSEQUENCES IF NOT FUNDED:

If not funded Community College of Denver will need to prioritize replacements as equipment fails. Most equipment is now 6 years or older and not standardized in most areas. The largest impact is increasing failure rate and diminished performance of classroom equipment which has a direct impact on student learning. CCD will also need to prioritize areas of campus to begin replacements meaning that technology capabilities will likely differ more greatly among classrooms and campuses. This will continue to frustrate faculty and students.

F. ASSUMPTIONS FOR CALCULATIONS:

The project is based on technology vendor quotations for a standard solution in each area. We are assuming 5% inflation the second and 3rd year.

G. OPERATING BUDGET IMPACT:

There will be some operating budget impact related to Cisco support contracts as a result of purchase of new equipment. The support budget will be absorbed in the normal operations within the CCD IT Department.

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
Design	7/6/2020	7/30/2020
Construction	8/3/2020	12/18/2020

Phase _2_of_3_	Start Date	Completion Date
Construction	7/5/2021	12/17/2021

Phase _3_of_3_	Start Date	Completion Date
Construction	7/4/2022	12/16/2022

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	X No
State Controller Project Number (if continuation):		

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:

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.

This project impacts all academic programs at all campuses, in a 3-year time period. Because faculty will reduce the time spent working with differing technology in each classroom, less time will be spent setting up and more time in actual instruction. This should improve student performance and increase engagement, leading to increased student retention and completion.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

The classroom and conference room technology plans will take advantage of existing network infrastructure and security protocols.

L. BUSINESS PROCESS ANALYSIS:

Alternatives to the project considered are to provide similar capabilities by re-using existing equipment and replacing components of the classroom and conference room solutions. While these considerations would provide for a more cost efficient solution it does not account for the primary issues experienced by the end users. The current equipment is difficult to operate and is failing at a rate that is impacting student's instruction time. The existing equipment is not consistent across buildings or campuses and is causing loss of instruction time when frequent failures occur.

A project plan will be implemented to ensure adherence to the timeline and budget allocated. The CCD IT department was able to effectively complete on-time and within budget all major projects related to the network, backups and virtualization planned since 2015. The project also fits the CCD IT strategic plan because it additionally will standardize equipment across all campuses and simplify the design of classroom and conference room technology.

UPGRADE NETWORK HARDWARE, COLORADO STATE UNIVERSITY - FORT COLLINS

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 6/4/2019

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

(A)	(1) Funding Type (Cash, CCF, Cash & CCF):	Cash and CCF	(2) Intercept Program Request? (Yes/No):	No
(B)	(1) Institution:	Colorado State University Fort Collins	(2) Name & Title of Preparer:	Patrick Burns, Vice President for IT
(C)	(1) Project Title:	Upgrade Network Hardware	(2) E-mail of Preparer:	Patrick.Burns@colostate.edu
(D)	(1) Project Phase (__ of __):	Ph 1 of 3	(2) State Controller Project # (if continuation):	
(E)	(1) Project Type (CC or CR):	IT	(2) Institution Signature Approval:	6/4/19 Date
(F)	(1) Year First Requested:	FY 2019-2020	(2) CDHE Signature Approval:	9/26/19 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	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(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	$ 745,000	$ 745,000	$ -	$ -	$ -	$ -	$ -
(32)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(33)	Miscellaneous	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 745,000	$ 745,000	$ -	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	$ 745,000	$ 745,000	$ -	$ -	$ -	$ -	$ -
	Project Contingency							
(36)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	$ 745,000	$ 745,000	$ -	$ -	$ -	$ -	$ -
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 545,000	$ 545,000	$ -	$ -	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 200,000	$ 200,000	$ -	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	**745,000**	**745,000**	-	-	-	-	-

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$545,000**	
Cash Fund Amount (CF):	$200,000	
Funding Type:	CCF and Cash	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Colorado State University Fort Collins	
Project Title:	Upgrade Network Hardware	
Project Phase (Phase _of_):	Ph 1 of 3	
State Controller Project Number (if continuation):		
Project Type:	X	Technology Hardware
		Technology Software
Year First Requested:	FY 2019 - 2020	
Priority Number (Leave blank for continuation projects):	___ OF ___	
Name & Title of Preparer:	Patrick Burns, Vice President for IT	
E-mail of Preparer:	Patrick.Burns@colostate.edu	
Institution Signature Approval:		6/4/19 Date
OSPB Signature Approval:		Date
CDHE Signature Approval:		9/26/19 Date

A. PROJECT SUMMARY/STATUS:

This request encompasses upgrading out-of-date networking hardware over three years that will allow us time to ramp up to a steady-state funding model. Critical needs supported by this upgrade include:

1. Increase in capacity comprehensively in the network, including at the border, in the core, firewalls, and switches at the edge, needed to support next generation Wi-Fi, big data, high-performance computing, and other extant applications requiring these speeds.
2. IT Security enhancements required to address vulnerabilities in existing systems. Over the past year, we have observed a startling increase in the number and severity of threats directed at the University. A careful analysis has indicated that we need significant enhancements in our border routers and firewalls to provide adequate threat protection in today's malicious threat environment.
3. Support for life and safety devices that require modern switches capable of supplying Power over Ethernet to Internet of Things systems such as surveillance cameras in critical areas, sensors, monitors, and alarms.

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)	$3,186,000	$0	**$545,000**	$632,000	$2,009,000	$0	$0

Cash Funds (CF)	$1,300,000	$0	**$200,000**	$450,000	$650,000	$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)	**$0**	**$0**	**$745,000**	**$1,082,000**	**$2,659,000**	**$0**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

5-Year Project Plan

The project plan is:

1. **Edge switches** – will be replaced as follows:
    a. FY 21: 165 (Capital construction funded)
    b. FY 22: 95 (Capital construction funded)
    c. FY 23: 157 (Cash funded)
    d. FY 24: 157 (Cash funded)
    e. FY 25: 158 (Cash funded)
2. **Core devices** – will be replaced as follows:
    a. FY 22: Replace two core switches (Capital construction funded)
    b. FY 23: Replace two border routers and two firewalls (Capital construction funded).
3. **Reporting** – Near the end of each fiscal year, we will prepare a report of accomplishments and expenditures, to be submitted under this program.

We will procure all devices under state/university purchasing and fiscal rules, by RFP, and perform all configurations, installations, and testing using in-house staff. We estimate the value of this internal labor to exceed $250,000 over the five-year term of the project. We have already procured an additional discount of 3% for edge switches, due to the volume of purchases. Devices replaced will be sent to surplus property in accordance with State fiscal rules.

D. PROGRAM INFORMATION:

This Capital IT Request is submitted to allow CSU to catch up to the networking environment needed to support the entire campus, encompassing an enterprise exceeding $1 billion annually, about $400 million per year in research funding, and education of 34,000 students.

E. CONSEQUENCES IF NOT FUNDED:

Critical needs that we are unable to keep up with are:

1) The need to upgrade our aging border routers in segment 1, that need to be replaced on a seven -year cycle,
2) The need to upgrade our aging "core" switches in segment 1, that need to be replaced on a seven -year cycle,
3) The need to upgrade our enterprise (campus-level) firewalls in segment 1 to provide adequate network and IT security for the campus, that need to be replaced on a seven -year cycle, and
4) The need to upgrade our aged edge switches in segment 2, that need to be replaced on a seven-year cycle. A survey of peer institutions indicated replacement cycles for edge switches ranging from five to seven years. We have adopted seven years as the standard for replacement for edge switches to balance cost versus functionality, leaning toward minimizing cost.

F. ASSUMPTIONS FOR CALCULATIONS:

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

G. OPERATING BUDGET IMPACT:

NA for Higher Ed

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		
Design		
Construction	**July 2020**	**June 2021**
FF&E /Other		
Occupancy		

Phase 2 of 3	Start Date	Completion Date
Pre-Design		
Design		
Construction	**July 2021**	**June 2022**
FF&E /Other		
Occupancy		

Phase 3 of 3	Start Date	Completion Date
Pre-Design		
Design		
Construction	**July 2022**	**July 2023**
FF&E /Other		
Occupancy		

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:

There are several critical needs requiring a minimum standard of network connectivity in higher education environments:

- General Capacity – The amount of information available worldwide, accessible by the Internet, keeps growing exponentially at a rate exceeding 25% increase per year. Simply, regular switch replacements/upgrades are required to keep up with ever growing needs for capacity. Most of our

current unmet needs are to replace older switches (older than seven years) that operate at 100 Mbps (million bits per second) to the wall jack (user). CSU has adopted a national trend of standardizing on gigabit per second connectivity at the user level, or 1,000 Mbps (1 Gbps) to every wall jack. In many campus buildings, connectivity is sub-standard – see Figure 2 above illustrating this is so for 260 edge switches.

- Support for Life and Safety devices – Older switches are not capable of supplying Power Over Ethernet (POE) that is required for some life and safety devices, including video cameras, life and safety monitors (fire, smoke, environmental conditions, etc.), and sensors. This POE technology is available in all modern switches, where both a network signal and electrical power are supplied over the same networking wire. At the end of FY 19, we had 1,634 video cameras deployed, with over 150 additional systems targeted for deployment in FY 20. Having so many older switches that do not have POE capability limits our ability to deploy such devices in areas of critical need, and it will not be possible to meet identified life and safety needs without edge switch upgrades/replacement.
- Emerging Applications – Emerging applications, including high-performance computing, ultrahigh-def video (8K), 3D videos, artificial reality, and virtual reality, have an insatiable requirement for new, much higher capacities. All such applications also require low latency and jitter, in addition to much higher raw capacity – all motivating this request.
- Big Data – Both educators and researchers are increasingly engaged in working with Big Data, files of TeraByte size or larger. Files of this size are now common and ubiquitous across the Institution. Most of our current unmet needs are to replace older switches (older than seven years) that operate at 100 Mbps to the wall jack (user). As an example, moving one 10 TB file on a 100 Mbps network will require over 9 days to complete the file transfer! Researchers often have needs to transport a number of these sizes of files across the network simultaneously.
- Wi-Fi – The need for, and indeed the expectation of excellent Wi-Fi connectivity exists today. The newest Wi-Fi access points require a 10 Gbps uplink capability, as upload speeds from individual mobile devices can approach 1 gigabit per second each, and many such devices can be connected through a single access point. Our ability to attract and retain students, researchers, faculty and staff is dependent upon infrastructure required for them to get their work done, and Wi-Fi networking is a critical component.
- Basic Functionality – Newer switches have enhanced features and functionality essential for a modern network architecture, involving layer-3 routing, newer network protocols, and more ports for services. We can provide additional technical details upon request, but here we simply assert that network switch technology continues to evolve and improve, and falling too far behind will severely limit our ability to deliver needed connectivity to our constituents.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

IT Security – Newer switches have enhanced IT security features that interact seamlessly and automatically with routers, firewalls, intrusion detection systems, etc. Modern firewalls that operate at 100 Gbps are required to interface with the core devices running at this speed, and to include contemporary rules and algorithms for filtering an increasing malicious quality and quantity of malware. This is a dire need as we continue to elevate and enhance our IT security posture. Older switches run past end of life (as defined by the manufacturer) are no longer supplied with IT security patches. We are currently operating in a locus of high IT security risk, as 260 of our edge switches need to be upgraded to maintain an acceptable IT security posture.

L. BUSINESS PROCESS ANALYSIS:

All devices needing replacement during a seven-year cycle are listed in Table 1 below, and include unit costs, total costs, and annualized costs.

Table 1 Steady-State Networking Device Replacement Costs					
Item	No.	Unit Cost ($)	Total Cost (k$)	Replacement Cycle (Years)	Annual Costs (k$/yr.)
Edge Switches*	1,100	$4,514	$4,965.4	7	$709.3
Border Routers	2	$375	$750	7	$107.1
Core switches	2	$326.5	$653	7	$93.3
Firewalls	2	$600	$1,200	7	$171.4
Totals					$1,081

* 3% special, additional discount for this project applied to cost.

Despite extraordinary efforts to fund this internally, including two grants from the National Science Foundation, inclusion of networking hardware in all capital projects, use of departmental funds, and exhausting the telecom reserve, we find ourselves behind in replacing edge switches, and in the need to upgrade our networking hardware. In the core. The proposed request for this project is included in Table 2, illustrating funding requested and cost-sharing cash funds.

Table 2 Five-year Plan for Capital IT Costs (in $Thousands)						
Cost Item	Total Project	FY 21	FY 22	FY23	FY24	FY 25
Capital Construction Funds	$3,186	$545	$632	$2,009	$0	$0
Cash Funds (k$)	$2,718	$200	$450	$650	$709	$709
Total	$5,905	$745	$1,082	$2,659	$709	$709

Table 2 above itemizes our Five-Year Capital IT Plan Costs that achieves self-sufficiency in funding for edge switches in year 4. Note that the cash funds through FY 23 detailed in Table 2 are comprised about equally of student technology fee funding, Provost funding, and departmental funding. The remaining funding required for core devices will be established during the second year of this project, and we hereby so commit to that. A five-year ramp-up is proposed to allow us to put these funding streams into place, ramping up as fast as we can without damaging other budget priorities at the Institution. This project will allow us to attain currency in our networking technology, and give us the time necessary to put into place internal cash funding for all networking technology over time; thus, no additional capital IT funds will be requested henceforth from the JTC for networking hardware.

IT INFRASTRUCTURE, METROPOLITAN STATE UNIVERSITY - DENVER

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 9/27/2019

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:	Metropolitan State University of Denver	(2) Name & Title of Preparer:	Kevin Taylor AVP for Information Technology Services
(C)	(1) Project Title:	IT Infrastructure Modernization	(2) E-mail of Preparer:	ktaylo79@msudenver.edu
(D)	(1) Project Phase (__ of __):	1 of 2	(2) State Controller Project # (if continuation):	N/A
(E)	(1) Project Type (CC or CR):	CC	(2) Institution Signature Approval:	9-27-19 Date
(F)	(1) Year First Requested:	FY 20-21	(2) CDHE Signature Approval:	9/30/19 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	$ 750,000	$ -	$ 650,000	$ 100,000	$ -	$ -	$ -
(6)	Quality Assurance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Training	$ 75,000	$ -	$ 50,000	$ 25,000	$ -	$ -	$ -
(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***	$ 825,000	$ -	$ 700,000	$ 125,000	$ -	$ -	$ -
	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	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(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	$ 3,300,000	$ -	$ 2,800,000	$ 500,000	$ -	$ -	$ -
(32)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(33)	Miscellaneous	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 3,300,000	$ -	$ 2,800,000	$ 500,000	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	$ 4,125,000	$ -	$ 3,500,000	$ 625,000	$ -	$ -	$ -
	Project Contingency							
(36)	5% for New	$ 206,250	$ -	$ 175,000	$ 31,250	$ -	$ -	$ -
(37)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 206,250	$ -	$ 175,000	$ 31,250	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	$ 4,331,250	$ -	$ 3,675,000	$ 656,250	$ -	$ -	$ -
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 3,891,250	$ -	$ 3,305,000	$ 586,250	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 440,000	$ -	$ 370,000	$ 70,000	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	4,331,250	-	3,675,000	656,250	-	-	-

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$3,305,000**	
Cash Fund Amount (CF):	**$370,000**	
Funding Type:	State Funded	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Metropolitan State University of Denver	
Project Title:	IT 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 20 20-21	
Priority Number (Leave blank for continuation projects):	1 OF 1	
Name & Title of Preparer:	Kevin Taylor, CIO and AVP for Information Technology Services	
E-mail of Preparer:	Ktaylo79@msudenver.edu	
Institution Signature Approval:	[signature] 9-27-2019	Date
OSPB Signature Approval:		Date
CDHE Signature Approval:	[signature] 9/30/19	Date

A. PROJECT SUMMARY/STATUS:

This two-phase project upgrades network infrastructure, replacing aging wired and wireless network equipment and adding redundant fiber paths between buildings. In addition to providing a more stable and reliable foundation for our enterprise networks, updating to a modern network platform will provide greater monitoring capabilities and security measures for increased cyber security.

This is a new project which MSU Denver has not requested funding for previously.

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)	$3,891,250	$	**$3,305,000**	$586,250	$0	$0	$0
Cash Funds (CF)	$440,000	$0	**$370,000**	$70,000	$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)	**$4,331,250**	**$0**	**$3,675,000**	**$656,250**	**$0**	**$0**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

Metropolitan State University of Denver (MSU Denver) is requesting state funds for the first phase of a two-phase project to modernize our network infrastructure and address deferred maintenance. This project would fund the replacement of approximately 400 edge and distribution layer switches, 450 wireless access points, and provide additional network paths between campus buildings. 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.

Phase I funding will include:

- Installation of fiber optic infrastructure to complete campus network loop
- Replacement of approximately 25 distribution layer switches
- Replacement of approximately 375 edge switches

Phase II funding will include:

- Replacement of approximately 450 wireless access points

Given the pace of change in network equipment, architecture and capabilities, if the project is funded, MSU Denver intends to begin the project with a final, consultant-supported design review.

D. PROGRAM INFORMATION:

All MSU Denver students, faculty and staff would benefit from this modernization project. The university's network infrastructure provides all network and telephony services, which in turn support the business of the university and all student-facing services, including admissions, registration, academic advising, financial aid, and MSU Denver's online education programs. These services support the recruitment, retention and academic success of our students.

Additionally, the fiber optic infrastructure would complete a campus network loop between institutions on the Auraria Campus. This loop would create diverse network paths with redundant connections for MSU Denver and provide additional fiber capacity that could be used by other Auraria institutions in the event of an unintended fiber cut or other line-specific disruption of service.

E. CONSEQUENCES IF NOT FUNDED:

This project would address deferred maintenance in MSU Denver's wired and wireless network infrastructure. It would also address single points of failure in our network by adding redundant fiber connections between buildings.

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 of these could result in unintended network outages and loss of critical business and academic services for our students, faculty and staff.

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, including fiber optic installation, are based on existing designs and conduit paths.

G. OPERATING BUDGET IMPACT:

MSU Denver anticipates the reallocation of current IT operating budget to sustain improvements realized by this project.

H. PROJECT SCHEDULE:

Phase _1_of_2_	Start Date	Completion Date
Pre-Design	7/1/2020	8/14/2020
Design	8/10/2020	9/11/2020
Construction	9/14/2020	6/30/2021

Phase _2_of_2_	Start Date	Completion Date
Construction	7/1/2021	6/30/2022

I. ADDITIONAL INFORMATION:

Three-year roll forward spending authority is required:	No
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 loss of critical business and educational services for our students, faculty and staff.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

This project would add diverse network paths for all MSU Denver buildings, adding resiliency to campus networking infrastructure by completing the campus fiber ring. This ring would also provide our tri-institutional partners - the University of Colorado Denver, the Community College of Denver, and the Auraria Higher Education Center – the ability to utilize MSU Denver installed conduit to add secondary fiber links and increase the resiliency of their networks as needed.

In addition, this project would provide modern 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 would enable MSU Denver 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 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 university's network equipment has exceeded its anticipated lifespan – in some cases, dramatically so.

MSU Denver's Information Technology Services (ITS) recommends a five year lifecycle for network infrastructure, which aligns with many industry recommendations. However, the equipment deployed on campus today carries a median age of 6.5 years, with 80% of production network switches exceeding five years in service, 42% exceeding seven years, and ten devices exceeding ten years of operation. 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, ITS performed an analysis of the current environment, including multiple internal meetings and work sessions, as well as consultation 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, 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 MSU Denver 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.

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 complete a campus fiber ring, improving resiliency for core campus facilities. At present, a single fiber optic link provides network, telephony and emergency calling services for numerous campus buildings. In the event of an unexpected service interruption on this link, one or more buildings may be disconnected from the campus network for an extended period of time. Completing the ring would offer redundancy for those buildings in the event of a major service disruption.

NEXT GENERATION CYBER SECURE NETWORK, UNIVERSITY OF NORTHERN COLORADO

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 8/5/2019

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:	Bret Naber
(C)	(1) Project Title:	Next Generation Cyber Secure N	(2) E-mail of Preparer:	bret.naber@unco.edu
(D)	(1) Project Phase (1 of 1):	1 of 1	(2) State Controller Project # (if continuation):	
(E)	(1) Project Type (CC or CR):	Capital Construction	(2) Institution Signature Approval:	Date
(F)	(1) Year First Requested:	FY20	(2) CDHE Signature Approval:	9/26/19 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	$ 114,000	$ -	$ 114,000	$ -	$ -	$ -	$ -
(6)	Quality Assurance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Training	$ 25,000	$ -	$ 25,000	$ -	$ -	$ -	$ -
(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***	$ 139,000	$ -	$ 139,000	$ -	$ -	$ -	$ -
	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	$ 775,102	$ -	$ 775,102	$ -	$ -	$ -	$ -
(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***	$ 775,102	$ -	$ 775,102	$ -	$ -	$ -	$ -
	Equipment							
(28)	Servers	$ 95,812	$ -	$ 95,812	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(32)	Other (Specify) Firewall Applicance	$ 311,864	$ -	$ 311,864	$ -	$ -	$ -	$ -
(33)	Miscellaneous	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 407,676	$ -	$ 407,676	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	$ 1,321,778	$ -	$ 1,321,778	$ -	$ -	$ -	$ -
	Project Contingency							
(36)	5% for New	$ 66,089	$ -	$ 66,089	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 66,089	$ -	$ 66,089	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	$ 1,387,867	$ -	$ 1,387,867	$ -	$ -	$ -	$ -
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 1,373,988	$ -	$ 1,373,988	$ -	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 13,879	$ -	$ 13,879	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	1,387,867	-	1,387,867	-	-	-	-

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**1,373,988**	
Cash Fund Amount (CF):	13,879	
Funding Type:	Capital Construction	
Intercept Program Request? (Yes/No):	No	
Institution Name:	University of Northern Colorado	
Project Title:	Next Generation Cyber Secure Network	
Project Phase (Phase _of_):	1 of 1	
State Controller Project Number (if continuation):		
Project Type:	Yes	Technology Hardware
	Yes	Technology Software
Year First Requested:	FY 2019 -2020	
Priority Number (Leave blank for continuation projects):	_1_ OF _1_	
Name & Title of Preparer:	Bret Naber	
E-mail of Preparer:	Bret.naber@unco.edu	
Institution Signature Approval:		Date
OSPB Signature Approval:		Date
CDHE Signature Approval:	9/26/19	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.

Implement a next generation network built for visibility, flexibility, security and automation. This network will provide an example of repeatable and scalable network for other state institutions. This design will take advantage of new technology and design principles to create a more efficient network that is automated to lower staff impact. Greater monitoring and correlation techniques provide better utilization of assets and provide proactive measures for cyber security.

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)	$0	$0	**$1,373,988**	$0	$0	$0	$0
Cash Funds (CF)	$0	$0	**$13,879**	$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)	**$0**	**$0**	**$0**	**$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.

Project Description

UNC is seeking state funding to design a next generation core network built for visibility, flexibility, security and automation. Utilizing the newest technologies to correlate events and provide intelligent security integration, the architecture will include a flexible environment that will integrate with a wide variety of monitoring tools. This flexibility will enhance the user experience and provide greater security posturing. Increased security capability will allow for triggering of security events based on behaviors in the network. This architecture will include intelligent configurations to allow applications to communicate utilizing modern application protocols without intervention from staff. In addition to greater monitoring capability, the network will adhere to advanced cyber security standards. The network will provide visibility into the application layer, wired and wireless infrastructure without device impact. The network will include internal and external monitoring, dynamically building profiles of devices. Network automation will allow for greater utilization of staff resources. Guests will leverage greater functionality allowing for wider utilization of UNC network for community engagement. This project will replace aging equipment that has reached end of support.

Phases: Phase 1 of 1

Implementation Plan:

UNC Information Management and Technology utilizes a Project Management Office(PMO) for all of the projects using significant technical resources. The project management office was created in order to increase accountability for timeline, budget, scope accuracy, education, documentation and communications. In addition to the project management office we have an annual campus wide project request process. This process allows us to properly schedule and resource projects. The following project schedule outline is for the Next Generation Cyber Secure Network.

Initiate: Planning and Procurement
- Identify Deliverables and Necessary Resources
- Establish Scope and Stakeholders
- RFP Equipment and Services

Plan:
- Schedule Resources and Determine Outage Implications
- Add Detail to Project Plan
- Establish Project Teams and Establish Project Velocity

Execute:
- Project Kickoff and Briefings
- Phase Out Legacy Network Security Appliance
- Phase in New Equipment
- Monitor Resources and Budget
- Milestone Monitoring and Communications to Stakeholders
- Introduce New Functionality and Features
- Monitoring Capabilities
- Implement Additional Security Functionality

Closure: Complete Documentation
- Complete Project Closure Documentation
- Communications to Campus and Leadership

Funding: UNC is requesting funding in order to adopt new architecture. We have operational funding dedicated to supporting existing network infrastructure. We do not have a mechanism for onetime funding to procure a new security infrastructure. This opportunity to adopt a new architecture will require an upfront investment. UNC is prepared to fund the ongoing maintenance and support for this new architecture.

IT Best Practices

We are implementing IT best practices leveraging innovations in network design and technology.

- Software Defined Networking
  - Automation which provides dynamic addressing to users and devices based on predefined profiles.
  - A significant increase in efficiency for device management.
  - A significant increase functionality in device identity and visibility.
  - Reduced complexity of access management because access is managed through predefined profiles.
- Next Generation Firewall
  - New strategy provides powerful unified management of firewalls, application controls, intrusion prevention, url filtering and next generation malware detection and prevention.
  - Misbehaving network segments will initiate self-repair automatically.
  - Network-wide visibility makes it possible to identify malicious actions and take the appropriate steps, such as quarantine, of individual systems or of entire network segments. This activity can be automated based on a wide variety of factors.
  - Provides advanced threat detection, proactive defenses, and automated mitigation.
  - Ability to stay ahead of emerging threats with machine learning and globally distributed intelligence sensors.
- Reduce Complexity on the Network through strategies like Network Segmentation
  - Creating subnetworks for better management of applications and system integration
  - Increase performance and improved security
  - Pushing away from traditional 3-tier architecture allowing for better management of growing traffics loads and reduce the number of network devices needed
  - Allows for easy management of micro segmented systems which provides a significant security increase.

Project Alignment with UNC Goals

This project aligns very strongly with our Information Management and Technology Strategic Plan and Cyber Security initiatives. Below are the key alignments.

- Providing the campus with infrastructure that is scalable and efficient
- Reducing unnecessary complexities and fully utilizing systems already in place
- Consolidating and standardizing IT infrastructure to reduce costs through economies of scale
- Utilizing long term planning to forecast technology needs
- To ensure the mission of the Office of Information Security to facilitate the following items in a secure manner: the education of students, deliver quality education, conduct research, and to ensure staff can serve the University mission and their departmental functions
- This project supports several of the Institutions 9 core plans. Below are the key alignments.
  - Integrated Student Support Services Plan
    - Student, staff, and faculty security and student support through application integration.
  - Sustainability Plan
    - Sustainable funding and long term network management.
  - Research Scholarship and Creative works Plan
    - Creating an infrastructure that can be used for research and new development.
  - Academic Portfolio
    - Support for campus infrastructure, securing intellectual property, enabling integration between systems, data utilization, and overall stability.
  - Community and Civic Engagement Plan
    - Flexible guest networks and resources available for community activities.
- **Project Alignment with CCHE Master Goals**
  - Project Aligns with the Strategic goal Invest in Affordability and Innovation
    - This project provides an opportunity to invest in innovation through automation and visibility for security. The innovation allows for optimized control of the network while ultimately needing less human intervention. The size of this project takes advantage of bulk discounting saving a greater percent versus purchasing equipment separately. This project increases quality of the service UNC can provide. We have carefully chosen projects to fund with Student Fees. We feel network upgrade is a necessary infrastructure capability that State and UNC should provide.

D. PROGRAM INFORMATION:

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

This project will impact the entire campus and several major initiatives listed below.

E. CONSEQUENCES IF NOT FUNDED:

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

Without a large investment, UNC will not be able to shift off of current architecture that is resource intensive, inefficient and less secure. Additionally, the legacy core network equipment is over 7 years old and has reached the end of support from our vendor.

F. ASSUMPTIONS FOR CALCULATIONS:

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

UNC utilized a 3rd party vendor for initial strategy and plan development. After several revisions we had Cisco engineers review the plan to ensure accuracy and legitimacy of plan. We were able to ensure the design would provide greater functionality, security and scalability.

In the financial documents we utilized the 5% buffer on software, services and hardware to due to the funding timeframe for this proposal.

G. OPERATING BUDGET IMPACT:

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

New architecture consolidates separate devices from different vendors into a single solution with one vendor.

Eliminates the ongoing maintenance and support of:

- Infoblox Captive Portal

Consolidates separate Firewall and Security devices into a single platform. Eliminates the Infoblox captive portal for device onboarding for students and guests (ISE).

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	**4/1/20**	**6/1/20**
Design	**6/1/20**	**7/1/20**
Procurement	**6/1/20**	**8/1/20**
Inventory Intake	**8/1/20**	**10/1/20**
Phased Implementation	**10/1/20**	**1/1/21**
Testing	**1/1/21**	**6/1/21**
Go Live	**6/1/21**	**8/1/21**

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.

Largely this project increases our capabilities and reduces our overall need long term for highly technical network engineers.

Operational Factors	Operational efficiency through technology and automation. This project will provide greater functionality and visibility into network activity. Time consuming and resource intensive activities like correlation analysis can be provided through advanced technology. Specific technical benefits are listed below: - Containerize roles within the network - access, core, data center switching. - Creates a modular framework that allows for feature sets to be rolled out and upgrades to be performed in role based/area of network fashion. - Allows UNC to take the next step toward programmability and automation from access to data center and/or internet. - User connection is media type agnostic. The same rules and features are applied regardless of how user attaches to network. - Device on-boarding performed by user. This reduces administrative overhead associated with connectivity and connectivity issues. - Automated monitoring to ensure network fabric connectivity. - Leverages previous investments in wireless and access switching to a greater potential.
Future Challenges IoT	Growing infrastructure needs are stretching network resources to support the internet of things. From building automation, convenience tools (Alexa/Google), and other miscellaneous devices that need access to the network create challenges in monitoring and supporting. - Easier connectivity for current and future IoT devices by eliminating the need for VLAN transport. - Ease of provisioning and management

K. SECURITY AND BACKUP / DISASTER RECOVERY:

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

Security Factors	This project will provide better tools to secure the UNC network. There is a growing need to integrate security into the network to defend institutional resources from internal and external threats. Specific functionality listed below: - Connectivity is user/user group based, making the network identity centric versus device centric. This secures resources from users that should not have access. - Flexible network segmentation, network remains segmented regardless of where the user is, how the user connects, what device is being used. - Per user or device class rate limiting/consumption.

	- Automated security mitigation for devices/ports that show abnormal behaviors. - Firewalls, NAC, switching and wireless work in as a system and share intelligence about real time network conditions to detect and mitigate threats as close to the source as possible.

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.

Success Factors

Preparation

The University of Northern Colorado has recently upgraded bandwidth and our wireless infrastructure. In addition UNC has stable generators and UPS battery systems for the network equipment on campus. Power issues are a major concern for network devices. The planning effort of UNC facilities ensures that network devices experience fewer surges, brownouts, and power losses.

Staffing preparation was accomplished through professional development. The following certifications are held by multiple staff members on the Infrastructure Networking Team and Office of Information Security.

CCENT Certified Entry Networking Technician
CCNP Cisco Certified Network Associate
CCNA Cisco Certified Network Associate
CCNA Cisco Certified Network Associate Security
CCDP Cisco Certified Design Professional

Selection Criteria

Business Process Analysis

UNC was reaching the end of life for current core networking equipment. After several internal meetings to discuss functionality needed, we decided to reach out to a third party to investigate new options. We engaged with a third party vendor that was vendor agnostic. We have internal expertise in Cisco and we have had success in the past. After recommendations were complete from our third party we vetted our plans through Cisco. The cost of the implementation would exceed our current operational funding. We believe that this project is extremely important and positions us well for the future. Due to continued budget constraints at the University we felt that we should seek this funding from the State. We looked at possibilities to break the project up into phases. At this point it made sense to replace existing equipment that was at its end of life, increase functionality, increase security, and reduce the overhead on staff. Buying the equipment together gives us better leverage for discounts, ensures device compatibility, and reduces the overall impact to campus.

Project Alternatives

No Action - Weakness	University is not positioned to take advantage of new technologies that increase security, flexibility, and visibility across the network and applications.
No Action - Weakness	Some of the existing hardware is reaching End of Life from the manufacturer.
No Action – Weakness	Emergence of intelligent IoT devices being added to the network increases risk of attack by potentially allowing more entry points into the network if they are not secured.
No Action - Weakness	Bulk purchasing will save roughly 20%. Uncontrolled variable expenses will be incurred in the operation budget as equipment fails.

No Action – Weakness	Security correlations are incomplete reducing time to resolution.
No Action – Weakness	System failures will occur impacting education activities, life safety and building automation.
Multiple Vendors - Weakness	Multiple vendors reduce the network to a lowest common denominator in terms of features to ensure interoperability.
Multiple Vendors - Weakness	Purchasing equipment (Wireless Controllers, Access Points, and Switches, Core Routers, Firewall, IPS) together from the same vendor increases compatibility and reliability. Staffing administration time will increase significantly if several vendors supply equipment.
Multiple Vendors - Weakness	Increases overall operational complexity.
Multiple Vendors - Weakness	Limits intelligence sharing among devices that would normally be present if all devices were part of a shared ecosystem.
Alternative Vendor – Weakness	UNC infrastructure is built on Cisco equipment. Staff are trained and certified on Cisco equipment. Cisco training resources are readily available. Cisco TAC customer support has been very reliable and a single vendor for support ensures accountably and problem ownership when troubleshooting issues. Resources can be acquired very quickly for outsourcing and staff backfilling if needed.
Alternative Vendor – Strength	Leveraging best of breed allows for best possible device functionality at a point in the network. This, however, is constantly evolving due to development cycles between vendors do not align.
Alternative Vendor – Strength	Total cost of ownership for Cisco equipment tends to more expensive than competitors.
Slow Rollout – Weakness	Technology purchase over several years will create compatibility issues. Equipment will increase in cost year after year. Bulk purchasing discounts will less substantial.
Slow Rollout – Strength	New technologies will emerge. Phased approach allows for feature maturity.

Implementation Plan

The University of Northern Colorado employs several IT specific project managers and a Project Management Office. A project manager will be assigned and the original scope will be reviewed. Stakeholders and technical staff will attend a kickoff meeting where project policies and procedures will be reviewed. 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 (Thurs, Sat and Sun 5am-7am) that will be used to install equipment. This project will require a phase in implementation. The project will take 12-16 months to complete. We will work with and communicate with our IT governance group that includes Academic, Student and Administrative units.

IMPROVING STUDENT ACCESS TO TECHNOLOGY COMMUNITY COLLEGE OF AURORA

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

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

(A)	(1) **Funding Type (Cash, CCF, Cash & CCF):**	**State Funded**	(2) **Intercept Program Request? (Yes/No):**	No
(B)	(1) **Institution:**	Community College Of Aurora	(2) **Name & Title of Preparer:**	Samuel Thomas, Director of Information Technology
(C)	(1) **Project Title:**	Improving Student Access to Te	(2) **E-mail of Preparer:**	samuel.thomas@ccauorra.edu
(D)	(1) **Project Phase (__ of __):**	1 of 1	(2) **State Controller Project # (if continuation):**	
(E)	(1) **Project Type (CC or CR):**	Capital Renewal (CR)	(2) **Institution Signature Approval:**	5-8-19 Date
(F)	(1) **Year First Requested:**	FY __19-20_____	(2) **CDHE Signature Approval:**	6/17/19 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	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Quality Assurance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Training	$ 1,850	$ -	$ 1,850	$ -	$ -	$ -	$ -
(8)	Leased Space (Temporary)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Feasibility Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Other Services/Costs	$ 31,020	$ -	$ 31,020	$ -	$ -	$ -	$ -
(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***	$ 32,870	$ -	$ 32,870	$ -	$ -	$ -	$ -
	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	$ 278,267	$ -	$ 278,267	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ 191,572	$ -	$ 191,572	$ -	$ -	$ -	$ -
(32)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(33)	Miscellaneous	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 469,839	$ -	$ 469,839	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(35)	***Total Project Costs***	$ 502,709	$ -	$ 502,709	$ -	$ -	$ -	$ -
	Project Contingency							
(36)	5% for New	$ 25,135	$ -	$ 23,135	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 25,135	$ -	$ 23,135	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	$ 525,844	$ -	$ 525,844	$ -	$ -	$ -	$ -
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 475,061	$ -	$ 475,061	$ -	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ 52,784	$ -	$ 52,784	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	**527,845**	**-**	**527,845**	**-**	**-**	**-**	**-**

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$475,061**	
Cash Fund Amount (CF):	$52,784	
Funding Type:		
Intercept Program Request? (Yes/No):	No	
Institution Name:	Community College of Aurora	
Project Title:	Improving Student Access to Technology	
Project Phase (Phase _of_):	1 of 1	
State Controller Project Number (if continuation):		
Project Type:	X	Technology Hardware
		Technology Software
Year First Requested:	FY 2019 – 2020	
Priority Number (Leave blank for continuation projects):	___ OF ___	
Name & Title of Preparer:	Samuel Thomas, Director of Information Technology	
E-mail of Preparer:	Samuel.thomas@ccaurora.edu	
Institution Signature Approval:		6/18/19 Date
OSPB Signature Approval:		Date
CDHE Signature Approval:		6/17/19 Date

A. PROJECT SUMMARY/STATUS:

This project is designed to improve the student experience interacting with technology at CCA. We will address things such as wireless access, classroom computing, and outside access to needed computing resources for students. This project does not have any prior appropriated phases.

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)	$475061	$0	**$475061**	$0	$0	$0	$0
Cash Funds (CF)	$52784	$0	**$52784**	$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)	**$527845**	**$0**	**$527845**	**$0**	**$0**	**$0**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

This project will provide the ability for the CCA IT department to provide better access to the software and internet students need to perform classwork. There are two parts to this project. CCA has made a switch to thin clients to provide desktops to our students in most of our computer labs on campus. The hardware that this environment runs on is starting to age and can no longer be upgraded to the latest versions of software. The first step of this project will be to upgrade the hardware these servers run on to a more recent system. This will not only keep our classroom labs running quickly and efficiently, but also allow students in online or hybrid classes access to the software they need for class while they are off campus. We will also expand our ability to provide graphics intense applications with this upgrade, which will improve our ability to deliver software upgrades in the future and open new avenues for our ability to further increase our thin client environment. Included in this project is adding to and upgrading our wireless infrastructure to support the latest in wireless protocols. We intend also as part of this project to implement more robust traffic shaping to our student wireless bandwidth to improve availability and overall satisfaction with our student wireless network. This project is designed to help CCA be innovative in the way it delivers needed instructional materials to our students and also helps make that technology more accessible and available, both on and off campus. This aligns with strategic goal #4 of the CDHE which articulates an investment in affordability and innovation. In addition, the CCA college strategic plan as well as the CCA IT strategic plan both outline the importance of making the technology required by students to succeed accessible and so we are addressing these goals as a part of this project as well.

D. PROGRAM INFORMATION:

All Student Programs

E. CONSEQUENCES IF NOT FUNDED:

CCA will have to divert our student technology fee money of $200,000 – $250,000 per year for several years. These funds are currently earmarked for much needed classroom technology upgrades and improvements. Since the vast majority of our instructors on campus are part time instructors who rely on our ability to provide them the technology they need to teach in the classroom, redirecting these funds will seriously impede our ability to provide that technology to our classrooms for day to day instruction to operate in an efficient manner.

F. ASSUMPTIONS FOR CALCULATIONS:

We consulted with our vendors to properly size the requested hardware to allow for future growth and expansion in our environment. Once we completed the pre-design, we requested competitive quotes for all of the hardware we have specified for the environment, which all fell under the current HP state pricing agreement.

G. OPERATING BUDGET IMPACT:

This project will not have a significant impact to our operating budget. Historically as an institution CCA has not asked for funding from the state for our information technology projects so we are and have been including information technology in our budgeting process since our inception. This has caused CCA to fall behind our peers as funding has fluctuated over the years. This project upgrades equipment CCA already maintains support/maintenance agreements on which will be replaced with this new equipment. The opportunity to secure state funding for this project will allow CCA to catch up to our peers from an

information technology perspective much faster and help us continue to provide outstanding information technology experiences for all of our constituents.

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	**February 2018**	**June 2018**
Design	**February 2018**	**June 2018**
Construction	**As soon as funded**	**4 months from funding date**
FF&E /Other		
Occupancy	**5 months from funding date**	**5 months from funding date**

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):		

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:

CCA does not anticipate any cost savings with this project.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

This project does not impact our security, backup, or disaster recovery environments.

L. BUSINESS PROCESS ANALYSIS:

This project was not designed to fix any operational issues within IT.

TECHNOLOGY INFRASTRUCTURE, TRINIDAD STATE JUNIOR COLLEGE

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 5/8/2019

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

(A)	(1) Funding Type (Cash, CCF, Cash & CCF):	State funded	(2) Intercept Program Request? (Yes/No):	No
(B)	(1) Institution:	Trinidad State Junior College	(2) Name & Title of Preparer:	Lorrie Velasquez, VPAS
(C)	(1) Project Title:	Technology Infrastructure	(2) E-mail of Preparer:	lorrie.velasquez@trinidadstate.edu
(D)	(1) Project Phase (__ of __):		(2) State Controller Project # (If continuation):	
(E)	(1) Project Type (CC or CR):	Capital Construction (CCC)	(2) Institution Signature Approval:	5/8/19 Date
(F)	(1) Year First Requested:	FY 18	(2) CDHE Signature Approval:	6/17/19 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	$ 25,875	$ -	$ 25,875	$ -	$ -	$ -	$ -
(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***	$ 25,875	$ -	$ 25,875	$ -	$ -	$ -	$ -
	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	$ 128,340	$ -	$ 128,340	$ -	$ -	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ 93,150	$ -	$ 93,150	$ -	$ -	$ -	$ -
(30)	Printers, Scanners, Peripherals	$ 31,050	$ -	$ 31,050	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ 65,412	$ -	$ 65,412	$ -	$ -	$ -	$ -
(32)	Other (Specify)	$ 134,550	$ -	$ 134,550	$ -	$ -	$ -	$ -
(33)	Miscellaneous	$ 129,375	$ -	$ 129,375	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 581,877	$ -	$ 581,877	$ -	$ -	$ -	$ -
	Total Project Costs							
(35)	***Total Project Costs***	$ 607,752	$ -	$ 607,752	$ -	$ -	$ -	$ -
	Project Contingency							
(36)	5% for New	$ 29,094	$ -	$ 29,094	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ 29,094	$ -	$ 29,094	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	$ 636,846	$ -	$ 636,846	$ -	$ -	$ -	$ -
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 636,846	$ -	$ 636,846	$ -	$ -	$ -	$ -
(41)	Cash Funds (CF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	636,846	-	636,846	-	-	-	-

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$636,846**	
Cash Fund Amount (CF):		
Funding Type:	State Funded	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Trinidad State Junior College	
Project Title:	Technology Infrastructure	
Project Phase (Phase _of_):		
State Controller Project Number (if continuation):		
Project Type:	X	Technology Hardware
		Technology Software
Year First Requested:	FY 2017___ - 18___	
Priority Number (Leave blank for continuation projects):	___ OF ___	
Name & Title of Preparer:	Lorrie Velasquez, VPAS	
E-mail of Preparer:	Lorrie.velasquez@trinidadstate.edu	
Institution Signature Approval:	[signature] 5/8/19	Date
OSPB Signature Approval:		Date
CDHE Signature Approval:	[signature] 6/17/19	Date

A. PROJECT SUMMARY/STATUS:

One of Trinidad State's strategic priorities is to leverage technology to expand learning while improving safety of the institution and securing data. With constant technological change, Trinidad State Junior College (TSJC) is requesting funding in the amount of $636,846 to improve instructional and academic support activities, campus safety and security including but not limited to enrollment opportunities and training for its students, faculty and staff and upgrading core infrastructure to support these activities. Institutional infrastructure including servers, equipment and staff limitations are challenges that can be addressed if funding is received.

Furthermore, the current surveillance security system does not integrate with a new door lock software system and needs to be updated to ensure safety and security for the campus community. In order to provide security in areas other than primary entrances, additional surveillance cameras are necessary as well as increased storage retention. The current surveillance system is past its end-of-life expectancy (over 9 years old) and cannot provide adequate life safety.

TSJC's backup recovery system has not been upgraded in over nine years. We currently utilize a tape backup system that is antiquated, difficult to manage and time consuming to restore if disaster recovery is needed.

There is limited support for equipment and systems that are nearing or at end-of-life putting TSJC and its students in a vulnerable situation should systems fail. Funding for this project will increase productivity, campus safety and provide more efficient backup and disaster recovery.

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)	$1,169,764	$0	**$636,846**	$532,918	$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)	**$1,169,764**	**$0**	**$636,846**	**$532,918**	**$0**	**$0**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

Learning, security and safety are TSJC's priorities for this project. TSJC's IT Staff have identified areas of weakness, risk and vulnerabilities. Trinidad State Junior College (TSJC) is requesting funding in the amount of $636,846 to strengthen instructional and academic support activities, mitigate security and safety risks and improve an "end-of-life" infrastructure. The issues addressed in this scope of work impact the day-to-day operations, performance in the classrooms and possible network outages/slowing.

Because of the age of the current surveillance security system, TSJC needs to purchase a new system to replace existing system plus increase security in additional locations. Not only is the system antiquated and non-repairable, it does not integrate with a new door lock software system and needs to be updated to ensure safety and security for the campus community. Our current surveillance system only monitors entrance doors of most buildings; therefore, additional cameras and server capacity is being requested. Also increased storage for video as we currently only have a 20 day retention compared to newer versions of a 45 day retention. In order to provide adequate security, additional surveillance cameras will need to be purchased. New equipment and expansion of TSJC's security system will offer improved security and safety for staff and students. If this system dies all of our cameras will fail making staff and student safety a concern.

TSJC's backup recovery system is the out-of-date tape backup system. This system is difficult to manage and time consuming to restore if disaster recovery is needed. TSJC would like to purchase a data backup system that uses disk to disk system/cloud to improve efficiency and backup recovery.

D. PROGRAM INFORMATION:

The responsibility for the implementation of the Technology Infrastructure Project will be the TSJC Information Technology (IT) department in conjunction with the CCCS IT department. Support for the systems will also be shared by TSJC IT and CCCS IT departments. Vendors from whom we will purchase equipment will be required to provide consultation and installation support. Most of the improvements and upgrades will be "behind the scenes" so end users will continue to operate the technology they use with very little interruption and training and enjoy faster, more reliable service. The general plan is to initially replace/upgrade instructional support equipment.

The Information Technology Director at TSJC has been with the College for over 30 years and has close ties to personnel at IT departments at the System Office and other community colleges within the System.

We adhere to System IT policies and procedures to ensure compatibility with System wide connectivity and performance.

E. CONSEQUENCES IF NOT FUNDED:

The consequences of not receiving funding could result in loss of data, security camera failure and increased cost to the institution. The inability to complete this project all at the same time could put TSJC in a similar situation of "piece-milling" and incompatible equipment. The result will be an on-going state of concern for failure of older equipment, safety and security of students and data.

F. ASSUMPTIONS FOR CALCULATIONS:

Information and cost estimates have been solicited from vendors.

G. OPERATING BUDGET IMPACT:

Current funding and lack of grant assistance is not sufficient to support the needed equipment.

H. PROJECT SCHEDULE:

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

Phase __of__	Start Date	Completion Date
Pre-Design	1/1/2020	6/30/2020
Design	7/1/2020	6/30/2020
Construction	7/1/2020	6/30/2020
FF&E /Other	7/1/2020	6/30/2020
Occupancy	1/1/2021	6/30/2020

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:	❑ 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):		
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:

Network enhancements will immediately impact performance for all instructional and administrative support systems including classrooms, offices and mobile devices on campus. It will also allow opportunities to take better advantage of virtual technologies that will reduce efforts needed to deploy and support workstations on campus. The technology improvements that will come with completion of this project will improve the speed, accuracy, and efficiency of data flow which, in turn, should improve the efficiency and work performance of instructional and academic support services.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

This Project has as one of its priorities the replacement/upgrade of equipment and software relative to preservation of data. Our current tape back-up unit is not fast enough to complete data backups during off hours. Often backups are still running during the day which impacts user network performance and our ability to complete successful backups. File contention can cause the failure to backup certain files which has an impact on our ability to recover those files in the event of failure.

The current video surveillance system, which is over nine years old, is end-of-life (EOL). In the event of a hardware failure the current video surveillance system will cease to function due to the inability to acquire the replacement parts. The system is showing signs of age and time consuming to acquire needed footage for local police department, institutional investigations or related activities that may require footage review.

L. BUSINESS PROCESS ANALYSIS:

The Project is designed to improve equipment performance due to technological advances in data storage, processing, and accessibility. During our analysis we found that much of our equipment was nearing or past its end-of-life expectancy. With the rate of technological change there are improved products that will help operations become more efficient. As a small college we have limited resources and continually look for opportunities to allow us to work more efficiently. Our operational design is effective and efficient, however, we are looking to improve instructional support and business process (enrollment, financial aid, etc.) via improved tools enabling our IT staff to become even more effective and efficient. Increased reliability, ease of access to data, and availability to access information will improve the efficiency and work product of our students and staff.

TECHNOLOGY INFRASTRUCTURE, OTERO JUNIOR COLLEGE

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 5/8/2019

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 Junior College	(2) Name & Title of Preparer:	L. Patrick Malott, CPA - Vice President of Admin Service
(C)	(1) Project Title:	Technology and Equipment Upg	(2) E-mail of Preparer:	pat.malott@ojc.edu
(D)	(1) Project Phase (__ of __):	1 of 1	(2) State Controller Project # (if continuation):	N/A
(E)	(1) Project Type (CC or CR):	Capital Renewal (CR)	(2) Institution Signature Approval:	L. Patrick Malott 5/8/19 Date
(F)	(1) Year First Requested:	FY 2020	(2) CDHE Signature Approval:	E. [illegible] 6/17/19 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	$ 2,372,750	$ -	$ 332,750	$ 475,000	$ 525,000	$ 490,000	$ 550,000
(30)	Printers, Scanners, Peripherals	$ 195,000	$ -	$ -	$ 85,000	$ -	$ 110,000	$ -
(31)	Network Equipment/Cabling	$ 215,000	$ -	$ -	$ 15,000	$ 25,000	$ 150,000	$ 25,000
(32)	Other (Specify) I-Pads, Classroom Upgrades	$ 722,500	$ -	$ 322,500	$ 75,000	$ 150,000	$ -	$ 175,000
(33)	Miscellaneous: Service area two way audio/video equipment	$ 142,500	$ -	$ 67,500	$ -	$ -	$ -	$ 75,000
(34)	***Total Equipment and Miscellaneous Costs***	$ 3,647,750	$ -	$ 722,750	$ 650,000	$ 700,000	$ 750,000	$ 825,000
	Total Project Costs							$ -
(35)	***Total Project Costs***	$ 3,647,750	$ -	$ 722,750	$ 650,000	$ 700,000	$ 750,000	$ 825,000
	Project Contingency							
(36)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	***Total Contingency***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total Budget Request							
(39)	***Total Budget Request***	$ 3,647,750	$ -	$ 722,750	$ 650,000	$ 700,000	$ 750,000	$ 825,000
	Funding Source							
(40)	Capital Construction Fund (CCF)	$ 3,087,750	$ -	$ 597,750	$ 590,000	$ 600,000	$ 625,000	$ 675,000
(41)	Cash Funds (CF)	$ 560,000	$ -	$ 125,000	$ 60,000	$ 100,000	$ 125,000	$ 150,000
(42)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(43)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	3,647,750	-	722,750	650,000	700,000	750,000	825,000

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- *NARRATIVE (CC_IT-N)*			
Capital Construction Fund Amount (CCF):	**$597,750**		
Cash Fund Amount (CF):	$125,000		
Funding Type:	Capital Renewal (CR)		
Intercept Program Request? (Yes/No):	No		
Institution Name:	Otero Junior College		
Project Title:	Technology and 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 2020 - 2021		
Priority Number (Leave blank for continuation projects):	1 OF 1		
Name & Title of Preparer:	L. Patrick Malott, CPA		
E-mail of Preparer:	pat.malott@ojc.edu		
Institution Signature Approval:	L. Patrick Malott	5/8/2019	Date
OSPB Signature Approval:			Date
CDHE Signature Approval:	Lu E. Hine	6/17/19	Date

A. PROJECT SUMMARY/STATUS:

Otero Junior College is requesting $597,750 in State of Colorado Capital Renewal Information Technology funding and will provide $125,000 of the College's cash funds from student fees to bring the total project amount to $722,750. With continual advances and innovation in technology equipment and software, particularly in the areas of instruction and student learning, it is vital the College remain current in technological equipment in order to utilize the newest software applications that require state of the art equipment to effectively deliver the content. Our students demand up to date technology and the College must provide access to current equipment and software in order to effectively assist with the successful completion of the students' experience while attending Otero Junior College.

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)	$3,057,750	$0	$597,750	$560,000	$600,000	$625,000	$675,000
Cash Funds (CF)	$590,000	$0	$125,000	$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)	**$3,647,750**	**$0**	**$722,750**	**$650,000**	**$700,000**	**$750,000**	**$825,000**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

The Technology, Software, and Equipment Upgrades project funding will provide Otero Junior 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, classrooms, and also assist with enhancement of an improved emergency notification system placed into service on our Campus.

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 Junior College to maintain the ability to receive, process, and accurately disseminate all of this information. In order 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 in order to attract and retain students and remain viable as an educational institution of higher learning.

Communication with students, faculty, visitors, and staff has always been a priority and, in the past few years, it has become a significant need in order to provide not only day to day information but, more importantly, relay guidance and direction in emergency situations that involve natural disasters and other adverse conditions that may affect the safety and well-being of all people on the Campus. Technology plays an important role in dissemination of information because of the many ways people receive and process information including, but not limited to, telephones (land lines), cell phones, e-mail, texting, Snapchat, Instagram, and sometimes even talk to each other. The College deems it necessary to relay information in various ways to ensure all are made aware of possible adverse conditions that warrant some notification to assist with the safety of everyone. Funding for this project will allow the College to provide enhancements to the various notification avenues we employ and increase the probability that adequate procedures are in place to ensure all on the Campus are kept informed regarding any and all events that may take place.

D. PROGRAM INFORMATION:

Implementation of the Technology and Equipment Upgrades Project will be administered by the Computer Center Staff at Otero Junior 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 consultation 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, trainings will be scheduled for end users to ensure familiarity with the new processes. This project will positively affect all students, staff, visitors, and programs on our Campus providing cutting edge communication and information delivery to enhance learning, safety, and success across the entire College.

E. CONSEQUENCES IF NOT FUNDED:

Otero Junior College strives to maintain state of the art teaching and learning techniques. Our students and staff require up to date tools and information in order 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 instructional staff will be diminished. In addition, recent domestic and world events have dictated rural and urban colleges must take action to mitigate the chances of adverse events taking place on campuses and, furthermore, advise students, staff, and visitors of recommended effective procedures to follow to provide the safest way to resolve these situations. 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 Junior 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 Junior College Student 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:

Phase 1 of 1	Start Date	Completion Date
Pre-Design	July, 2020	July, 2020
Design	August, 2020	September, 2020
Construction	N/A	N/A
FF&E /Other	October, 2020	June, 2023
Occupancy	N/A	N/A

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	

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 instructional staff 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 instructors to teach and students to learn and become prepared to take advantage of opportunities that are present now and become available in the future.

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 Junior 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. College Instructors and Students expect and demand the latest technology be available in order for those involved to perform at their highest level, both teaching and learning. The College strives to provide the latest technology available yet recognizes the importance of financial planning in order 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 process. In order for Otero Junior 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 instructors desire to teach effectively.

DEPARTMENT OF HIGHER EDUCATION
OTERO JUNIOR COLLEGE

FY 2020-2021 Capital IT Request
May, 2019

OJC TECHNOLOGY AND EQUIPMENT UPGRADES

IT- Health, Security, and Industry Standards:

Technology and related devices are the most important mechanisms that allow Otero Junior College to communicate with students, staff, and visitors on our Campus in a timely and efficient fashion. Computers, electronic signage, e-mail, texting, face book, along with assorted additional social media options allow the College to be in touch with individuals associated with the College and keep them informed about everything from class schedule changes to letting people know to take appropriate cover because of an approaching violent storm such as a tornado. It is imperative the College maintain the latest technology because our students come to Campus with the most up to date communication devices and we must be able to access these devices with information that, at times, could be lifesaving. The App Armor emergency notification system that is in place at all Community Colleges requires current technology at each location to effectively perform its functions.

The Colorado Community College System has put forth significant funding, time and effort over the last few years establishing a disaster recovery plan that enables the System Office and all of the Community Colleges to store operational data at each of the Colleges, the System Office computer center at the Lowry location in Denver, as well as at an off-site location in the Denver area. In order for Otero Junior College to avail ourselves of these back up services, we must maintain current servers, data transmission equipment, and networks to update Otero's operational information and data so that we can access this information if the primary source of data storage is compromised in some fashion.

The College believes the technology we have in place is adequate, however, continual upgrades and improvements by the industry demands we must stay current in order for our processes to remain effective.

Other Fund Sources:

The total budget for this project is $722,750 and our request is $597,750 of funding from the State of Colorado capital resources and $125,000 will be contributed by Otero Junior College from technology fees assessed to students.

Quality of Planning/Proposal:

The Otero Junior College in conjunction with other Community Colleges and The Colorado Community College System utilizes significant funding and the expertise of qualified staff and outside consultants to plan, develop, and implement policy and procedure to provide effective communication and data preservation necessary for the safe and successful operations of the Colleges. We have representatives from instruction, administration, physical plant, and students on our safety committee to ensure we are aware of concerns of the Campus that we in turn can evaluate and mitigate with consultation via other Colleges and the System Office.

Clear Identification of Beneficiaries:

The students, faculty, staff, and visitors as well as community members will be the primary beneficiaries of this project. In addition to the Theatre and Music Programs, there are other classes and events that use the facility from time to time for lectures, entertainment, various productions, large meetings, dance recitals, and graduation ceremonies. The stage, sound, and projection equipment are used by the dormitory residents' student orientation and other activities involving large student and community groups. The Humanities Center is truly a College and Community use building that attracts many visitors from elementary school student choral groups to 50 year class reunions.

Achieves Goals:

The mission of Otero Junior College is predicated on providing quality higher education that is accessible, transforms lives, expands employment opportunities, enriches our communities, promotes individual and global culture diversity and fosters economic development. The improvements accomplished by the funding of this project will assist the College in providing a state of the art instruction, communication, and data preservation platform that contributes to the overall goals of the College. The College's strategic plan priority goals include:

Student Success, Access, Retention and Completion
Fiscal Stability
Facilities Planning / Campus Environment/Campus Safety & Security
Institutional Effectiveness.

Technology and Equipment Upgrades will enhance our students' opportunity for success and contribute to a well-rounded education and a safe environment to achieve their personal goals. They will assist the availability of a venue that will contribute to increased retention and completion of program degrees and/or certificates, fiscal stability of the College as well as the overall effectiveness of the institution.

Governing Board Priority:

The contribution of this project will assist Otero Junior College in continuing to offer quality programs, maintain and/or increase enrollment, provide quality education and training, and help ensure the viability of the Institution for years to come.

OTERO JUNIOR COLLEGE
CAPITAL - INFORMATION TECHNOLOGY REQUEST EQUIPMENT REQUEST FY2020-21

	QUANTITY	ESTIMATED UNIT COST	TOTAL ESTIMATED COST
1. LENOVO LAPTOP COMPUTERS - FOR STAFF THINK PAD L580 W / MONITOR	225	$ 990	$ 222,750
2. APPLE I-PADS - FOR LIBRARY STUDENT LEARNING COMMONS	150	$ 1,250	$ 187,500
3. APPLE MACBOOK LAPTOP COMPUTERS STUDENT LEARNING COMMONS	50	$ 1,400	$ 70,000
4. LENOVO "TINY" COMPUTER - STUDENT COMPUTER LABS THINK CENTRE M710Q W/MONITOR	40	$ 1,000	$ 40,000
5. SURVEILLIANCE EQUIPMENT - SERVER ROOM 6 CAMERAS, RECORDING EQUIP, MOTION ACTIVATED	6	$ 2,500	$ 15,000
6. CLASSROOM AUDIO/VIDEO UPGRADES TWO-WAY AUDIO / VIDEO COMMUNICATION USED IN CONNECTION WITH BROADCAST OF CONCURRENT EDUCATION COURSES TO THE 9 SCHOOL DISTRICTS IN THE OTERO JUNIOR COLLEGE SERVICE AREA	4	$ 30,000	$ 120,000
7. COMPUTER EQUIPMENT AND LARGE SCREEN VIDEO MONITORS ACCOMPANIED BY AUDIO AND VIDEO RECEPTION CAPABLE OF RECEIVING AND PLAYBACK OF CONCURRENT EDUCATION COURSE MATERIALS FROM OTERO JUNIOR COLLEGE TO THE 9 SCHOOL DISTRICTS IN OUR SERVICE AREA.	9	$ 7,500	$ 67,500
TOTAL FUNDING REQUEST			$ 722,750
CASH FUNDS CONTRIBUTED BY OTERO JUNIOR COLLEGE STUDENT TECHNOLOGY FUND			$ (125,000)
TOTAL REQUEST FOR STATE OF COLORADO INFORMATION TECHNOLOGY FUNDING:			$ 597,750

COLORADO NORTHWESTERN COMMUNITY COLLEGE

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

Print Date: 5/8/2019

Five-Year Capital Information Technology (IT) Project Plan FY 2020-21 to FY 2024-25 (CC-IT-P)

(A)	(1) Institution Name:	Colorado Northwestern Community College	(2) Institution Signature Approval:	Date
(B)	(1) Name & Title of Preparer:	Fred Byers, Director of Information Technology	(2) CDHE Signature Approval: L. E. Hine	6/17/19 Date
(C)	(1) E-mail of Preparer:	Fred.Byers@cncc.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)	$2,829,320	$0	$812,172	$1,204,976	$270,724	$270,724	$270,724
	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)	**$2,829,320**	**$0**	**$812,172**	**$1,204,976**	**$270,724**	**$270,724**	**$270,724**

(1)	Project Title:	CNCC ~ Computer/Network Upgrade 4 Phase Project						
(2)	Brief Description of Project:	Upgrade computer network to GigaBit speed, Backbone to 10 Gigabit to server/data center. Refresh aging fleet of computers						
(3)	Intercept Program? (Yes/No):							
(4)	(a) Priority Number:	1	(b) Project Type:	Upgrade IT equipment		(c) Gross Square Feet:	290,000	
(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 Construction Funds (CCF)	$1,624,344	$0	$812,172	$0	$270,724	$270,724	$270,724
(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)	$1,624,344	$0	$812,172	$0	$270,724	$270,724	$270,724

(1)	Project Title:	Security Monitoring and Controlled Access Upgrades 1 Phase Project						
(2)	Brief Description of Project:	Upgrade and install security monitoring and controled access equipment						
(3)	Intercept Program? (Yes/No):							
(4)	(a) Priority Number:	2	(b) Project Type:	Secuirty and IT Upgrade		(c) Gross Square Feet:	287,350	
(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)	$1,204,976	$0		$1,204,976	$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)	$1,204,976	$0	$0	$1,204,976	$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: 5/8/2019

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):	
(B)	(1) Institution:	Colorado Northwestern	(2) Name & Title of Preparer:	Fred Byers, Director of Information Technology
(C)	(1) Project Title:	CNCC ~ Computer/Network Upgrades	(2) E-mail of Preparer:	Fred.Byers@cncc.edu
(D)	(1) Project Phase (__ of __):	1 of 4	(2) State Controller Project # (If continuation):	
(E)	(1) Project Type (CC or CR):	CC	(2) Institution Signature Approval:	8/May/19 Date
(F)	(1) Year First Requested:	FY 2020 - 2021	(2) COHE Signature Approval:	6/17/19 Date
(G)	(1) Priority Number (Leave blank for continuation projects):	1 of 2	(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	$ 50,000	$ -	$ 50,000	$ -	$ -	$ -	$ -
(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***	$ 50,000	$ -	$ 50,000	$ -	$ -	$ -	$ -
	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	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(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	$ 75,000	$ -	$ 50,000	$ -	$ 25,000	$ -	$ -
(29)	PCs, Laptops, Terminals, PDAs	$ 944,000	$ -	$ 308,965	$ -	$ 195,012	$ 220,012	$ 220,012
(30)	Printers, Scanners, Peripherals	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Network Equipment/Cabling	$ 171,071	$ -	$ 171,071	$ -	$ -	$ -	$ -
(32)	Other (Specify) Recycle, UPS Battery Backup	$ 140,000	$ -	$ 110,000	$ -	$ 10,000	$ 10,000	$ 10,000
(33)	Miscellaneous	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(34)	***Total Equipment and Miscellaneous Costs***	$ 1,330,071	$ -	$ 640,036	$ -	$ 230,012	$ 230,012	$ 230,012
	Total Project Costs							$ -
(35)	***Total Project Costs***	$ 1,380,071	$ -	$ 690,036	$ -	$ 230,012	$ 230,012	$ 230,012
	Project Contingency							
(36)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(37)	10% for Renovation	$ 138,007	$ -	$ 69,004	$ -	$ 23,001	$ 23,001	$ 23,001
(38)	***Total Contingency***	$ 138,007	$ -	$ 69,004	$ -	$ 23,001	$ 23,001	$ 23,001
	Total Project Inflation Costs							
(39)	Inflation Percentage Applied		0.00%	7.00%	0.00%	7.00%	7.00%	7.00%
(40)	***Total Inflation Costs***	$ 106,265	$ -	$ 53,132.73	$ -	$ 17,710.91	$ 17,710.91	$ 17,710.91
	Total Budget Request							
(41)	***Total Budget Request***	$ 1,624,344	$ -	$ 812,172	$ -	$ 270,724	$ 270,724	$ 270,724
	Funding Source							
(42)	Capital Construction Fund (CCF)	$ 1,624,344	$ -	$ 812,172	$ -	$ 270,724	$ 270,724	$ 270,724
(43)	Cash Funds (CF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(44)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(45)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL	1,624,344	-	812,172	-	270,724	270,724	270,724

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- *NARRATIVE (CC_IT-N)*			
Capital Construction Fund Amount (CCF):	**$812,172**		
Cash Fund Amount (CF):			
Funding Type:	CC IT Request		
Intercept Program Request? (Yes/No):			
Institution Name:	Colorado Northwestern Community College		
Project Title:	CNCC ~ Computer/Network Upgrades		
Project Phase (Phase _of_):	Phase 1 of 4		
State Controller Project Number (if continuation):			
Project Type:	x	Technology Hardware	
	x	Technology Software	
Year First Requested:	FY 2020 - 2021		
Priority Number (Leave blank for continuation projects):	1 OF 2		
Name & Title of Preparer:	Fred Byers – IT Director		
E-mail of Preparer:	fred.byers@cncc.edu		
Institution Signature Approval:		21/May/2019	Date
OSPB Signature Approval:			Date
CDHE Signature Approval:	L. E.	6/17/19	Date

A. PROJECT SUMMARY/STATUS:

The objective of the project is to upgrade the existing bandwidth for all of the classrooms, labs, and administration buildings to gigabit Ethernet from desktop to switches and upgrade the backbone of all of the switches to ten gigabit Ethernet. Currently switches are failing at any power loss or power bump on campus. This is due to the age of network switches and lack of stable UPS Battery Backups. Prior phases did not account for complete overhauls of the system or of the network. Due to D2L and online learning there has been an increased need for a faster and more stable online presence by instructors and students alike. CNCC will also be refreshing 12 to 13 year old computers over in the first phase, and other aging network and computers over three additional phases.

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)	$1,624,344	$0	**$812,172**	$0	$270,724	$270,724	$270,724
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)	**$1,624,344**	**$0**	**$812,172**	**$0**	**$270,724**	**$270,724**	**$270,724**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

The project is to upgrade the network capabilities of CNCC because we are seeing bottlenecks, slowing of network performance, and complaints from users. This is due to slow network access and old and slow network computers. Funding would be primarily from the CC_IT Request where the goals of the project would be to enhance users' productivity and satisfaction with CNCC. This will be accomplished over the course of four phases starting in 2020-2021. This phase needs to be complete before the start of project priority number 2. Project priority number 1 would then continue on for three additional phases at 2022-2023, 2023-2024, and 2024-2025.

D. PROGRAM INFORMATION:

The network and computer refresh and upgrade will impact the following areas: all business and administration, all faculty and staff, and all students (online and in the class room). With the increased bandwidth we will be able to increase the wireless access in the classroom while also providing a more stable and secure learning environment.

E. CONSEQUENCES IF NOT FUNDED:

If the project is not funded computer labs will continue to age and fail, students will have a continued loss of connectivity with instructors and other students, and will affect students overall experience with D2L and their college education.

F. ASSUMPTIONS FOR CALCULATIONS:

Based upon historical data provided by CCCS, CNCC was able to take unit costs to calculate a cost/device cost to design, and cost to install. A 7% inflation value and 10% contingency value were used in the assumed calculation.

G. OPERATING BUDGET IMPACT:

While updating and refreshing equipment Students, faculty, and staff might experience small windows of downtime; however, by refreshing old servers, switches, desktops, and laptops CNCC will see a reduction in failures that could cost longer outages of services.

H. PROJECT SCHEDULE:

Phase 1 of 4	Start Date	Completion Date
Pre-Design	January 2020	March 2020
Design	April 2020	June 2020
Construction	July 2020	June 2021

Phase 2 of 4	Start Date	Completion Date
Construction	July 2022	June 2023

Phase 3 of 4	Start Date	Completion Date
Construction	July 2023	June 2024

Phase 4 of 4	Start Date	Completion Date
Construction	July 2024	June 2025

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:

If the project is funded, it will reduce downtime caused by failures, slow computers, and slow or disconnected networks. Online access to Banner, COGNOS, D2L, and WebEx will be enhanced and stabilized for all students, faculty, and administration. Cost savings will be achieved through increases to productivity, less maintenance, and fewer downtime.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

CNCC currently has Barracuda backup servers on both campuses that back up to the other campuses Barracuda server. The servers that will be purchased in phases 1 and 2 will have DNS shares to each other for redundant services.

L. BUSINESS PROCESS ANALYSIS:

The only alternative to this project is to continue repairing the aging infrastructure and equipment while waiting for systems to fail. Some of these systems are over 13 years old and are failing unexpectedly. Due to the age of the equipment it is becoming very difficult to replace with equivalent systems. This project fits in with the strategic IT plan by upgrading our infrastructure over the phases of this project which will stabilize CNCC's learning environment for the coming years.

COMMUNICATIONS SYSTEM UPGRADES, COLORADO STATE UNIVERSITY - PUEBLO

Print Date: 10/1/2019

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

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

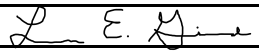
(A)	(1) **Funding Type:**	**State Funded**	(2) **Intercept Program Request? (Yes/No):**	No
(B)	(1) **Institution:**	Colorado State University - Pueblo	(2) **Name & Title of Preparer:**	Karl Spiecker, Vice President for Finance and Administration
(C)	(1) **Project Title:**	Communications System Upgrade	(2) **E-mail of Preparer:**	karl.spiecker@csupueblo.edu
(D)	(1) **Project Phase (__ of __):**	1 of 1	(2) **State Controller Project # (if applicable):**	N/A
(E)	(1) **Project Type:**	Capital Construction (CC)	(2) **Institution Signature Approval:**	Karl F. Speicker Date 6/10/2019
(F)	(1) **Year First Requested:**	FY 2020-21	(2) **CDHE Signature Approval:**	10/1/19 Date
(G)	(1) **Priority Number:**	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	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(3)	Building Acquisition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Consultants/Contactors	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(6)	Quality Assurance	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(7)	Independent Verification and Validation (IV&V)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(8)	Training	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(9)	Leased Space (Temporary)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(10)	Feasibility Study	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(11)	Other Services/Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional Services	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Associated Building Construction							
(15)	(a) New (GSF):	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(16)	New $_____/GSF	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(17)	(b) Renovate GSF:	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(18)	Renovate $_____/GSF	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(19)	Site Work/Landscaping	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(20)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(21)	Inflation for Construction	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(22)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(23)	***Total Construction Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Software Acquisition							
(24)	Software COTS	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(25)	Software Built	$ 1,350,000	$ -	$ 1,350,000	$ -	$ -	$ -	$ -
(26)	Inflation on Software	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(28)	***Total Software***	**$ 1,350,000**	**$ -**	**$ 1,350,000**	**$ -**	**$ -**	**$ -**	**$ -**
	Equipment							
(29)	Servers	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(30)	PCs, Laptops, Terminals, PDAs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(31)	Printers, Scanners, Peripherals	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(32)	Network Equipment/Cabling	$ 588,916	$ -	$ 588,916	$ -	$ -	$ -	$ -
(33)	Other (Specify)	$	$ -	**$ -**	$ -	$ -	$ -	$ -
(34)	Miscellaneous	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(35)	***Total Equipment and Miscellaneous Costs***	**$ 588,916**	$ -	**$ 588,916**	$ -	$ -	$ -	$ -
	Total Project Costs							$ -
(36)	***Total Project Costs***	**$ 1,938,916**	**$ -**	**$ 1,938,916**	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(37)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(38)	10% for Renovation	$ 193,892	$ -	$ 193,892	$ -	$ -	$ -	$ -
(39)	***Total Contingency***	**$ 193,892**	$ -	**$ 193,892**	$ -	$ -	$ -	$ -
	Total Budget Request	**$ 2,132,807**		**$ 2,132,807**				
(40)	***Total Budget Request***	**$ 2,132,807**	**$ -**	**$ 2,132,807**	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(41)	Capital Construction Fund (CCF)	$ 2,132,807	$ -	$ 2,132,807	$ -	$ -	$ -	$ -
(42)	Cash Funds (CF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(43)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(44)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	TOTAL	**$ 2,132,807**	**-**	**2,132,807**	**-**	**-**	**-**	**-**

* Accompanies CC_IT-N Form

COLORADO
Department of Higher Education

STATE OF COLORADO
DEPARTMENT OF HIGHER EDUCATION

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- *NARRATIVE (CC_IT-N)*		
Capital Construction Fund Amount (CCF):	**$ 2,132,807**	
Cash Fund Amount (CF):		
Funding Type:	State Funded	
Intercept Program Request? (Yes/No):	No	
Institution Name:	Colorado State University-Pueblo	
Project Title:	Communications System Upgrade	
Project Phase (Phase _of_):	Phase 1 of 1	
State Controller Project Number (if continuation):	N/A	
Project Type:	X	Technology Hardware
	X	Technology Software
Year First Requested:	FY 2020-21	
Priority Number (Leave blank for continuation projects):	1 OF 1	
Name & Title of Preparer:	Karl Spiecker, Vice President for Finance and Administration	
E-mail of Preparer:	karl.spiecker@csupueblo.edu	
Institution Signature Approval:	Karl F. Spiecker	Date 6/10/2019
OSPB Signature Approval:		Date
CDHE Signature Approval:		10/1/19 Date

A. PROJECT SUMMARY/STATUS:

The purpose of this Capital Budget Request is to fund the replacement of the campus telephone system at Colorado State University-Pueblo (CSU-Pueblo) with a Voice Over Internet Protocol (VOIP) unified communications telephone system. The total funding request is $2,132,807. The current traditional PBX system is antiquated and at end of life.

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)	$ 2,132,807	$0	**$2,132,807**	$0	$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	$0
Total Funds (TF)	**$ 2,132,807**	**$0**	**$2,132,807**	**$0**	**$0**	**$0**	**$0**

C. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

In order to obtain and support a new VOIP unified communications telephone system, CSU-Pueblo is requesting funding for the following campus upgrades:

New VOIP Telephone System

The request includes the procurement of a 1,000-license VOIP unified communications telephone system. A VOIP unified communications system utilizes data network infrastructure and allows seamless integration of telephone calling, voicemail, email, video conferencing, integration with mobile devices, and other features. Included are hardware, 1,000-license software, voicemail, and E-911 integration. Two instances of the system are included for purposes of redundancy.

New VOIP Campus Emergency (Blue) Telephones

The request includes the provision and installation of 20 campus emergency telephones (15 replacement and 5 new additional).

Additional Network Power Over Ethernet (POE) Edge Switches

The request includes the provision and installation of 34 additional edge switches and infrastructure to be deployed in IT data closets across campus.

D. PROGRAM INFORMATION:

The project implementation follows best practices as set forth by IEEE standards, and network and VOIP equipment. All areas of campus that utilize telephone calling, voicemail, email, video conferencing (among other applications) will be impacted by the implementation of this request. Instruction, IT, and Campus Safety will also be impacted. Beneficiaries of the VOIP upgrade and installation of new and additional emergency phones are students, employees, and visitors to CSU-Pueblo.

Implementation Plan:

New VOIP Telephone System

The implementation plan is to request a documented quote for the VOIP telephone system. The quote will include equipment, software, and features based on the specifications provided to the vendor by the CSU-Pueblo Telecommunications Services department.

The timeline for implementation of the new VOIP telephone system is three months; however, additional portions of the Capital Budget Request must be completed concurrently for the VOIP system to be installed. These parts of the request are:

Installation of Additional Network Power Over Ethernet (POE) Edge Switches and infrastructure

This portion of the Capital Budget Request will take six months to complete.

New VOIP Campus Emergency (Blue) Telephones
This portion of the Capital Budget Request will take three months to complete.

E. CONSEQUENCES IF NOT FUNDED:

Not funding the VOIP telephone system will prevent the University from taking advantage of 21st century technology and will simply mean that CSU-Pueblo will continue to use its existing traditional PBX telephone system, which is adequate for little more than basic communication between persons on the telephone. It has some enhanced features such as voicemail, conferencing, and E-911 services, but does not provide the advanced unified communications services of a VOIP telephone system.

Not funding the VOIP technology upgrade and added emergency blue phones will simply force CSU-Pueblo to maintain the campus safety status quo. The VOIP technology upgrade and addition of emergency blue phones will provide increased peace of mind for those traveling throughout campus due to enhanced direct dial connectivity with the Pueblo County Sheriff's Office. Emergency phones are an important part of CSU-Pueblo's safety strategy and a visible deterrent to those who might otherwise engage in criminal behavior. The upgraded technology and added emergency phones will also satisfy a requirement of the Clery Act to document CSU-Pueblo's efforts to improve campus safety.

F. ASSUMPTIONS FOR CALCULATIONS:

Zultys VOIP telephone system, 1,000 license	$ 1,350,000
Extreme POE network switches and infrastructure, 34 ea.	$ 159,114
Emergency "blue" VOIP phones, directional boring cabling	$ 429,801
Contingency (10%)	$ 193,892
Sub Total Cost	**$ 2,132,807**

G. OPERATING BUDGET IMPACT:

No operating budget increases are anticipated.

H. PROJECT SCHEDULE:

Phase 1 of 1	Start Date	Completion Date
Planning	**7/1/2020**	**8/31/2020**
Implementation	**9/1/2020**	**12/1/2020**
Equipment	**9/1/2020**	**6/30/2021**
Completion	**7/1/2020**	**6/30/2021**

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):	N/A	

J. COST SAVINGS / IMPROVED PERFORMANCE OUTCOMES:

Implementation of this project will result in the realization of cost savings with regard to purchased services in the form of telecommunications lines, circuits, and services. Additionally, the new technologies employed by the VOIP telephone system will result in greater efficiencies and ease of operation with regard to how the unified communication technologies inherent in the new VOIP telephone system are utilized by the end user.

K. SECURITY AND BACKUP / DISASTER RECOVERY:

The VOIP telephone system will utilize the Security and Backup services already inherent in the campus network. Two instances of the VOIP telephone system will be installed and housed in separate locations to aid in disaster recovery.

L. BUSINESS PROCESS ANALYSIS:

As it is at end of life, the existing traditional PBX system is the single point of failure for telephony at CSU-Pueblo and, as such, should be replaced as soon as practicable. As the most current technology for telephony is the VOIP telephone system, it has been determined this technology is the most appropriate replacement for the existing system

Program Plan
Colorado State University – Pueblo
Information Technology Voice-over IP (VOIP) Installation

FY 2020-2021 Capital Budget Request – June 10, 2019

PREFACE

Effective communication is vital to the success of any University campus. Higher education is constantly evaluating methods to enhance the learning environment, as well as advance the technological approach to course instruction. Institutions are switching to Voice Over Internet Protocol (VOIP) systems to provide unified communication across campus by combining phone calls, texts, conference calls, video chats, email, and desktop applications to provide a unique user interface. VOIP allows users to make and receive phone calls using a high speed internet connection, as opposed to a traditional phone line. Upgrading to VOIP is becoming necessary for universities due to fact that traditional phone systems, i.e. legacy phone systems, are not manufactured as they were historically and replacement parts for these systems are becoming more difficult to find. By migrating an existing legacy phone system to a VOIP system, an institution can utilize existing network infrastructure and reduce operational costs such as monthly service charges, all while benefiting from long distance calls at no cost.

This program plan strives to support the Colorado State University-Pueblo (CSU-Pueblo) Strategic Plan and its goals for providing high quality educational opportunities to students, providing research opportunities for faculty, and supporting service to the community. Additionally, Colorado Department of Higher Education and State goals have been taken into consideration and are addressed as well. CSU-Pueblo's role is to promote opportunities to students throughout Southern Colorado. With the installation of a functional VOIP system on the campus, CSU-Pueblo's existing communication barriers will be greatly reduced and will greatly increase the number of students the University is able to reach.

PROBLEM STATEMENT

As data networks become more reliable and high-speed networks continue to improve, the need for CSU-Pueblo to move to a VOIP system will continue to increase. CSU-Pueblo presently utilizes a legacy phone system on campus through the use of digital desktop phones. This system will ultimately become antiquated. Replacement parts will continue to become more costly and increasingly difficult to find, as will service technicians trained in their maintenance and repair.

CSU-Pueblo utilizes wireless emergency call boxes located throughout the exterior walkways on campus to alert the Office of Campus Security of emergencies. While the University utilizes an emergency text messaging system, it operates independently of all other systems on campus. The current legacy system also does not allow for the ability to perform reverse 911 calls to the campus community.

CSU-Pueblo is constantly striving to improve communication across campus and safety remains a top priority. With the installation of a VOIP system, progression can be made toward improving both. For these reasons, CSU-Pueblo is requesting the following initiatives:

Initiative #1 – Install New Voice Over Internet Protocol (VOIP)
Initiative #2 – Install New Campus Emergency Phones
Initiative #3 – Install New Network Power-Over-Ethernet (POE) Switches and Infrastructure

With the installation of a new VOIP system, CSU-Pueblo will not only improve connectivity and communication throughout the campus environment but, more importantly, will enhance campus safety. A new VOIP system will provide unified communication with the ability to generate reverse 911 calls during emergencies and provide emergency text messaging, as well as provide new emergency callboxes to be located throughout currently deficient exterior walkways across campus.

PROJECT DETAIL

Initiative #1 – Install New Voice Over Internet Protocol (VOIP)

Project Description

The request includes the replacement of the current campus PBX telephone system with a new VOIP unified system on the CSU-Pueblo campus. A VOIP unified communications system utilizes data network infrastructure and allows seamless integration of telephone calling, voicemail, email, video conferencing, and other features. Included are hardware, 1,000-license software, voicemail, E-911 integration, and two instances of the system for purposes of redundancy.

Background and Justification

CSU-Pueblo's existing traditional PBX is at end of its useful life. Although CSU-Pueblo has factory-trained technicians and a supply of spare parts, the technology is outdated (circa early 2000s) and does not offer the robust options of today's VOIP systems. The replacement of the PBX with a new VOIP system will afford campus faculty and staff the ability to improve communication and bring CSU-Pueblo in line with peer institutions who are already utilizing this technology.

Cost-Benefit Analysis and Project Alternatives

The implementation of this project will result in the realization of cost savings with regard to purchased services in the form of telecommunications lines, circuits, and services. Additionally, the new technologies employed by the VOIP telephone system will result in greater efficiencies and ease of operations with regard to how the unified communication technologies inherent in the new VOIP telephone system are utilized by the end user.

Movement to the cloud of campus systems was also researched. The campus is moving non-essential computing activities to the cloud but the redundant datacenter will still be needed to house the networking, firewalls, and servers that will be need to connect to the cloud systems.

Consequences If Not Funded

Not funding the VOIP telephone system will prevent the University from taking advantage of 21st century technology and will simply mean that CSU-Pueblo will continue to use its current traditional PBX telephone system, which is adequate for little more than basic communication between persons on the telephone. It has some enhanced features such as voicemail, conferencing, and E-911 services, but does not provide the advanced unified communications services of a VOIP telephone system. Not funding the VOIP technology upgrade and added emergency blue phones will simply force CSU-Pueblo to maintain the campus safety status quo.

Assumptions for Calculations

Initiative #1 – Install New VOIP

VOIP Telephone System
(equipment and services installed with 1,000 licenses) **$1,350,000**

Timeline

Installation **3 months**

Initiative #2 – Install New Campus Emergency Phones

Project Description

The request includes the provision and installation of 20 campus emergency telephones throughout the campus walkways connected to VOIP campus system.

Background and Justification

CSU-Pueblo's current emergency (blue) telephones are installed in parking lots and campus areas where student, faculty, and staff may be vulnerable to unsafe conditions. The existing system utilizes wireless ultrahigh frequency digital radio technology and has historically been problematic in regard to reliable operation. As a life safety issue, installing new VOIP-capable emergency phones hard wired to the VOIP system will eliminate the reliability issue while the addition of five new phones will help to eliminate campus coverage deficiencies.

The campus network and system security upgrade is to install systems and tools that follow *The Critical Security Controls for Effective Cyber Defense* set forth by the Council on Cyber Security (Otherwise known as the CSC 20 rules). This is the security framework that the OIT's Office of Information Security has been successful in implementing to minimize the threats present in today's information technology landscape.

Cost-Benefit Analysis and Project Alternatives

Currently, CSU-Pueblo does have a wireless emergency phone system across campus. The system is becoming antiquated with replacement parts difficult to obtain. At some point, the system will become obsolete.

Assumptions for Calculations

Installation of twenty (20) new emergency phones
(cost includes directional boring and cabling) **$424,347**

Timeline

Installation **3 months**

Initiative #3 – Install New Network Power-Over-Ethernet (POE) Switches

Project Description

The request includes the provision and installation of 34 additional Edge switches to be deployed in IT data closets across campus to support the new VOIP telephone system.

Background and Justification

While CSU-Pueblo has recently upgraded all of its Edge switches to the latest technology, not enough are in place to handle the addition of POE VOIP telephone handsets. The additional 34 Edge switches requested are needed in order to be able to place new handsets and replace the old on a one-for-one basis. The new VOIP handsets utilize the POE function of the Edge switches to power displays and functions. Without the additional switches, the VOIP phones will require a power "brick" at each handset.

Assumptions for Calculations

Installation of 34 new Edge switches **$159,114**

Timeline

Installation **3 months**

Summary of Requested Funds

Description	Total Cost
Initiative #1 – Install New Voice Over Internet Protocol	$ 1,350,000.00
Initiative #2 – Install New Campus Emergency Phones	$ 424,347.00
Initiative #3 – Install New Network Power-Over-Ethernet Switches	$ 159,114.00
Contingency (10%)	$ 193,346
Total	**$ 2,132,807**

Colorado Department of Higher Education and State of Colorado Technology Goals

This Program Plan purposefully takes into account all Colorado Department of Higher Education (CDHE) and State Technology goals, which are also listed below. The Information Technology Campus Connectivity and Classroom Enhancements speak directly to improved access, more modern computers and technology, electronic services and workflow, and most important an enhanced learning experience that will positively impact student employability and support demands of Colorado employers.

Colorado Department of Higher Education

a) Provides full access to campus networks
b) Provides access to modern computers and software
c) Ensures minimum Internet access to faculty, students, and administration
d) Provides network support to accommodate demand
e) Provides for technology-enhanced classrooms and labs
f) Provides for training and development to ensure proficient use of information technology
g) Provides for electronic student services
h) Supports efficient use of information for administrative workflow processing, decision-making, and reporting both within the institution and with DHE
i) Provides digital library resources
j) Provides systems to support outreach
k) Supports distance learning to increase student access to instruction
l) Promotes the coordination of distance learning development within governing board system and within institution
m) Supports the workforce needs of Colorado employers
n) Other

State

a) Makes use of the Multi-use Network
b) Makes use of the Beanpole Fund—Not Applicable
c) Streamlines service to the beneficiaries
d) Implements cutting-edge technologies
e) Transforms the institution by implementing uses of the Internet for e-commerce and new management efficiencies
f) Replaces costly, cumbersome procedures with paperless, on-line methods
g) Builds on Colorado's world-recognized leadership in the development of telecommunications technology
h) Other

University Mission Statement and Strategic Plan

The University's name, mission and role were changed by the Colorado Legislature effective July 1, 2003. House Bill 02-1324 (Section 23-55-101, C.R.S.), establishes CSU-Pueblo University's Mission Statement as:

> ***Section 23-55-101, C.R.S., University established – role and mission.***
> *There is hereby established a University at Pueblo, to be known as Colorado State University-Pueblo, which shall be a regional, comprehensive university, with moderately selective admissions standards. The University shall offer a broad array of baccalaureate programs with a strong professional focus and firm grounding in the liberal arts and sciences. The University shall also offer selected Masters-level graduate programs.*

The University's Strategic Plan 2015-2020 contains technology and technology-related goals that guide the work of Information Technology Services (ITS) and technology decisions across campus. The plan identifies four major goals of the University, each of which requires development and support of campus technology. Goal Four directly addresses technology needs:

> ***Goal Four: Supportive Student Life***
> *We will provide our students a supportive student life experience that addresses their academic, social, physical, and technological needs.*

Objectives:

1. ***Enhance/increase co- and extra-curricular opportunities for involvement and engagement for students.***
2. ***Provide opportunities for networking, leadership, and mentoring opportunities for students both on and off-campus.***
3. ***Provide modern and relevant campus facilities and technology.***
4. ***Create Sophomore Experience Program.***
5. ***Improve campus residential life.***

Objective Three - Provide modern, comfortable, and safe campus facilities and technology to support student learning

Modern, comfortable, safe facilities play an important role in attracting new students as well as improving the quality of life for all students, faculty, and staff. Reliable and current technology is crucial to providing an academic environment that supports teaching, learning, and research and creative activity.

1. ***Measure:*** *Provide a totally wired/wireless campus by 2020.*

A. Strategy: *Promote an environment for academic success by increasing connectivity campus wide.*
B. Strategy*: Maintain and update computer labs across campus as necessary.*

The mission of Information Technology Services at CSU-Pueblo is to provide a broad spectrum of support for the planning, development, deployment, and integration of state-of-the-art facilities, infrastructure, and services to support the information technology needs of the academic, research, and administrative functions of CSU-Pueblo. This unit provides oversight, management, coordination, integration, and staffing of Technology Support Services, Network and Systems Support Services, Information Support Services, Instructional Development and Educational Technology Support Services, and Telephone and Network Services.

SUMMARY

A VOIP communications system will enhance the teaching and learning processes at the University by simplifying operations, improving engagement, and encouraging collaboration. Using a VOIP system helps students, faculty, and administrators create enriched learning opportunities in the following ways:

- Encouraging collaboration and interaction by allowing students, faculty, and off campus colleagues to meet virtually to share ideas and findings and to test their understanding on certain subjects anywhere and at any time.

- Providing an easy way for students, faculty, and off campus colleagues to share and receive information in a variety of formats (e.g., images, text, audio, and video), which can help nurture the mind and develop new skill sets.

- Extending the learning experience beyond the classroom. Through VOIP features such as video conferencing and instant messaging, students can pursue mentoring programs with outside field experts, participate in study groups, and join field trips via virtual learning environments.

VOIP will provide flexibility and increased adaptability to provide the necessary learning environment on the CSU-Pueblo campus. VOIP will provide operational savings to the campus as well as improved communication and increased campus security.