



October 1, 2020

The Honorable Senator Rhonda Fields  
Chair, Capital Development Committee  
Colorado General Assembly  
State Capitol Building, Room 029  
Denver, CO 80203

RE: OSPB Submission of the FY 2021-22 Non-Prioritized Capital Construction Requests

Dear Chair Fields:

As required by 24-37-304(1) (c.3) (I), C.R.S., the Governor's Office of State Planning and Budgeting (OSP) is providing FY 2021-22 capital construction requests for all departments of the state other than the Department of Higher Education and the Department of Transportation, to the Capital Development Committee (CDC). These requests have not been prioritized and have not yet been recommended for funding. The OSP prioritization and funding recommendations will be presented to the Committee by November 2, 2020.

Thank you for your consideration of the attached requests. Please contact me with any questions or concerns.

Sincerely,

A handwritten signature in blue ink that reads 'Cynthia Kelly'.

Cynthia Kelly  
Deputy Director for Budget

CC: Representative Dylan Roberts, Vice Chair, CDC  
Representative Janice Rich, CDC  
Senator Jerry Sonnenberg, CDC  
Senator Tammy Story, CDC  
Representative Alex Valdez, CDC  
Mr. Bo Pogue, CDC Staff  
Ms. Carolyn Kampman, Joint Budget Committee Staff Director  
Ms. Cheri Gerou, Office of the State Architect  
Mr. Seth Cohn, Office of State Planning and Budgeting



OSPB GF/CCF Capital Construction/Capital Renewal Non-Prioritized Project List

Capital Construction/Capital Renewal					
Request	Agency	Project Name	CCF (GF)	CF	FF
1	CDA	State Fair Water, Sanitary, and Stormwater Upgrades, Ph X of Y	\$ 3,373,907.00	\$ -	\$ -
2	CDA	Code and Life Safety Updates at Event Centers, Ph. X of Y	\$ 1,153,056.00	\$ -	\$ -
3	DHS	Sell Two Regional Center Homes	\$ (700,000.00)	\$ -	\$ -
4	DHS	Utility Infrastructure Mental Health Institute Fort Logan, Ph 2 of 3	\$ 15,881,605.00	\$ -	\$ -
5	DHS	Campus Utility Infrastructure Upgrade, CMHIP, Ph 1 of 3	\$ 10,503,970.00	\$ -	\$ -
6	DHS	HVAC Replacements Mental Health Institute Pueblo, Ph 1 of 3	\$ 4,196,140.00	\$ -	\$ -
7	DMVA	Field Artillery Readiness Center, Ph. 1 of 3	\$ 614,750.00	\$ -	\$ 1,844,250.00
8	DOC	SCF Steam Condensate Line Replacement, Ph 1 of 1	\$ 8,495,755.00	\$ -	\$ -
9	DOC	Water Tank Repair-Replacement, ECCPC, Ph. 1 of 1	\$ 4,765,057.00	\$ -	\$ -
10	DOC	Food Service Renovations, Sterling Correctional Facility, Ph 1 of 1	\$ 41,152,591.00	\$ -	\$ -
11	DOC	Sanitary Sewer Line Replacement, BVCF, Ph. 1 of 1	\$ 2,144,180.00	\$ -	\$ -
12	DOC	AVCF Utility Water Lines Replacement, Ph 1 of 1	\$ 8,817,987.00	\$ -	\$ -
13	DOC	Security Control System Replacement, AVCF, Ph 1 of 1	\$ 3,410,433.00	\$ -	\$ -
14	DOC	Security Control System Replacement, Colorado State Penitentiary, Ph 1 of 1	\$ 4,406,356.00	\$ -	\$ -
15	DOC	Shower and Toilet Room Improvements, AVCF, Ph. 1 of 1	\$ 11,430,262.00	\$ -	\$ -
16	DOC	Support Building Roof Replacement, DWCF, Ph. 1 of 1	\$ 2,026,199.00	\$ -	\$ -
17	DOC	Electrical Distribution Infrastructure Replacement, ECCPC, Ph. 1 of 1	\$ 13,522,053.00	\$ -	\$ -
18	DHE	HC - Grant Humphreys Mansion Exterior Restoration, Ph 1 of 1	\$ 3,930,232.00	\$ -	\$ -
<i>Capital Construction/Capital Renewal</i>			\$ 139,124,533.00	\$ -	\$ 1,844,250.00



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*			
A	(1) Project Title	REPAIR/REPLACE WATER, SANITARY AND STORMWATER INFRASTRUCTURE ON FAIRGROUNDS	
B	(1) Agency:	AGRICULTURE / STATE FAIR	(2) OSA Delegate Signature: <i>Joe Kim</i> 7/2/2020 Date
C	(1) Funding Type:	GENERAL FUND	(2) DPA's Risk Management ID#: N/A
D	(1) Project Phase (Phase __ of __):	PHASE 1 OF 1	(2) State Controller Project # (if a continuation):
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC) <input checked="" type="checkbox"/> Capital Renewal (CR)	(2) Principal Representative Signature: <i>Joseph R. Dean</i> 7/2/2020 Date
F	(1) First Year Requested:	FY20	(2) OSA Review Signature: _____ Date
G	(1) Priority Number:	_1_ of _1_	(2) Revision Date: _____ Date
H	(1) Total Project Cost:	\$3,373,907.00	(2) Current Phase Cost: \$3,373,907.00

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No \_\_\_\_\_ Date Approved: \_\_\_\_\_
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes \_\_\_\_\_ No \_\_\_\_\_ Date Approved: \_\_\_\_\_
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI Reported FCI: \_\_\_\_\_ Projected FCI: \_\_\_\_\_

**B. PROJECT SUMMARY/STATUS:**

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

This project will complete the separation of the sanitary sewer and storm water management on the Fairgrounds relieving the capacity and illicit discharges into the City storm and sanitary systems. This project will also address water quality issues at the 4-H complex ensuring a guaranteed potable water source in these facilities.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$0	\$0	\$3,373,907	\$0	\$0	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**D. PROGRAM INFORMATION:**

Provide a description of the programs within the agency impacted by this request. See instructions for further detail.

The programs impacted by this request will be the annual State Fair as well as the many other events that occur on the fairgrounds year-round. This will also impact the surrounding neighborhoods of the fairgrounds as well as the City of Pueblo.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

Provide a detailed description of the project, phases, funding and any other information relevant to the project. Include whatever pertinent material available to support the request. See instructions for further detail.

The purpose of this project is to separate the storm water and sanitary system as well as address water quality issues at the 4-H complex. Currently during large storms, the storm water fills the sanitary system leaving the fairgrounds vulnerable to overflowing restrooms and flooding neighboring streets. The 4-H complex water service currently has an issue with water quality due to deteriorating, aged galvanized supply line causing the water to contain sediment and be discolored. This causes concern for the safety of the water that is consumed and used for cooking especially during the State Fair where 4-H & FFA members use the complex exclusively for living and eating quarters. This request is a single phase that will complete this ongoing project.

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.			
Project No.	Project Title	Project Cost \$	Completion date or status
2015-100M14	REPAIR/REPLAE WATER, SANITARY AND STORMWATER INFRASTRUCTURE ON FAIRGROUNDS, PHASE 1	\$992,235.00	COMPLETED
2015-100M14	REPAIR/REPLAE WATER, SANITARY AND STORMWATER INFRASTRUCTURE ON FAIRGROUNDS, PHASE 2&3	\$2,209,919.00	IN CONSTRUCTION

**F. CONSEQUENCES IF NOT FUNDED:**

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

The consequences of this project if not funded are that the fairgrounds will continue to flood the city streets and tax their sanitary and storm systems. The on-going deterioration of the water supply lines to the 4-H complex will result in a total loss of a potable water source which is critical for the use of the 4-H Dining Hall and dormitories. Without the completion of this project, the fairgrounds cannot comply with water quality or stormwater management standards and will not be in compliance with the required MS-4 permit.

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

*Provide a description of the comparative analysis of lifecycle costs for this project verses the alternatives considered. See instructions for further detail.*

As this is a necessary project, the first alternative would be to have the Department of Agriculture fund this project within the State Fair’s regular Facilities/Maintenance budget. In order to address all of the issues in this project, it would have to be a multi-phased project over many years. Doing the project in this manner would disrupt the operation of the fairgrounds and events over multiple years rather than completing it all at once.

The second alternative would be to put this project back into the controlled maintenance 5-year plan as a multi-phased project. Having this as a CR project relieves several years of CM requests that can be better utilized for other much needed CM projects on the Fairgrounds.

**H. ASSUMPTIONS FOR CALCULATIONS:**

*Describe the basis for how the project costs were estimated. See instructions for further detail.*

Cost estimates were obtained from a contracted architect/engineer using information from schematic designs performed during Phase 1 of 2015-100M14.

**I. SUSTAINABILITY:**

*Provide a description how the project complies with the High Performance Building Certification Program or why the project is not eligible. See instructions for further detail.*

The only impact this project will have on sustainability is the effect on water quality and the cost to treat water for the City of Pueblo.

**J. OPERATING BUDGET IMPACT:**

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

There is no anticipated operating budget impact with this project as there should be no additional maintenance cost or staffing requirements to maintain the system.

**K. PROJECT SCHEDULE:**

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

Phase <u>1</u> of <u>1</u>	Start Date	Completion Date
Pre-Design	7/2021	8/2021
Design	8/2021	12/2021

Construction	1/2022	10/2022
FF&E /Other	N/A	
Occupancy	N/A	

**L. ADDITIONAL INFORMATION:**

*Provide any other additional relevant information or requirements such as an encumbrance waiver or roll forward authority that may be required. See instructions for further detail.*

**M. CASH FUND PROJECTIONS: NOT APPLICABLE TO THIS PROJECT**

Cash Fund name and number:			
Statutory reference to Cash Fund:			
Describe how revenue accrues to the fund:			
Describe any changes in revenue collections that will be necessary to fund this project:			
If this project is being financed, describe the terms of the bond, including the length of the bond, the expected interest rate, when the agency/institution plans to go to market, and the expected average annual payment (As applicable):			
<b>Prior Year Actual Ending Fund Balance</b>	<b>Current Year Projected Ending Fund Balance</b>	<b>Year 2 Projected Ending Fund Balance with Project Approval</b>	<b>Year 3 Projected Ending Fund Balance with Project Approval</b>
\$	\$	\$	\$



STATE OF COLORADO  
 DEPARTMENT OF PERSONNEL & ADMINISTRATION  
 OFFICE OF THE STATE ARCHITECT

FY 2021-22 CONTROLLED MAINTENANCE PROJECT REQUEST - NARRATIVE (CM-N)			
A	(1) Project Title:	CODE & LIFE SAFETY UPDATES AT EVENTS CENTER	
B	(1) Agency/Institution Name:	AGRICULTURE / STATE FAIR	(2) Project Phase (Phase_of_): 1 OF 1
C	(1) OSA Delegate Signature:	<i>[Signature]</i>	(2) State Controller Project #: (if continuation):
D	(1) Agency/Institution Signature Approval:	<i>[Signature]</i>	(2) Date: 7/2/2020
E	(1) Agency/Institution Priority Number:		(2) Revision Date:
F	(1) Total Project Cost:	\$1,153,056.00	(2) Cost of Current Year: \$1,153,056.00

**A. PROJECT - BUILDING and INFRASTRUCTURE PROFILE:**

1) Building – vs – Site:  Building(s)  Site (Utilities underground)  Site (Improvements above ground)

2) Building Information:

a) Building Name	b) DPA Risk Management or IHE. Building ID#	c) Gross Square Feet (GSF)	d) Current Replacement Value (CRV)	e) Reported FCI	f) Projected FCI
EVENTS CENTER	AGSF7483	95350	13,442,190.00	55	85

3) Facility Status - Check appropriate boxes:

- a)  Facility 'useful' life is more than five (5) years.
- b)  Major facility changes, renovations, or program revisions are ongoing or anticipated in the next five years. If yes, please explain in the Project Request Information section below if these facility renovations or program revisions may have an impact on this CM request.

4) History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, or cash funds completed within the last fifteen (15) years, operational funds expended in the last five (5) years, or ongoing projects that can be associated with either this CM building or infrastructure request.

Project No.	Project Title	Project Cost \$	Completion date or status
2019-045M18	ROOF REPLACEMENT, EVENTS CENTER PHASE 1 OF 1	\$ 888,932.00	IN CONSTRUCTION
2019-127M19	REPLACE HVAC SYSTEMS AT EVENT CENTER, PHASE 1 OF 1	\$ 1,527,448.00	IN DESIGN

**B. PROJECT REQUEST INFORMATION:**

1) Description of CM Problem:

The Facility Condition Audit performed in April of 2018 reported many code and life safety recommendations. Of those reported the most critical are the deteriorating condition of the paving on the outside of the building near egress doors and entry ways, unsafe stairway and balcony railing, and entry doors that lack automatic openers for accessibility. In addition to these problems, it was also noted that the covers used in the floor to cover the electrical systems are causing a tripping hazard.

2) Description of CM Solution, by Phase:

This single phase project will allow us to:

1. Engage a civil engineer to review the condition of the exterior paving around the perimeter of the building to determine a plan for repair and replacement to eliminate tripping hazards.
2. Repair or replace concrete around the perimeter of the building to provide safe and accessible surfaces leading from the points of exit to a public walk way.
3. Retrofit or replace railing systems throughout the facility that do not meet code and are therefore unsafe. Railings currently have openings spaced greater than 4" apart and some stairway handrails are less than 34" high.
4. Replace deteriorating railing at stairway at exterior of building entrance.
5. Install automatic door openers to improve accessibility to all three public entrances.
6. Replace deteriorated floor electrical box covers with a system that fits properly and allows for proper cable/wire management to avoid major tripping hazards.

3) Consequences (cost effects, program impacts, facility impacts, etc.) of not funding and justifying this specific project request:

Failing to complete this project impacts the health and life safety of every individual who works in or attends the facility. If concrete repairs around the egress areas are not made, it could impact evacuation efforts during a fire or other emergency. The railing systems having over a 4" opening are a definite safety issue for children and others using the stairways and balcony seating. Automatic door openers are important for guests and employees with accessibility issues. Remedying all of these issues as recommended in the Facility Condition Audit is detrimental to keeping the facility in good working order and safe for all.

- 4) Facility Condition Audit (Mandatory) - Include documentation from most recent building condition audit or infrastructure assessment.
- 5) Supporting Documents (Mandatory) - Include site maps for any infrastructure project request. Include photographs, drawing, and any other supporting documents – AS SEPARATE DOCUMENTS (files).
- 6) Impact on FCI or infrastructure. Explanation of how this project will improve the building(s) facility condition index (FCI) or improve a specific infrastructure system. Provide new FCI achieved after completion of the project.

As noted in the Facility Condition Audit, this project would increase our FCI up to 3 points if all of these items are addressed. We expect the FCI for this building to increase once all open CM projects are completed

- 7) Life Cycle Cost Analysis (LCCA) Worksheet - Explain the alternatives reviewed to determine the least costly total life time cost of the proposed solution. Attach CM LCCA Worksheet.

Not applicable to this project

**C. DETAILED COST ESTIMATE:**

(Provide details by funding phase on the Controlled Maintenance Project Request-Cost Summary (CM-CS) spreadsheet, one phase per tab, include all funding phases)

File name of spreadsheet with the Cost Estimate Information:
Explain method of establishing cost estimate, and Date of the Cost Estimate: Cost estimates are obtained from external contractors whenever possible.
Provide justification for the inflation value as indicated on the Controlled Maintenance Project Request-Cost Summary (CM-CS) spreadsheet for each funding phase: Inflation value was provided by local contractors based on local industry standards

**D. PROJECT PHASING COST INFORMATION (from CM Cost Summary CM-CS form):**

**PRIOR FUNDED PHASES<sup>1</sup>**

Project Number:	Fiscal Year	Phase or Phases of Work	Dollar Amount (Actual Appropriation)
	FY 2017/2018		
	FY 2018/2019		
	FY 2019/2020		
	FY 2020/2021		
(Subtotal)			\$

**COST OF CURRENT PHASE<sup>2</sup>**

Project Number:	Fiscal Year	Phase of Work	Cost of Current Phase (Per CM-CS)
	FY 2021/2022	1 of 1	\$1,153,056.00

**FUTURE PHASE(S) FUNDING<sup>3</sup>**

Project Number:	Fiscal Year	Phase or Phases of Work	Project (Phase) Total Cost (Per CM-CS)
	FY 2022/2023		
	FY 2023/2024		
	FY 2024/2025		
	FY 2025/2026		
(Subtotal)			\$

**TOTAL PROJECT DOLLAR AMOUNT**

(All Prior, Future Phases subtotals and Current Dollar amount)

\$ \_\_\_\_\_

<sup>1</sup> List all previous funded phases with actual appropriation by year (include federal funding). Note if different from requested amount.

<sup>2</sup> List cost of current phase estimated from the CM Cost Summary (CM-CS).

<sup>3</sup> List all planned future phases with estimated costs as indicated in the CM Cost Summary (CM-CS).

**E. PROPOSED PROJECT IMPLEMENTATION SCHEDULE (PLAN):**

PHASE	Start Date	Completion Date
1) Pre-Design (Insert Dates)	July 1, 2021	July 31, 2021
2) Design (Insert Dates)	October 1, 2021	November 30, 2021
3) Construction (Insert Dates)	March 15, 2022	June 30, 2022
4) Project Close-out/Final Completion (Insert Dates)	July 1, 2022	September 30, 2022





**Department Priority: R-10**  
**Request Detail: Sell Two Regional Center Homes**

<b>Summary of Incremental Funding Change for FY 2021-22</b>			
	<b>FY 2020-21</b>	<b>FY 2021-22</b>	<b>FY 2022-23</b>
Total Funds - Revenue	<b>\$0</b>	<b>\$700,000</b>	<b>\$0</b>
General Fund - Revenue	\$0	\$700,000	\$0

***Summary of Request:***

The Department requests the authority to sell two off-line Regional Center group homes that contain excess capacity no longer needed to provide services to the intellectually and developmentally disabled residents in the Department’s care. The Department estimates these sales could generate up to \$700,000 and be directed to other State needs.

***Current Program:***

The role of the State-operated Regional Centers (RCs) is to provide direct support for adults with intellectual and developmental disabilities (IDD) that have very significant needs. Under the supervision of the Division for Regional Center Operations (DRCO), the State operates three Regional Centers for adults with intellectual disabilities: in Grand Junction (GJRC), Pueblo (PRC), and Wheat Ridge (WRRC). Regional Centers serve adults in community group homes funded through the Home and Community-Based Services (HCBS-DD) Medicaid Waiver and in Intermediate Care Facilities for Individuals with Intellectual Disabilities (ICF/IID). The combined Regional Center average daily resident census during FY 2019-20 was 237 residents (as of June 30, 2020).

RCs provide active treatment through a number of services including 24-hour supervision, residential services, day programming, habilitation, medical services, training and behavioral intervention, and short-term emergency/crisis support to the community system. Services are based on needs outlined in a resident’s Individualized Plan (IP). A resident is referred to the Regional Centers through Community Centered Boards (CCB). Requests for Regional Center services come from the Mental Health Institutes (MHI), Department of Corrections (DOC), skilled nursing facilities, hospitals, and the CCB community system.

Costs associated with the Regional Centers are appropriated in several line items and are appropriated in the Long Bill by Regional Center. Additionally, costs associated with Regional Center physical plant maintenance and housekeeping, among other components, are centrally appropriated in the Office of Operations, and other indirect costs are charged to the Executive Director's Office and the Office of Information Technology Services.

***Problem or Opportunity:***

The Department manages a total of 33 eight bed capacity homes and nine-six bed capacity homes in Wheat Ridge, Pueblo, and Grand Junction that provide for a total capacity of 318-licensed beds for residents. Currently, five, eight bed capacity homes are offline, leaving a total capacity of 278 beds available in the online homes. As of June 30, 2020, the census at the three Regional Centers was 237 residents. The average census has fluctuated from a low of 237 to a high of 266 over the past five years. The Department has sufficient capacity using the on line homes and no longer needs the offline homes. If the Department were to sell two offline homes, it would still have sufficient capacity to service their clients. Therefore, these homes are no longer needed to support the residents.

***Proposed Solution:***

The Department requests authority to sell two off-line homes that contain excess capacity that is no longer needed to provide services to the intellectually and developmentally disabled (IDD) residents in the Department's care. The Department estimates these sales could generate up to \$700,000 for other State needs.

The specific properties that the Department could sell are both eight-bed capacity homes and are located:

- 29 Road Home, 434 29 Road, Grand Junction, CO 81504, vacant since May 22, 2014.
- Bayfield Home, 262 South Bayfield, Pueblo, CO 81007, vacant since October 25, 2016.

Table 1 indicates the capacity and census of the Regional Centers as of May 1, 2020

**Table 1: Regional Centers Homes, Bed and Capacity as of June 30, 2020**

	Total Homes*	Online Homes	Bed Capacity at Each Home	Total Online Licensed Beds	Census as of June 30, 2020	TTL Excess Capacity in Online Homes	Offline Homes	Offline Home Name
Grand Junction HCBS	8	7	8	56	52	4	1	29 Rd Home
Grand Junction ICF/IID	4	4	6	24	23	1	0	
Pueblo HCBS/DD	11	8	8	64	49	15	3	Wiggins, Latimer & Bayfield Homes
Wheat Ridge ICF/IID **	14	13	8	104	113	21	1	105th Home
	5	5	6	30				
<b>Total</b>	<b>42</b>	<b>37</b>		<b>278</b>	<b>237</b>	<b>41</b>	<b>5</b>	
* 33 Homes with 8 bed capacity, 9 homes with 6 bed capacity								
** Xenon home in Wheat Ridge ICF/IID is designated for COVID residents								

**Anticipated Outcomes:**



If this request is approved, there could be up to an additional \$700,000 available for other State uses. There is no impact to the Department’s ability to provide services and care to the residents of these communities, as these homes represent excess capacity.

**Assumptions and Calculations:**

The Department estimates it will be able to sell the homes at Pueblo and Grand Junction for \$350,000 each based on market conditions for these locations.



STATE OF COLORADO  
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 OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Project Title	Campus Utility Infrastructure Upgrade, Colorado mental Health Institute at Fort Logan		
B	(1) Agency:	Department of Human Services	(2) OSA Delegate Signature:	 7/1/2020 Date
C	(1) Funding Type:	General Fund/Capital Construction Fund	(2) DPA's Risk Management ID#:	NA
D	(1) Project Phase (Phase _of_):	Phase 2 of 3	(2) State Controller Project # (if a continuation):	2002-108P01
E	(1) Project Type:	<input type="checkbox"/>	Capital Construction (CC)	(2) Principal Representative Signature:
		<input checked="" type="checkbox"/>	Capital Renewal (CR)	
				 07.01.20 Date
F	(1) First Year Requested:	FY 2002-03	(2) OSA Review Signature	Date
G	(1) Priority Number:	___ of ___	(2) Revision Date:	Date
H	(1) Total Project Cost:	\$35,253,813	(2) Current Phase Cost:	\$15,881,605

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_ No X Date Approved: \_\_\_
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes \_\_\_ No X\* Date Approved: \_\_\_
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI  
 Reported FCI: NA Projected FCI: NA

\*FCI Reports are completed for all CDHS owned facilities but FCI's are not conducted on infrastructure systems outside of the facilities.

**B. PROJECT SUMMARY/STATUS:**

The Colorado Department of Human Services requests \$15,881,605 Capital Construction funds/General Fund in FY 2021-22 for the second phase of a three-phased Capital Renewal (CR) project to upgrade infrastructure on the Colorado Mental Health Institute at Fort Logan (CMHIFL) campus.

Phase 1, for which \$8,935,147 was appropriated in FY 2018-19, included funding for overall site survey/investigation and review of the CMHIFL infrastructure, as well as design and construction improvements in the areas designated for phase 1. It also included replacing pavement, sidewalks, fire and domestic water lines, and sanitary sewers; improving storm drainage; and installing below-grade conduits in concrete trenches for communication and security needs. These improvements are taking place along Lowell Boulevard, intersection at Oxford Avenue and Lowell Boulevard, Princeton Circle, and Quincy Avenue, then east along Oxford Avenue. Due to COVID 19, the project was put on hold briefly but has since resumed. Construction is anticipated to commence in the summer of 2020 and has an estimated completion date of 2021.

Phase 2 includes: replacing pavement, sidewalks, fire and domestic water lines, sanitary sewers; improving storm drainage; and installing below-grade conduits in concrete trenches for communication and security needs for Princeton Circle, Newton Street, Julian Way, Princeton Way, and Lowell Boulevard.

Proactive planning predicates that the infrastructure should be addressed comprehensively, thus the Department assembled this phased funding request. Numerous infrastructure concerns have been uncovered over the course of various past Emergency Controlled Maintenance (ECM) projects, including:

- Existing utility infrastructure depth and locations vary upwards of eight feet below grade.
- Remnants of many buildings and foundations are scattered throughout the campus below grade.
- Utility infrastructure precludes optimal communication and security cabling and access.
- No organized and dedicated storm drainage and water quality system exists.

These conditions have a major impact on costs due to additional digging, trenching, and shoring requirements. Additionally, the two main streets on campus are on public transportation routes (W. Oxford and S. Lowell), but must be maintained by the Department.

If funded, this project would result in monetary cost and time savings, which will sustain the campus for decades into the future. Funding as a Capital Renewal project would address the needs of this request within two years instead of the numerous years it would take if funded through the Controlled Maintenance process, assuming the requests were recommended for funding.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$35,253,813	\$8,935,147	<b>\$15,881,605</b>	\$10,437,060	\$0	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$35,253,813	\$8,935,147	<b>\$15,881,605</b>	\$10,437,060	\$0	\$0	\$0

**D. PROGRAM INFORMATION:**

Fort Logan was originally constructed as a military outpost in 1881. In 1961, it transitioned to the Fort Logan Mental Health Center, now known as the Colorado Mental Health Institute at Fort Logan (CMHIFL). The campus currently covers about 231 acres (subsequent to the VA land sale in 2019) and has 74 buildings with a gross square footage of 643,196. The average building age on the campus is 86 years, with the average age of Mental Health Institute buildings at 55 years.

The Fort Logan campus represents a significant asset and resource, for both the Denver Metro area and the State as a whole. It is home to unique programs that operate 24-hours per day, and provide critical support and services to those in need with no realistic treatment alternative. It is the sole State facility in metro Denver for those with mental illness, treating those who might otherwise be without any support or who may present a risk to themselves and the public at large.

The campus supports over 800 State employees from various programs and agencies. The infrastructure network supporting the 231-acre campus is well past its life expectancy and is experiencing significant, ongoing problems. This request will address the second phase of the Campus Utility Infrastructure Upgrade at Fort Logan. The second phase will address aging campus infrastructure systems, including domestic water mains, sewer mains, storm water drainage, irrigation lines, fire lines, roadways, parking lots and sidewalks. In the last decade, there has been an escalation in the number of failures in these systems that have required emergency funding. If this project is not funded, there will be further need for emergency funded infrastructure projects on the CMHIFL campus. Emergency projects are expensive and are meant to address unanticipated crucial failures, and are not meant to sustain infrastructure on a campus of this size. In addition, with the current economic forecast the available emergency funds for such critical needs are limited.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

In 1961, when the Fort Logan property was transferred to the State from the federal government, the U.S. Department of Health, Education and Welfare conducted an inventory of the utility systems and categorized the electrical system as

“Obsolete & Salvage,” the sewage system as “Poor” and the water system as “Good”. System conditions have declined in the intervening 57 years, necessitating replacement.

Since the latter part of 2002, CMHIFL has had 15 Emergency Controlled Maintenance (ECM) projects related to the infrastructure replacement included in this funding request. Ten of these 15 ECM projects have occurred within the last ten years. All areas were indicated in the CM Request 005-04, Replace Deteriorated Campus Infrastructure at CMHIFL (see the attached Project by Phase Year map and the ECM project locations map for further detail). The 12 ECM projects within the last six years totaled \$444,088. The ECM cost per year for the last six years has been \$74,015.

#### ROADS AND SIDEWALKS:

The roads and sidewalks on the CMHIFL campus accommodate high traffic volumes (both destination traffic and city traffic), including public transportation, school buses and fire trucks. This is considerably higher traffic than the light commercial traffic for which they were originally designed. Throughout the campus, poor roadway conditions are evident as pavements are cracking, potholing, rutting and breaking up. This is creating safety issues for vehicles and pedestrians. Sidewalks and pedestrian walkways, curbs and gutters, street signage, curb cuts and accessibility street ramps are also in a state of disrepair. The cracked and uneven sidewalks show signs of heaving and breaking up, creating safety and tripping hazards for patients, clients and staff (please refer to photographs included). The pedestrian walkways across the campus are not compliant with Americans with Disabilities Act requirements, and are a liability to the State and need to be rectified.

#### SANITARY SEWER:

The sewage system on the campus (composed of clay and cast iron pipes) ranges in age from 50 to 100 years, is well beyond its expected life span, and is failing due to antiquity and root intrusions. It is not uncommon for the sewer system to flood patient and program areas and basements. These failures are potential health risks for patients, clients, staff and visitors, and at times require temporary program displacements while the areas are restored and lines repaired.

#### DOMESTIC WATER:

The water lines (with varying material compositions of steel, cast iron and copper) on the CMHIFL campus also range in age from 50 to 100 years, and are long past their expected life span. They are rusting and failing, and are difficult to repair. The failing water system affects potable water quality along with firefighting capacity.

#### FIRE LINES:

The fire lines on the CMHIFL campus date from 1926 to 1999. They are tapped off the water main and thus are not dedicated supply lines. Similar to the water lines, they are in need of replacement, since the service (including the building fire protection systems) is at risk due to rust, low pressure and age. The poor condition of many fire hydrants on campus poses a safety risk as well.

#### STORM SEWER:

Currently, there is no underground storm sewer system and/or water quality system for storm water and runoff on the campus. Current codes mandate water quality management. A planned storm water management system will ensure compliance and mitigate the concerns caused by surface runoff and sheet flow.

#### COMMUNICATION:

Most of the buildings on campus were built when the communication and security needs of patient care (including electronic medical records) did not exist. Thus, there is no dedicated communication cabling and network on the campus. Since the infrastructure project will entail trenching below grade for other utilities, and communication trenches and conduits are part of the overall infrastructure of all facilities, this would be an opportune time to provide the needed below-grade concrete trenches and conduits for future communication cabling.

#### CONSTRUCTION MANAGEMENT:

A three-phased approach is preferred over a single phase. Due to the volume of emergency vehicular traffic passing through Fort Logan, a phased approach will allow for emergency egress and proper traffic routing during construction.

Additionally, due to the magnitude of this project, completing it over phases allows additional time to complete all upgrades and improvements, while keeping the campus operational.

Since monies for the first phase of the project have already been allocated, the remainder of the project will take place in multiple phases ensuring that the project work does not disrupt the operation of the campus, and surrounding operations/personnel including local fire department.

Additionally, both Phase 2 and Phase 3 can be adjusted should any of the recommendations of FPP/SMP for the MHIs completed in Dec. 2017 be adopted. Phase 2 replacement and upgrades are crucial and would have minimal impact on the master plan. The Department will work with the Office of the State Architect (OSA), State Buildings Programs, to structure the appropriate contracting methods in order to accelerate the design and construction process. To ensure the highest quality construction, as well as maximize efficiencies, the Department envisions the work being completed under the same general contractor as in Phase 1 in coordination with both the design team and construction management group.

The Department requests capital renewal funding to complete the second phase of this infrastructure project by replacing pavement, sidewalks, fire and domestic water lines, sanitary sewers; improving storm drainage; and adding communication trenches and conduits. It is envisioned that continuing with this project under a three phased CR appropriation, instead of a multi-year CM project, will save approximately \$2.3 million (based on the Consumer Price Index) through a compacted schedule of two years instead of numerous years, reducing overhead costs, and limiting construction cost escalation.

NOTE: Projected savings do not include potential program costs resulting from system failures, program relocations, redundant design and construction resulting from emergency failures and replacements - all of which have a high probability of recurrence over the next several years.

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.			
Project No.	Project Title	Project Cost \$	Completion date or status
2002-108P01	Campus Utility Infrastructure Upgrade, Colorado Mental Health Institute at Fort Logan	\$8,935,147	A/E Design Contract Executed
EM-1725	Repair water main on Princeton Circle	\$65,000	2017
EM-1602	Repair water main in front of Bldg. 55	\$16,997	2015
EM-917	Repair water main behind Bldg. 9	\$10,565	2013
EM-728	Repair water line break @ Lowell Ave.	\$14,271	2012
EM-709	Replace 13,200-Volt PT transformer	\$27,500	2011
EM-648	Repair water main north of Bldg. H	\$72,275	2011
EM-645	Repair water main @ Bldg. F-1	\$59,040	2011
EM-643	F Cottage sewer line replacement	\$15,252	2011
EM-555	Repair water main @ Bldg. F-1	\$20,085	2010
EM-545	Repair water main @ Bldg. F-1	\$54,880	2010
EM-520	Repair water main @ Mead & Oxford	\$131,255	2009
EM-448	Repair water main @ Bldg. KA	\$10,974	2009
EM-424	Repair 6" water main @ Bldgs. KE & KF	\$10,994	2009
M07050	Replace Fire Hydrants – Phase 2 of 2	\$705,999	Project Frozen/Funds Reverted 2009
M06076	Replace Deteriorated Campus Infrastructure	\$1,309,195	Project Frozen/Funds Reverted 2009

**F. CONSEQUENCES IF NOT FUNDED:**

Repairing and replacing individual sections of utility lines as they fail will no longer suffice to continue essential services to the buildings and programs they support. Without replacement of the entire utility systems, spontaneous failures will continue. Many utility lines have failed, causing disruption to building services and the programs that rely on them. Patchwork repairs to failed portions of infrastructure do not solve the underlying problems, with subsequent failures

erupting in other locations. The Department has utilized both operating dollars and requests for assistance from the OSA for ECM, but these funds are inadequate to address the extensive need.

Deferring needed repairs is not a viable solution for the long-term needs of the campus. Consequences of failing to fund this initiative include:

- Water and sewer lines will continue to deteriorate and fail, requiring continuous emergency projects and operating funds in order to perform repairs and maintain program viability.
- When systems are out of service, program activities are affected, and safety and security are compromised for both patients and staff.
- Traffic continues to degrade the remaining worn pavement. When roads fail, it affects the ability of support programs, emergency responders, and staff to function on the campus. It also impacts the surrounding operations and public transportation.
- An escalation in the potential for:
  - health and safety issues
  - building closures in the long term
  - staff and client danger in the short term
  - increased cost to replace the failed systems in the future
  - the recantation of program certifications and/or licenses for some agencies on the Fort Logan campus
  - closure of streets in the future due to conditions not meeting state roadway standards or codes
  - failure to meet mandated communication and security protocols for direct care such as electronic health records
- Emergency piecemeal infrastructure projects are not only more expensive than a cohesive infrastructure repair plan, but are also an unsustainable model for ongoing maintenance and operations.

In the past, infrastructure projects have been requested in a piecemeal fashion through the State's CM program and some smaller individual projects were funded. However, the CM program is not intended to address larger, more complex Capital Renewal (CR) projects. The CR program is intended to address more comprehensive and extensive projects in a systematic approach. The OSA and DPA endorse this approach to major infrastructure projects.

#### **G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

A true life cycle analysis - such as those normally associated with increased resident census, added operational programs, building services, maintenance, regulatory cost increases, software maintenance or energy consumption – is not possible for an infrastructure upgrade of this magnitude, but many known benefits from this project are anticipated. Initiating the replacement of campus infrastructure will include the following outcomes:

- It will allow the Department to devote its resources to the upkeep of campus assets and routine maintenance to extend their serviceable life, rather than responding to failures that only temporarily forestalls future needs.
- Critical Department programs, and those of the other campus occupants, will be afforded a greater level of infrastructure reliability that minimizes spontaneous failures and disruptions to programs.
- The Department will see a reduction in expenditures for unanticipated failures and, in addition, a reduction in the number of Emergency Project requests to the OSA.
- Programs will experience greater continuity of services and reliability of infrastructure support.
- It will ensure and enhance the viability of the CMHIFL campus operations for the future.

#### **H. ASSUMPTIONS FOR CALCULATIONS:**

The Department commissioned Stanley Consultants to assemble a quantifiable and detailed cost estimate in April 2017 to incorporate all these concerns. The quantities produced in this report were updated in June 2020 by a professional estimator Johan Kemp in order to provide a more accurate estimate. Prevailing wage was included in the labor cost in order to meet the new legislatively mandated requirement. Total project costs include professional services, construction costs, and other misc. project costs as noted on the cost sheet.

#### **I. SUSTAINABILITY:**

This project does not qualify for the High Performance Building Certification Program as it is an infrastructure project. However, certain aspects of LEED metrics will be used such as ease of pedestrian travel, and waiting areas for public transportation. LEED site criteria will be incorporated into the planning for each phase of the project. The Greening



Government initiative will be reviewed during the design phase of this project to see if it's applicable, appropriate, and fiscally possible.

**J. OPERATING BUDGET IMPACT:**

Funding this phase will help improve services primarily to the Department’s programs, but also several University of Colorado programs housed on the campus.

- Completing the replacement of campus infrastructure will allow the Department to devote its resources to the upkeep of campus assets and routine maintenance to extend their serviceable life, rather than responding to failures that only forestalls future needs.
- In addition, critical Department programs will be afforded a greater level of infrastructure reliability and disruptions to program services will be minimized.
- Department resources will be utilized in a more efficient manner to maintain new infrastructure, rather than expending operating dollars to merely patch problems that will reoccur in the future.
- The Department will see a reduction in expenditures for unanticipated failures and a reduction in the number of emergency project requests to the OSA.

The project will continue to complete a long-standing goal to completely upgrade the infrastructure system on the campus when this is funded along with the CM projects.

**K. PROJECT SCHEDULE:**

Phase 2 – Replace pavement, sidewalks, fire and domestic water lines, and sanitary sewers; improve storm drainage; and install below-grade conduits in concrete trenches for communication and security needs for Princeton Circle (in front of the buildings), Newton Street, Julian Way, Princeton Way, and Lowell Boulevard. Construction sequence will begin with work at Princeton Circle, and then continue at the K Complex access at Newton Street, ending with Julian Way and Princeton Way.

Phase 3 – Replace pavement, sidewalks, fire and domestic water lines, and sanitary sewers; improve storm drainage; and install below-grade conduits in concrete trenches for communication and security needs for Princeton Circle and the roadway serving K Complex.

<b>Phase 2 of 3</b>	<b>Start Date</b>	<b>Completion Date</b>
Pre-Design*	<b>July 2021</b>	<b>October 2021</b>
Design	<b>October 2021</b>	<b>April 2022</b>
Construction	<b>April 2022</b>	<b>April 2023</b>
FF&E /Other	<b>N/A</b>	<b>N/A</b>
Occupancy	<b>N/A</b>	<b>N/A</b>

<b>Phase 3 of 3</b>	<b>Start Date</b>	<b>Completion Date</b>
Pre-Design*	<b>July 2022</b>	<b>October 2022</b>
Design	<b>October 2022</b>	<b>April 2023</b>
Construction	<b>April 2023</b>	<b>April 2024</b>
FF&E /Other	<b>N/A</b>	<b>N/A</b>
Occupancy	<b>N/A</b>	<b>N/A</b>

\*Pre-design work consists of site surveys (i.e., allows the Architect/Engineer to gain an understanding of the site and all utilities), investigations, and their subsequent reports. In addition, it includes testing (including asbestos, other contaminants, etc.) before design work can take place.

**M. CASH FUND PROJECTIONS:**

Cash Fund name and number:	<b>NA</b>
Statutory reference to Cash Fund:	<b>NA</b>
Describe how revenue accrues to the fund:	<b>NA</b>
Describe any changes in revenue collections that will be necessary to fund this project:	<b>NA</b>
If this project is being financed, describe the terms of the bond, including the length of the bond, the expected interest rate, when the	<b>NA</b>



agency/institution plans to go to market, and the expected average annual payment (As applicable):			
<b>Prior Year Actual Ending Fund Balance</b>	<b>Current Year Projected Ending Fund Balance</b>	<b>Year 2 Projected Ending Fund Balance with Project Approval</b>	<b>Year 3 Projected Ending Fund Balance with Project Approval</b>
\$	\$	\$	\$

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS) *				
(A)	(1) Funding Type:	General Funded	(2) Project Title:	Utility Infrastructure Mental Health Institute at Fort Logan - Final Cost
(B)	(1) Agency/Institution:	Dept. of Human Services	(2) Project Phase ( ___ of ___):	2 of 3
(C)	(1) OSA Delegate Name:	Stanford Lee	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2002-03	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	1-Jul-20	(2) Revision Date:	

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land/Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ 668,742	\$ 668,742	\$ -	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic	\$ 2,299,747	\$ 542,576	\$ 1,062,245	\$ 694,926	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 68,992	\$ 16,277	\$ 31,867	\$ 20,848	\$ -	\$ -	\$ -
(9)	Construction Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 200,644	\$ 49,104	\$ 65,647	\$ 85,893	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		4.00%	6%	12%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 3,238,124	\$ 1,276,699	\$ 1,159,759	\$ 801,666	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ X	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ X	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(22)	Cost for Capital Renewal (GSF):	\$ 27,128,504	\$ 6,846,162	\$ 12,526,475	\$ 7,755,866	\$ -	\$ -	\$ -
(23)	Renewal at \$ X	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(24)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(27)	Inflation for Construction	\$ 1,682,292	\$ -	\$ 751,589	\$ 930,704	\$ -	\$ -	\$ -
(28)	Inflation Percentage Applied		0.00%	6%	12%	0.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 28,810,796	\$ 6,846,162	\$ 13,278,064	\$ 8,686,570	\$ -	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(38)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(39)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(40)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(41)	<b>Total Misc. Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(42)	<b>Total Project Costs</b>	\$ 32,048,921	\$ 8,122,861	\$ 14,437,823	\$ 9,488,237	\$ -	\$ -	\$ -
<b>Project Contingency</b>								
(43)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(44)	10% for Renovation	\$ 3,204,892	\$ 812,286	\$ 1,443,782	\$ 948,824	\$ -	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 3,204,892	\$ 812,286	\$ 1,443,782	\$ 948,824	\$ -	\$ -	\$ -
(46)	<b>Total Budget Request</b>	\$ 35,253,813	\$ 8,935,147	\$ 15,881,605	\$ 10,437,060	\$ -	\$ -	\$ -
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ 35,253,813	\$ 8,935,147	\$ 15,881,605	\$ 10,437,060	\$ -	\$ -	\$ -
(48)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ 35,253,813	\$ 8,935,147	\$ 15,881,605	\$ 10,437,060	\$ -	\$ -	\$ -



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*			
A	(1) Project Title	Campus Utility Infrastructure Upgrade, Colorado Mental Health Institute at Pueblo	
B	(1) Agency:	Department of Human Services	(2) OSA Delegate Signature:  7/1/2020 Date
C	(1) Funding Type:	General Fund/Capital Construction Funds	(2) DPA's Risk Management ID#: NA
D	(1) Project Phase (Phase _of_):	1 of 3	(2) State Controller Project # (if a continuation):
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC)	(2) Principal Representative Signature:  07.01.20 Date
		<input checked="" type="checkbox"/> Capital Renewal (CR)	
F	(1) First Year Requested:	FY 2002-03	(2) OSA Review Signature Date
G	(1) Priority Number:	___ of ___	(2) Revision Date: Date
H	(1) Total Project Cost:	\$44,048,161	(2) Current Phase Cost: \$10,503,970

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_ No X Date Approved: \_\_\_
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes \_\_\_ No X\* Date Approved: \_\_\_
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI  
Reported FCI: NA Projected FCI: NA

\*FCI reports are completed for all CDHS owned facilities but FCI's are not conducted on infrastructure systems outside of the facilities.

**B. PROJECT SUMMARY/STATUS:**

The Colorado Department of Human Services requests \$10,503,970 for FY 2021-22 in capital construction funds/General Fund for the initial phase of an anticipated three-phase Capital Renewal (CR) project to replace infrastructure on the Colorado Mental Health Institute at Pueblo (CMHIP) campus.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$44,048,161	\$0	\$10,503,970	\$15,350,302	\$18,193,889	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$44,048,161	\$0	\$10,503,970	\$15,350,302	\$18,193,889	\$0	\$0

**D. PROGRAM INFORMATION:**

The Colorado Mental Health Institute at Pueblo (CMHIP) was established in 1879, and now covers more than 300 acres of land. The CMHIP campus includes the Mental Health Institute, the Division of Youth Services (DYS), and the Colorado

Department of Corrections (CDOC). These programs range in security levels from maximum to minimum, with multiple locked/secure units.

The vast network of utility infrastructure on the CMHIP campus forms the arteries that provide needed services to all of the programs on the campus every day. This infrastructure is critical to supporting Department programs, which utilize three-fourths of the campus land. This network includes electrical service, water mains, sanitary sewers and storm sewer lines, roads, walkways, and utility tunnels.

Utility and paving infrastructure upgrades and replacements have occurred over the last decade and a half through both Controlled Maintenance (CM) and Capital Construction (CC) projects, resulting in the renewal of large portions of these systems on campus. Regardless of other concurrent ongoing projects and/or CC funding requests for the CMHIP campus, the viability of the CMHIP campus requires additional infrastructure upgrades.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

This project will complete the campus-wide upgrade of all utility infrastructure, extending the life of these major utility systems used by all programs on campus by 50 years. It will do this by addressing the remaining infrastructure needs not yet upgraded through other CC and CM efforts.

Phase 1 includes work on the south side of the campus beginning with design work and initial construction of the water and sewer line replacement, and new roads and walkways. Design work only will be completed for the extensive utility upgrades and abatement within the utility tunnels in addition to design work for the storm sewer.

Phase 2 includes work on the northwest side of the campus addressing roads, walkways, and site work, as well as water and sewer line replacements. Construction will be completed for the storm sewer, utility upgrade and abatement of the tunnels.

Phase 3 includes work on the north-central portion of the campus completing design and construction of water and sewer line replacement and new roads and walkways.

Specific system upgrades are summarized as follows:

**SEWER SYSTEMS:**

The sanitary sewer infrastructure at CMHIP has two main systems (South and North), each with three main lines that outfall into the City of Pueblo sanitary sewer system. The sanitary sewer infrastructure does not meet code. Both were inspected in 2000 by S.A. Miro, Inc. and the infrastructure was found to be in poor condition overall. The infrastructure for both the south campus and north campus sanitary sewer systems operate by gravity.

The following are details on the findings of the three main lines for the south campus:

- At the first main line, a large portion of the system runs inside the tunnel system, which could be an issue in the event of a failure. The conditions of the step assemblies on the manholes were poor. The sanitary system in this area is some of the oldest on this campus dating back to around 1908.
- On the second main line, forensic TV camera work revealed the majority of this portion of the system is in very poor condition. Many pipe segments were clogged with sanitary debris, filled with tree roots, and/or had vertical displacement and broken clay pipe sections that were plugging up the system.
- The third main line, similar to the first main line, found the condition of the steps on manholes were rusted and corroded.

The north campus infrastructure dates to the 1940s. The following are details on the findings of the three main lines for the north campus in 2000:

- At the first main line, the conditions of the steps on the manholes were poor. This portion of the system was constructed in the 1960s.
- On the second main line, no poor conditions were found.

- With the third main line, the majority of the manholes were in good structural condition, but had rusted and corroded step assemblies.

The forensic observation of the sanitary sewer infrastructure revealed that root intrusion is problematic in portions of the south campus main lines. Other deficiencies associated with the piping are broken clay pipe, grease buildup, low points, and solid debris impeding system flows. If funded, the sanitary sewer lines and manholes would generally be located in the same area, but routed to meet current codes and accepted construction principles. The sanitary sewer infrastructure would be designed to accommodate future growth.

63% of campus sanitary sewers will be upgraded under this project scope.  
 26% of sanitary sewers have been upgraded previously under other funding.  
 TOTAL UPGRADES: 89% campus-wide.

Remaining systems have been determined to be either non-essential for campus operations or in satisfactory condition for the foreseeable future.

**DOMESTIC WATER:**

Of the two water distribution systems at CMHIP, some sections contain harmful materials such as cast-iron. The systems are composed of cast iron pipe (pre 1940), ductile iron pipe (1980), transite asbestos pipe (mid 1960s), and PVC pipe (mid 1990s). “Barnacles” of iron have built up inside the water main pipes over time and are being released into the campus’s drinking water. These impediments flow into the buildings’ domestic water systems, faucets, and flush-o-meters, causing build-up and clogs and generally impedes operability. The cast-iron piping is of high concern, as ingesting iron from drinking water may have negative health effects. In addition, a critical matter is the physical condition of the piping; corrosion is found in many sections. This corrosion has aesthetic effects, such as obnoxious tastes, odors, and discoloration, as well as physical damage to equipment from sediments blocking water flow. Due to the age of the systems, including the physical damage mentioned, water main breaks are not uncommon and occur on both the south and north campus. These failures often take several days to resolve and are costly to the State due to large amounts of water loss, as well as the costly equipment and labor required to repair the broken water mains.

Most fire hydrants have far surpassed intended life expectancy. On the south campus, hydrants are fed by the corrosion affected cast-iron piping. In the event of a fire, it is possible that water flow from these hydrants would not meet code due to sediment buildup. This is a safety issue, potentially threatening the lives of patients, staff, and visitors. Considering the age of some of the water distribution sections, S.A. Miro, Inc. was hired in 2000 to conduct a physical observation of the system. Portions of the system containing cast-iron were observed further through the use of destructive metallurgical testing. Rocky Mountain Engineering and Materials Technology, Inc. (EMTEC) conducted forensic demolition testing on five pipe samples in the system and found that replacement is needed. Also recommended was that all portions of the systems be replaced to maintain material consistency and to maximize flows and pressures throughout the system.

Fire hydrants were reviewed, with the following needing replacement:

South Campus -

Building 39	Building 41	Building 42	Building 43	Building 49	Building 51
Building 52	Building 65	Building 4	Building 5	Building 7	Building 26
Building 10	Building 38	Building 33	Building 55	Building 53	Building 34

North Campus -

Building 118	Building 117	Building 126
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A properly designed system would dispense consistent flows to all areas of the campus. This project would provide essential piping and loop systems to improve water flows to buildings, and increase fire hydrant water flows for use in the event of an emergency.

41% of campus water mains will be upgraded under this project scope.  
 55% of water mains have been upgraded previously under other funding.

TOTAL UPGRADES: 96% campus-wide.

Remaining systems have been determined to be either non-essential for campus operations or in satisfactory condition for the foreseeable future.

#### UTILITY TUNNELS:

The utility tunnels at CMHIP are extensive, having a length of 12,956 linear feet. The tunnels were constructed over an extremely long period of time and the conditions of the tunnels vary depending on age. The tunnels house all critical campus utilities, including: steam, condensate, hot soft water, cold soft water, cold raw water, chilled water, compressed air, fiber optic lines, and automation lines. The north end of the tunnels (from 17th Street North), is newer and requires less renovation. The south end of the tunnels (from 17th Street South to the Boiler Plant) is much older and requires extensive renovation. These tunnels have been constructed out of rock, brick, and concrete, which causes a variety of maintenance problems. The Central Heat Plant feeds most of the campus through these tunnels.

The asbestos containing material in the tunnels is extensive and varies with the age of the tunnel/piping system. The audit indicated that the extent of the work would be similar throughout the length of the tunnel system. It is anticipated that the abatement will be required to be done while the systems are active. All the piping in a section of tunnel will be abated using a full containment condition due to the presence of active steam pipes. Some of the smaller piping may be removed in its entirety as a part of the abatement process.

The public does not have access to these tunnels and travel within the system is limited to maintenance employees, thus interruption to the campus will be minimal during construction.

Steam is generated and supplied from boilers located in the Central Heating Plant, Building 35. The steam distribution system was designed to supply 125 PSI steam through the tunnel to outlying buildings. Pressure reducing stations in the tunnel and buildings reduce the steam to approximately 10 PSI before distributing steam to building heating equipment. The expected life of a central steam system is approximately 50 years depending on the levels of management. The steam and condensate return system at the hospital runs through a series of underground tunnels from the power plant to the various buildings.

The domestic water system on the campus is distributed from the Central Heating Plant, Building 35 and the Substation, Building 118, throughout the tunnel system via an interconnected loop. The system in the Boiler Plant generates both hot and cold water for distribution to the campus.

During the facilities audit process, BCER Engineering, through selective forensic testing (cameras, destructive testing) determined that the chilled water, soft water, compressed air, raw water, steam distribution, domestic water, and tunnel needs to be repaired and/or replaced. Some of the tunnel infrastructure systems have not been replaced since they were originally installed more than 50 years ago.

The work in the tunnels involves numerous critical systems for the campus. The steam lines, for the most part, will remain and will not be replaced. However, valves, strainers, steam traps, expansion joints, pipe supports and insulation may be replaced depending on their condition. The condensate system will be replaced. The hot soft water, cold soft water, and cold raw water lines will be replaced. Chilled water lines will be replaced. Along with each system addressed, individual fittings will be replaced when necessary. As a part of these upgrades, old lines that were previously abandoned will be removed and the new systems will be designed to make the most efficient use of the limited available space in the tunnel. During the 2000 audit, it was noted that the ventilation and electrical system in the tunnel does not meet current code requirements and this will be addressed. A critical deficiency noted was that the tunnels do not meet current egress requirements. This life safety issue will also be addressed during the upgrades.

The scope of work included in this request, when combined with the previously funded CM request, will complete renovations and utility system upgrades for the campus tunnel system. Although the east branch of the tunnel remains unchanged, this section no longer serves critical buildings or systems on the CMHIP campus.

- 22% of campus utility tunnels will be upgraded under this project scope.
- 38% of utility tunnels have been upgraded previously under other funding or are planned in current CM projects.
- TOTAL UPGRADES: 60% campus-wide.

Remaining primary systems have been determined to be either non-essential for campus operations or in satisfactory condition for the foreseeable future.

## ROADS AND WALKWAYS

S.A. Miro, Inc. conducted a physical observation of the 30 roads and paving systems at CMHIP in 2000. Physical observation of the road sections revealed cracks, excessive surface and subsurface fracturing, heaving and potholes. As the number of cracks on the surface and subsurface fractures continues to increase, the number of failures increases. Generally when a failed section is repaired, the subgrade is extremely wet and unstable due to moisture penetration. It was also found that the base under the asphalt road systems is not adequate for the vehicular traffic it is subjected to on a regular basis.

- 47% of campus roadways and walkways will be upgraded under this project scope.
- 38% of roads and walkways have been upgraded previously under other funding.
- TOTAL UPGRADES: 85% campus-wide.

Remaining systems have been determined to be either non-essential for campus operations or in satisfactory condition for the foreseeable future.

## CONSTRUCTION MANAGEMENT

In order to expedite project delivery, it is envisioned that the Department may utilize one of several integrated design-build strategies available to the State, including the Construction Manager/General Contractor (CM/GC) approach. The Department will confer with the Office of the State Architect (OSA), State Buildings Programs, to structure the appropriate contracting methods in order to accelerate the design and construction process while maintaining control of quality and critical phasing approaches to minimize the impact on campus operations. To obtain the best quality construction as well as maximize efficiencies, the Department envisions the work being completed under a single general contractor in coordination with both the design team and construction management group. Construction will have to be closely coordinated with the operations of both the Department and the Colorado Department of Corrections (CDOC) programs on the campus in order to minimize program disruptions.

## COST SAVINGS

This Capital Renewal project is a large project which combines a number of smaller Controlled Maintenance projects into one project. While the project incorporates the following, some other facets are also included to make this a three-phased campus-wide upgrade for a long-term solution to major utility systems operating on this campus. The following Controlled Maintenance Projects are included:

- 00202 (A) Replace Roads + Utility Infrastructure (Phase 1)
- 00202 (B) Replace Roads + Utility Infrastructure (Phase 2)
- 00202 (C) Replace Roads + Utility Infrastructure (Phase 3)
- 00404 Repair/Replace Campus Tunnel and Utility Infrastructure

The controlled maintenance projects listed will then be removed from Controlled Maintenance requests, significantly reducing the Department's total project cost (from the five-year plan) by more than 18 percent. In addition to the economies of scale realized by combining multiple smaller contracts into one, these savings would be achieved by a compacted schedule, reduced overhead costs, and limiting construction cost escalation (based on the Consumer Price Index). The CR request, if funded in a three-phased approach, will result in approximately 12 percent higher costs than if funded as a single appropriation. But the three-phased project allows the General Assembly to accommodate the request given the available funding constraints and accommodates the potential for any coordination needed in Phase 3.



Projected savings do not include potential program costs resulting from system failures, program relocations (The CR project, if funded, will negate the need for any program relocation due to failing infrastructure), and redundant design and construction resulting from emergency failures and replacements, which are all likely to occur over the next 10 years.

Finally, infrastructure upgrades will be needed for the CMHIP campus regardless of future planning and construction of replacement or renovated facilities on the Pueblo campus or elsewhere. The existing infrastructure will continue to deteriorate and fail at an increasing rate during the funding, planning, and construction of new facilities. Additionally, other structures on campus, including DYS and CDOC, would still experience failing infrastructures if not corrected. Coordination between this project and any future separate CC project to replace or renovate the Colorado State Mental Health hospital will be required to address infrastructure that would be common to both projects. It is unlikely any overlap would occur until Phase 3 of this CR project’s scope of work. The details of what Phase 3’s scope of work will entail will be finalized during the design phase.

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request. <b>Smaller operational repairs and upgrades have not been included in this list below.</b>			
Project No.	Project Title	Project Cost \$	Completion date or status
EM2011	Campus Water Service Repair	\$37,718	2019
EM1705	Repair Water Man Break	\$51,925	2016
2017-084M19	SB267 – Replace Boiler Economizer, Central Plant	\$1,024,467	In Closeout
2016-070M19	SB267 – Emergency & Secondary Electrical System, 3 Phases	\$3,678,275	In Construction
M06077	Tunnel & Utility Infrastructure System, 5 Phases	\$7,370,442	2016
M05029	Critical Heat Plant Repairs, 2 Phases	\$1,142,030	2008

**F. CONSEQUENCES IF NOT FUNDED:**

Repairing and replacing individual sections of utility lines as needed is a crisis management approach to the aging infrastructure problem and threatens the campus programs’ stability in the long-term. The Department has utilized both operating dollars and requests for assistance from the OSA for Emergency Controlled Maintenance, but these funds are inadequate to address the extensive needs. Deferring funding of needed repairs is not a viable solution for the long-term needs of the campus, and consequences of failing to fund this initiative include:

- Substantial financial resources are expended on redundant design and construction as different failures of the same system are addressed individually and in consideration of past repairs.
- Water and sewer lines will continue to deteriorate and fail, requiring continuous emergency project and operating funds in order to perform repairs and maintain program viability.
- When systems are out of service, program activities are affected, and safety and security are compromised for both patients and staff.
- Traffic continues to degrade the remaining worn pavement. When roads fail, it affects the ability of support programs, emergency responders, and staff to function on the campus.
- The resources required to make repairs continue to escalate because of the rising market conditions. The Department’s operational budgets are not sufficient to support the ongoing repairs for large utility systems.

In the past, infrastructure projects have been requested in a piecemeal fashion through the State’s Controlled Maintenance (CM) program and many smaller individual projects were funded. However, the CM program is not intended to address larger, more complex projects, which are considered Capital Renewal (CR). The CR program is intended to address more comprehensive and extensive projects in a systematic approach. The OSA endorses this approach to major infrastructure projects.

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

A true life cycle analysis - such as those normally associated with increased resident census, added operational programs, building services, maintenance, regulatory cost increases, software maintenance or energy consumption – is not possible for an infrastructure upgrade of this magnitude, but many known benefits from this project are anticipated. Initiating the replacement of campus infrastructure will include the following outcomes:

- It will allow the Department to devote its resources to the upkeep of campus assets and routine maintenance to extend their serviceable life, rather than responding to failures that only temporarily forestalls future needs.
- Critical Department programs, and those of the other campus occupants, will be afforded a greater level of infrastructure reliability that minimizes spontaneous failures and disruptions to programs.
- The Department will see a reduction in expenditures for unanticipated failures and, in addition, a reduction in the number of Emergency Project requests to the OSA.
- Programs will experience greater continuity of services and reliability of infrastructure support.
- It will ensure and enhance the viability of the CMHIP campus operations for the future.

**H. ASSUMPTIONS FOR CALCULATIONS:**

The Department relied on engineering consultants, contractor estimates, and recent projects to assemble this quantifiable and detailed cost estimate which incorporates all the campus infrastructure priorities, as well as best practices and current needs in the realm of patient care. The costs for Phase 1 used their original estimated cost established in May 2018 and escalation has been added to reflect FY 2021-22 costs. Escalation has been provided by the professional estimator Johan Kemp of 6% per year. The first year has 3 years of escalation added to it equating to an 18% increase with each out lying year with an additional 6%. Total project costs include professional services, construction costs, and other misc. project costs as noted on the cost sheet. Also, as legislatively mandated, total costs include the prevailing wage rates.

**I. SUSTAINABILITY:**

This project does not qualify for the High Performance Building Certification Program as it is an infrastructure project. However, certain aspects of LEED metrics will be used such as ease of pedestrian travel. LEED site criteria will be incorporated into the planning of each phase of the project. The Greening Government initiative will be reviewed during the design phase of this project to see if it's applicable, appropriate, and fiscally possible.

**J. OPERATING BUDGET IMPACT:**

Funding this request will help improve services primarily to the Department's programs, but also several CDOC programs, with a capacity to house 1,044 inmates, which rely upon the Department for critical support.

The project, along with the CM projects, will completely upgrade the infrastructure system on the CMHIP campus and, once complete, the infrastructure Facility Condition Index will be as close to new as possible.

**K. PROJECT SCHEDULE:**

This project includes an overall site survey/investigation and review of the CMHIP infrastructure. It will require replacement of pavement, sidewalks, fire and domestic water lines, sanitary sewers, and improve storm drainage. Details and specifics would be determined during the design phase and coordinated between the two efforts.

Phase 1 of 3	Start Date	Completion Date
Pre-Design	July 2021	October 2021
Design	October 2021	April 2022
Construction	April 2022	April 2023
FF&E /Other	N/A	N/A
Occupancy	N/A	N/A

Phase 2 of 3	Start Date	Completion Date
Pre-Design	July 2022	October 2022
Design	October 2022	April 2023
Construction	April 2023	April 2024
FF&E /Other	N/A	N/A
Occupancy	N/A	N/A

Phase 3 of 3	Start Date	Completion Date
Pre-Design	July 2023	October 2023
Design	October 2023	April 2024
Construction	April 2024	April 2025
FF&E /Other	N/A	N/A
Occupancy	N/A	N/A

\*Pre-design work consists of site surveys (i.e., allows the A/E to gain an understanding of the site and all utilities), investigations, and their subsequent reports. In addition, it includes testing (including asbestos, other contaminants, etc.) before design work can take place.

**L. ADDITIONAL INFORMATION:**



The costs stated in this section have a total extended cost developed for each work item. Each extended cost item looked into the specifics of replacing that particular item. Due to the various natures of the items located within the infrastructure utility upgrade plan, the labor, material and equipment vary greatly between each item. In order to provide a basic breakdown of numbers, without going into the encompassing detail of each work item, a unit and unit cost were developed from the detailed breakdown. Deriving unit cost from the total cost produced fractions of a cent, which were then rounded to whole numbers. Therefore, the product from unit and unit cost will be similar, yet slightly varied from the extended cost.

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST - COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	General Funded	(2) Project Title:	Utility Infrastructure Mental Health Institute at Pueblo-Final Cost
(B)	(1) Agency/Institution:	Dept. of Human Services	(2) Project Phase ( of ):	1 of 3
(C)	(1) OSA Delegate Name:	Stanford Lee	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2002-03	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	1-Jul-20	(2) Revision Date:	

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land / Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ 246,538	\$ -	\$ 121,979	\$ 46,079	\$ 78,480	\$ -	\$ -
(7)	Architectural/Engineering/ Basic	\$ 2,958,446	\$ -	\$ 1,463,745	\$ 552,943	\$ 941,758	\$ -	\$ -
(8)	Code Review/Inspection	\$ 36,981	\$ -	\$ 18,297	\$ 6,912	\$ 11,772	\$ -	\$ -
(9)	Construction Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(11)	Other (Testing Services)	\$ 493,074	\$ -	\$ 243,957	\$ 92,157	\$ 156,960	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 856,869	\$ -	\$ 332,636	\$ 167,542	\$ 356,691	\$ -	\$ -
(13)	Inflation Percentage Applied		0.00%	18.00%	24.00%	30.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 4,591,908	\$ -	\$ 2,180,614	\$ 865,633	\$ 1,545,661	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ X							
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ X							
(22)	Cost for Capital Renewal (GSF):	\$ 26,985,023	\$ -	\$ 5,947,094	\$ 10,053,139	\$ 10,984,790	\$ -	\$ -
(23)	Renewal at \$ X							
(24)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages	\$ 1,349,251	\$ -	\$ 297,355	\$ 502,657	\$ 549,240	\$ -	\$ -
(27)	Inflation for Construction	\$ 7,117,601	\$ -	\$ 1,124,000.77	\$ 2,533,391	\$ 3,460,209	\$ -	\$ -
(28)	Inflation Percentage Applied		0.00%	18.00%	24.00%	30.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 35,451,875	\$ -	\$ 7,368,449	\$ 13,089,187	\$ 14,994,238	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(38)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(39)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(40)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(41)	<b>Total Misc. Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>								
(42)	<b>Total Project Costs</b>	\$ 40,043,783	\$ -	\$ 9,549,064	\$ 13,954,820	\$ 16,539,899	\$ -	\$ -
<b>Project Contingency</b>								
(43)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(44)	10% for Renovation	\$ 4,004,378	\$ -	\$ 954,906	\$ 1,395,482	\$ 1,653,990	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 4,004,378	\$ -	\$ 954,906	\$ 1,395,482	\$ 1,653,990	\$ -	\$ -
<b>Total Budget Request</b>								
(46)	<b>Total Budget Request</b>	\$ 44,048,161	\$ -	\$ 10,503,970	\$ 15,350,302	\$ 18,193,889	\$ -	\$ -
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ 44,048,161	\$ -	\$ 10,503,970	\$ 15,350,302	\$ 18,193,889	\$ -	\$ -
(48)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ 44,048,161	\$ -	\$ 10,503,970	\$ 15,350,302	\$ 18,193,889	\$ -	\$ -



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*			
A	(1) Project Title	CMHIP HVAC Replacements in Four MHI Buildings	
B	(1) Agency:	Department of Human Services	(2) OSA Delegate Signature:  7/1/2020 Date
C	(1) Funding Type:	General Fund/Capital Construction Funds	(2) DPA's Risk Management ID#:
D	(1) Project Phase (Phase _of_):	Phase 1 of 3	(2) State Controller Project # (if a continuation):
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC)	(2) Principal Representative Signature:  07.01.20 Date
		<input checked="" type="checkbox"/> Capital Renewal (CR)	
F	(1) First Year Requested:	FY 2021-22	(2) OSA Review Signature Date
G	(1) Priority Number:	___ of ___	(2) Revision Date: Date
H	(1) Total Project Cost:		(2) Current Phase Cost:

**A. FACILITY PLANNING DOCUMENTATION:**

1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No X Date Approved: \_\_\_\_\_  
 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes X No \_\_\_\_\_ Date Approved: \_\_\_\_\_  
 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI  
 Reported FCI: 0.76 Projected FCI: \_\_\_\_\_

**B. PROJECT SUMMARY/STATUS:**

The Colorado Department of Human Services requests \$4,196,140 total funds/General Fund in FY 2021-22 in order to execute the first phase of a three-phase Capital Renewal project to upgrade and replace old HVAC systems in four patient care facilities at the Colorado Mental Health Institute at Pueblo (CMHIP).

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$53,492,018	\$0	<b>\$4,196,140</b>	\$24,116,305	\$25,179,573	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$53,492,018	\$0	<b>\$4,196,140</b>	\$24,116,305	\$25,179,573	\$0	\$0

**D. PROGRAM INFORMATION:**

The Colorado Mental Health Institute at Pueblo (CMHIP) operates 494 inpatient psychiatric beds providing mental health treatment for adolescent, adult and geriatric civil patients, and forensic patients. Most of the patients treated at CMHIP are court-ordered for evaluation or treatment.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

HVAC systems at numerous CMHIP facilities, including buildings 115, 116, 121, and 125, have reached or exceeded their useful life spans (the newest system is 28 years old.). Program and patients use all four buildings: buildings 115, 116 and 121 house patient care units for MHI, and building 125 houses treatment and medical space for MHI patients. Any major temperature changes impact MHI patients, many of whom are on psychotropic medications. Thus, the proper functioning of HVAC systems in these facilities is a critical component of program operations. Regulatory indoor air quality standards and codes have changed significantly since the HVAC systems were installed in these buildings to now include more stringent air quality requirements. This is especially true for medical and office facilities. Current indoor air quality requirements for programs inside these buildings are becoming increasingly more demanding, putting higher demands on existing systems to comply, and in some cases, are no longer able to perform properly. The existing air-handling units and support systems in the request have exceeded their useful lives, and have intensified maintenance costs, including increased system failures. Replacing components has become harder. Failure of these systems will impact program and operations.

- Buildings 115 and 116 are nearly identical two-story facilities (43,968 GSF and 44,795 GSF) built in 1939 that provide patient care, including the admissions unit, Continuum of Recovery (COrE), adult cognitive units, vocational rehabilitation, and education/treatment mall. The HVAC systems in both buildings 115 and 116 were last upgraded in 1992.
- Building 121 (114,457 GSF) was built in 1952 and is a six-story facility that houses geriatrics, community reintegration unit, occupational therapy, office space, staff development/training, and vacant space on the top floor. The HVAC systems were last updated in 1986.
- Building 125 (151,037 GSF) was built in 1964 and its seven HVAC systems are original to the building. Building 125 serves as the main administration building for CMHIP, and also provides ancillary services such as radiology, laboratories, respiratory therapy, electroencephalography, dental suites, admissions clinics, and physical therapy.

The Division of Facilities Management (DFM) maintains these facilities, and they have kept these old systems, long past their life expectancy, functioning by replacing components and parts over the years. Normally, system replacements in facilities fall under the aegis of CM requests/projects. These four buildings have a large footprint and square footage and thus the HVAC systems are fairly large and expensive. Thus, the size and costs of the scope anticipated precludes the use of a CM type of funding request, and the Department proposes that this need be funded as a Capital Renewal request/project. A single-year appropriation would enable a compact schedule, reduce overhead costs, and limit construction cost escalation (based on the Consumer Price Index), but the Department proposes a 3-phased request/project. This will allow the General Assembly to accommodate the request given the available funding constraints and accommodate the potential for any coordination needed on completion of the design of the systems for all 4 facilities in phase 1. The overall FCIs of these four facilities are 0.74 for buildings 115 and 121, and 0.76 for buildings 116 and 125. The overall FCI does not reflect the condition of the HVAC system itself since the rest of the facility systems are in better condition.

The proposed phasing for the project is as follows:

- Phase 1: Professional services including design for all the four facilities within the scope of work: Building 115 (\$456,496), Building 116 (\$467,381), Building 121 (\$1,422,950), and Building 125 (\$1,849,311) – Professional services including estimates (\$4,196,140)
- Phase 2: Building 115 (\$5,812,173) and Building 116 (\$5,963,217) – Abatement and construction; Building 121 (\$12,340,919) – Construction, no abatement
- Phase 3: Building 125 – Abatement and construction (\$25,179,578)

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.

Project No.	Project Title	Project Cost \$	Completion date or status
2016-081M19	Bldg 125 – SB267 Repair/Replace Elevators, CMHIP, Phase 1 of 3	\$948,782	A/E solicitation complete
2016-081M19	Bldg 121 – SB267 Repair/Replace Elevators, CMHIP, Phase 2 of 3	\$1,180,507	Pending
2015-147M19	Bldg 116 – SB267 Repair/Replace Roofs		Design pending
2015-147M19	Bldg 115 – SB267 Repair/Replace Roofs		Design pending
2009-007P14	Bldg 125 – Suicide Risk Mitigation Phase 2 - Construction	\$927,791	2018
2009-007P14	Bldg 125 – Suicide Risk Mitigation Phase 2 - Design	\$195,422	2018
2015-030P14	Bldg 125 - Electronic Health Records & Pharmacy System Replace	\$151,615	2017
2015-030P14	Bldg 121 - Electronic Health Records & Pharmacy System Replace	\$84,579	2017
2015-030P14	Bldg 116 - Electronic Health Records & Pharmacy System Replace	\$36,488	2017
2015-030P14	Bldg 115 - Electronic Health Records & Pharmacy System Replace	\$18,241	2017
M13052 ('13-'14)	Bldg 125 – Upgrade Building Automation Systems, Phase 1 of 3	\$189,214	2015
P0635 (2007-08)	Bldg 125 - Equipment Replacement	\$792,326	2009

**F. CONSEQUENCES IF NOT FUNDED:**

Should this request not be funded, DFM will continue to repair and replace components of these obsolete systems to keep them functioning. This is a very reactive and crisis management approach to facility maintenance and threatens the stability due to the lack of planning. At some point, parts and components that are already hard to come by will not be available and would cause the system(s) to fail. This would have a major impact on programs and operations at the CMHIP campus.

In the past, HVAC projects have been requested in a piecemeal fashion through the State’s Controlled Maintenance (CM) program, and many smaller individual projects were funded. However, the CM program is not intended to address larger, more complex projects, which would be categorized as Capital Renewal (CR). The CR program is intended to address more comprehensive and extensive projects in a systematic approach. The OSA endorses this approach to major CM projects that cannot be completed in phases costing less than \$2 million per year.

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

LCCA will be given further consideration and analysis during the design phase. The LCCA will be specific to the HVAC system only.

**H. ASSUMPTIONS FOR CALCULATIONS:**

Conceptual cost estimates were prepared by Johan Kemp Estimating Services, Inc. in June 2018 to determine probable magnitudes of cost based on visual inspections and original construction documents for all four buildings. Once A/E design is completed, more exacting cost estimates will be prepared based on the known scopes of work and the completion of A/E construction documents.

Table 1: Estimated Total Cost for Building 115 HVAC	Amounts
Professional Services	\$414,996
Construction & Abatement + Prevailing Wages (5%)	\$4,516,172
Construction Escalation (3 years: 6% + 6% + 6%)	\$767,622
Contingency (10%)	569,879
<b>Total</b>	<b>\$6,268,669</b>

Table 2: Estimated Total Cost for Building 116 HVAC	Amounts
Professional Services	\$424,891
Construction & Abatement + Prevailing Wages (5%)	\$4,633,535
Construction Escalation (3 years: 6% + 6% + 6%)	\$787,571

Contingency (10%)	584,600
<b>Total</b>	<b>\$6,430,597</b>

<b>Table 3: Estimated Total Cost for Building 121 HVAC</b>	<b>Amounts</b>
Professional Services	\$1,293,589
Construction + Prevailing Wages (5%)	\$9,589,134
Construction Escalation (3 years: 6% + 6% + 6%)	\$1,629,883
Contingency (10%)	1,251,260
<b>Total</b>	<b>\$13,763,866</b>

<b>Table 4: Estimated Total Cost for Building 125 HVAC</b>	<b>Amounts</b>
Professional Services	\$1,681,190
Construction & Abatement + Prevailing Wages (5%)	\$18,671,071
Construction Escalation (4 years: 6% + 6% + 6% + 6%)	\$4,219,454
Contingency (10%)	\$2,457,171
<b>Total</b>	<b>\$27,028,886</b>

**I. SUSTAINABILITY:**

This project does not qualify for the High Performance Building Certification Program (HBCP) due to the limited scope of this project. However, replacing aged systems with modern HVAC technology will dramatically improve energy consumption, and increase (heating/cooling) efficiency and comfort to the four highly-used buildings on the CMHIP campus. New HVAC systems will also have the ability to integrate seamlessly with the Department’s existing Siemens building automation system, thus improving the ability to heat and cool separate spaces in each building based on use and occupant needs. This dramatic increase in system efficiency and increased level of zone control will result in significant energy and cost savings over the current systems. Adjustments to utility costs will be requested as needed through the annual budget process. The Greening Government initiative will be reviewed during the design phase of this project to see if it's applicable, appropriate, and fiscally possible.

**J. OPERATING BUDGET IMPACT:**

Funding this request will help improve energy efficiency and will likely result in savings for energy consumption as well from minimizing repair and maintenance needs, since new systems are a lot more energy efficient. While the potential for savings is a given due to industry knowledge, it would be hard to quantify any of these savings and operational cost impacts at this time. It could be done by tracking the new systems after installation for a few years and doing a comparative analysis of costs for repairs and energy consumption for the old and new systems.

**K. PROJECT SCHEDULE:**

This project begins with professional services to determine, specify, and design the most appropriate, cost-effective and efficient HVAC systems for four highly utilized buildings on the CMHIP campus. Following the completion of Phase 1, construction and installation would continue in Phases 2 and 3 as follows:

<b>Phase 1 of 3</b>	<b>Start Date</b>	<b>Completion Date</b>
Pre-Design	July 2021	October 2021
Design	October 2021	April 2022
Construction	N/A	N/A
FF&E /Other	N/A	N/A
Occupancy	N/A	N/A

<b>Phase 2 of 3 – Buildings 115, 116, and 121</b>	<b>Start Date</b>	<b>Completion Date</b>
Pre-Construction	July 2022	October 2022



Design	N/A	N/A
Construction	October 2022	October 2023
FF&E /Other	N/A	N/A
Occupancy	October 2023	

<b>Phase 3 of 3 – Building 125</b>	<b>Start Date</b>	<b>Completion Date</b>
Pre-Construction	July 2023	October 2023
Design	N/A	N/A
Construction	October 2023	October 2024
FF&E /Other	N/A	N/A
Occupancy	October 2024	

\*Pre-design and pre-construction work consists of advertising, interviews, A/E or general contractor selection, and contract execution. In addition, it may include testing (including asbestos, other contaminants, etc.) before design work can take place.

**L. ADDITIONAL INFORMATION:**

**M. CASH FUND PROJECTIONS: NA**

Cash Fund name and number:		N/A	
Statutory reference to Cash Fund:		N/A	
Describe how revenue accrues to the fund:		N/A	
Describe any changes in revenue collections that will be necessary to fund this project:		N/A	
If this project is being financed, describe the terms of the bond, including the length of the bond, the expected interest rate, when the agency/institution plans to go to market, and the expected average annual payment (As applicable):			
<b>Prior Year Actual Ending Fund Balance</b>	<b>Current Year Projected Ending Fund Balance</b>	<b>Year 2 Projected Ending Fund Balance with Project Approval</b>	<b>Year 3 Projected Ending Fund Balance with Project Approval</b>
\$	\$	\$	\$

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST - COST SUMMARY (CC/CR-CS) *				
(A)	(1) Funding Type:	General Funded	(2) Project Title:	CMHIP HVAC Replacements in Four MHI Buildings
(B)	(1) Agency/Institution:	Dept. of Human Services	(2) Project Phase ( of ):	Phase 1 of 3
(C)	(1) OSA Delegate Name:		(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2020-21	(2) State Controller Project #:	NA
(E)	(1) Narrative Signature Date:		(2) Revision Date:	

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land/Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ 23,600	\$ -	\$ 23,600	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic	\$ 3,311,638	\$ -	\$ 3,311,638	\$ -	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 67,120	\$ -	\$ 67,120	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ 3,600	\$ -	\$ 3,600	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 408,715	\$ -	\$ 408,715	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		0.00%	12.00%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 3,814,673	\$ -	\$ 3,814,673	\$ -	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ X							
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ X							
(22)	Cost for Capital Renewal (GSF):	\$ 35,275,892	\$ -	\$ -	\$ 17,694,846	\$ 17,581,046	\$ -	\$ -
(23)	Renewal at \$ X							
(24)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages	\$ 2,134,020	\$ -	\$ -	\$ 1,043,996	\$ 1,090,024	\$ -	\$ -
(27)	Inflation for Construction	\$ 7,404,523	\$ -	\$ -	\$ 3,185,072	\$ 4,219,451	\$ -	\$ -
(28)	Inflation Percentage Applied		0.00%	0.00%	18.00%	24.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 44,814,435	\$ -	\$ -	\$ 21,923,914	\$ 22,890,521	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(38)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(39)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(40)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(41)	<b>Total Misc. Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>								
(42)	<b>Total Project Costs</b>	\$ 48,629,108	\$ -	\$ 3,814,673	\$ 21,923,914	\$ 22,890,521	\$ -	\$ -
<b>Project Contingency</b>								
(43)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(44)	10% for Renovation	\$ 4,862,910	\$ -	\$ 381,467	\$ 2,192,391	\$ 2,289,052	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 4,862,910	\$ -	\$ 381,467	\$ 2,192,391	\$ 2,289,052	\$ -	\$ -
<b>Total Budget Request</b>								
(46)	<b>Total Budget Request</b>	\$ 53,492,018	\$ -	\$ 4,196,140	\$ 24,116,305	\$ 25,179,573	\$ -	\$ -
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ 53,492,018	\$ -	\$ 4,196,140	\$ 24,116,305	\$ 25,179,573	\$ -	\$ -
(48)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ 53,492,018	\$ -	\$ 4,196,140	\$ 24,116,305	\$ 25,179,573	\$ -	\$ -



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Project Title	New Field Artillery Readiness Center in Jefferson County		
B	(1) Agency:	Department of Military and Veterans Affairs (DMVA)	(2) OSA Delegate Signature:	HEDBERG.KRIS TEN.ERICA.138 1470993 <small>HEDBERG.KRISTEN.ERICA. 1381470993 Date: 2020.07.02 15:19:23 -06'00'</small>
C	(1) Funding Type:	Multiple Funding Sources	(2) DPA's Risk Management ID#:	N/A
D	(1) Project Phase (Phase _of_):	Phase 1 of 3	(2) State Controller Project # (if a continuation):	
E	(1) Project Type:	<input checked="" type="checkbox"/> Capital Construction (CC) <input type="checkbox"/> Capital Renewal (CR)	(2) Principal Representative Signature:	<i>Brey Hopkins</i> 7/6/2020   15:34:16 MDT <small>37B258C4D42E4B7</small>
F	(1) First Year Requested:	FY 2021-22	(2) OSA Review Signature	Date
G	(1) Priority Number:	Priority #1	(2) Revision Date:	Date
H	(1) Total Project Cost:	\$31,036,000	(2) Current Phase Cost:	\$2,459,000

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No X Date Approved: \_\_\_\_\_
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes \_\_\_\_\_ No X Date Approved: \_\_\_\_\_
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI Reported FCI: N/A Projected FCI: 100%

**B. PROJECT SUMMARY/STATUS:**

*This Capital Construction Request is for design and construction of a 75,332 square foot Army National Guard Readiness Center of permanent construction, located in Jefferson County. The facility will accommodate the 157<sup>th</sup> Field Artillery Unit and a Headquarters Battery. The Requested amount of State funds is \$614,750 for design and \$6,052,250 for construction. DMVA Real Estate Proceeds from the Boulder sale will be used for the land acquisition. The Federal Government will fund a total of \$24,396,000 for the new Readiness Center. A Facility Program Plan (FPP) will be prepared that utilizes existing Federal planning and programming criteria.*

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$6,667,000	\$0	\$614,750	\$0	\$6,052,250	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$24,396,000	\$0	\$1,844,250	\$0	\$20,641,750	\$0	\$1,910,000
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$31,063,000	\$0	\$2,459,000	\$0	\$26,694,000	\$0	\$1,910,000

**D. PROGRAM INFORMATION:**

*The new Readiness Center will primarily support the 3-157 Field Artillery that has an authorized personnel strength of 236 soldiers. The unit strength, number of soldiers, is established by the National Guard Bureau (NGB). Of that total, there will be 19 soldiers who will utilize the Readiness Center on a full-time basis on Monday thru Friday. The entire unit will occupy the facility for monthly training. All COARNG Units train on a regular basis to prepare for call-up on domestic and international missions. Unit training occurs one weekend each month, and an extended annual training last approximately two weeks. Monthly training, referred to as drills, generally begin on Friday evening and finish late Sunday afternoon. The Field*

Artillery units in the State of Colorado are the oldest of the Colorado Army National Guard. These units are known as the King of the Battle. Their mission is to defeat, or disrupt the enemy with integrated fires to enable maneuver commanders to dominate in unified land operations.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

The site size currently being considered is approximately 25-acres. The site is located in Jefferson County, just off Wadsworth Blvd, and south of C-470.

The main Readiness Center will be 75,332 square feet. Support buildings will include a 330 square foot block controlled waste facility, a 220 square foot block flammable materials facility, and a 3,600 square foot metal unheated vehicle storage building. The National Guard Readiness Center includes the following items that are integral to the facility; Backup/Emergency Generator, Organizational Vehicle Parking (Paved), Electric Power, Photovoltaic, and Heating Plant (Geothermal). The facility will be designed to meet Industry Standards as well as all local, State, and Federal building codes. Construction will include all utility services, information systems, fire detection and alarm systems, roads, walks, curbs, gutters, storm drainage, parking areas, and site improvements. The facilities will be designed to a minimum life of 50 years. Access for individuals with disabilities will be provided. Security measures in accordance with DoD Minimum Antiterrorism for building standards will also be provided.

The Field Artillery Units currently work from the Longmont and Chestnut (Colorado Springs) Readiness Centers. This project is critical to the state of Colorado due to the current situation of documented life/health/safety deficiencies at the Longmont Readiness Center. This site and the Colorado Springs site, at 60 years old, are past their useful lives. They are to be replaced with one site that meets modern requirements. The current two facilities are some of the oldest facilities in the Colorado Army National Guard inventory. Current facilities lack adequate office space, storage (secure and unsecured), parking (organizational and non-organizational), force protection, kitchen facilities, and maintenance bays. Both facilities are land locked on parcels of land and cannot be expanded. Maximum use is being made of the existing facilities at two different sites that this project replaces, but they combine to meet only 42% of the total space allowance requirements.

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.			
Project No.	Project Title	Project Cost \$	Completion date or status
NONE			

**F. CONSEQUENCES IF NOT FUNDED:**

If this new Readiness Center is not provided the current older facilities' lack of required functional areas will continue to negatively impact the units' readiness. By adversely affecting their ability to train, meeting their mission essential training requirements is difficult if not impossible. The life/safety deficiencies at Longmont put soldiers' lives at risk. The lack of adequate storage space and parking also directly impacts the units' ability to conduct equipment maintenance, which will impact the Soldiers' safety and their ability to meet their mission requirements. All these factors contribute to the degradation of the Soldiers' quality of life and thus reduces unit retention. This facility also does not comply with the Anti-terrorism Force Protection (ATFP) requirement, which greatly compromises the safety of the Soldiers in these units. There is inadequate organizational or military vehicle parking, which also does not meet ATFP requirements and puts the safety of the Soldiers at risk. The units also struggle with the lack of Organizational Storage.

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

Several available sites were evaluated for the location of the new Field Artillery Readiness Center. A screening process was utilized to eliminate further consideration of other land parcels. The main decision factors included: 1) limited site development opportunities due to parcel shape, 2) lack of access for military vehicles, 3) proximity and cost of utility extensions, and 4) site topography.

During the project planning and design phases, the project will meet both the requirements of the State's High Performance Certification Program (HPCP) and the Governors Executive Order on Greening of State Government (D 2019-016) through documenting and running Life Cycle Cost Analysis (LCCA) considering multiple system variations and configurations, including electrification of the building systems. This will be accomplished by having the design firm consider and compare several HVAC alternatives during design, with one alternative being complete electrification (i.e. no natural gas)

**H. ASSUMPTIONS FOR CALCULATIONS:**

Land: DMVA intends to purchase approximately 25-acres of land somewhere in Jefferson County as the site for the new Readiness Center. The site location currently being considered is located just off Wadsworth Blvd., and south of C-470.

Professional Services: Estimated at 18% of site improvements and building construction. Professional services to include surveyor, geotechnical engineer, architect/engineer design team, code review, design and construction commissioning, code and special inspections.

Construction Cost & Inflation: A detailed cost estimate was developed using the Federal CACI software called Projdoc. Based on the input quantities, the software develops unit pricing for the building and all site components. The cost estimating tools were input to develop unit pricing for mid-year 2025, based on a 75,300 SF building. The cost estimate is part of the NGB 1390/91 Planning/Programming & Justification document. The current 'draft' 1390/91 is provided as a separate attachment for reference.

Furnishings & Equipment: Furniture, Fixture and Equipment costs for the Readiness Center will be funded with Federal money. The FFE estimate for this project is \$1,910,000.

Art in Public Places: 1% of the building and site improvements cost is included.

**I. SUSTAINABILITY:**

The new building will meet all requirements of the International Energy Conservation Code and the HPCP requirement to achieve the highest performance certification attainable with fifteen (15) year payback. Initial review of the LEED v4.1 for BD+C: New Construction shows the project reaching the USGBC ‘Gold’ threshold is achievable. Programming of the project includes funds for an approximate 100KW photovoltaic (PV) array system, and a geothermal field. The LEED points for these sustainable components, along with extensive lighting control, daylight integration, and heat recovery technologies will greatly assist in achieving this LEED certification level.

Per the Governors Executive Order, the project will include at least 20% of parking spaces that will be pre-wired for charging, and at least 5% of the parking spaces will have Electronic Vehicle (EV) charging stations installed.

**J. OPERATING BUDGET IMPACT:**

Utilities and basic maintenance will be required for the new Readiness Center. Utilities will include power, gas, water, sewer and communications. The new building total utility cost is estimated to be in the \$85-\$95K range per year. This is based on a total utility cost of \$1.25/square foot, per year. This is escalated from a current utility cost of \$1/SF/year to account for FY26 pricing. The usual state share for utility cost is 50% for a Readiness Center situated on state land. Maintenance would be accomplished by the one of the DMVA Denver area maintenance technicians, or contracted when required. COARNG personnel are expected to clean the facility on a regular basis, with occasional contracted cleaning.

**K. PROJECT SCHEDULE:**

Phase 1 of 3 (Design)	Start Date	Completion Date
Pre-Design	October 2021	April 2022
Design	May 2022	November 2022
Construction		
FF&E /Other		
Occupancy		

Phase 2 of 3 (Construction)	Start Date	Completion Date
Pre-Design		
Design		
Construction	Fall 2023	Fall 2025
FF&E /Other		
Occupancy		

Phase 3 of 3 (FFE)	Start Date	Completion Date
Pre-Design		
Design		
Construction		
FF&E /Other	Summer 2026	Fall 2026
Occupancy		

**L. ADDITIONAL INFORMATION:**

- The following supporting documents are attached as separate files:
- Aerial Map showing Draft in-progress site boundary and facility layout.
  - Draft version of NGB 1390/91 Programming and Planning document.

**M. CASH FUND PROJECTIONS:**

Cash Fund name and number:			
Statutory reference to Cash Fund:			
Describe how revenue accrues to the fund:			
Describe any changes in revenue collections that will be necessary to fund this project:			
If this project is being financed, describe the terms of the bond, including the length of the bond, the expected interest rate, when the agency/institution plans to go to market, and the expected average annual payment (As applicable):			
<b>Prior Year Actual Ending Fund Balance</b>	<b>Current Year Projected Ending Fund Balance</b>	<b>Year 2 Projected Ending Fund Balance with Project Approval</b>	<b>Year 3 Projected Ending Fund Balance with Project Approval</b>
\$	\$	\$	\$



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*			
(A)	(1) Funding Type: <b>Multiple Funding Sources</b>	(2) Project Title: New Field Artillery Readiness Center in Jefferson County	
(B)	(1) Agency/Institution: Dept. of Military and Veterans Affairs	(2) Project Phase ( of ): Phase 1 of 3	
(C)	(1) OSA Delegate Name: Kris Hedberg	(2) Project Type: Capital Construction (CC)	
(D)	(1) Year First Requested: FY 2021-22	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date: 6-Jul-20	(2) Revision Date:	

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land /Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ 820,340	\$ -	\$ 820,340	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic Services	\$ 2,279,000	\$ -	\$ 1,507,000	\$ -	\$ 772,000	\$ -	\$ -
(8)	Code Review/Inspection	\$ 33,660	\$ -	\$ 33,660	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)- Commissioning	\$ 223,000	\$ -	\$ 98,000	\$ -	\$ 125,000	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 3,356,000	\$ -	\$ 2,459,000	\$ -	\$ 897,000	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ 961,000	\$ -	\$ -	\$ -	\$ 961,000	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ 3,284,000	\$ -	\$ -	\$ -	\$ 3,284,000	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ 19,352,000	\$ -	\$ -	\$ -	\$ 19,352,000	\$ -	\$ -
(19)	New at \$ 250.00 X 75,332 GSF							
	New at \$ 133.00 X 550 GSF							
	New at \$ 124.00 X 3,600 GSF							
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ X							
(22)	Cost for Capital Renewal (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(23)	Renewal at \$ X GSF							
(24)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ 946,000	\$ -	\$ -	\$ -	\$ 946,000	\$ -	\$ -
(26)	Prevailing Wages	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(27)	Inflation for Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(28)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 24,543,000	\$ -	\$ -	\$ -	\$ 24,543,000	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ 106,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 106,000
(31)	Furnishings	\$ 1,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,000,000
(32)	Communications	\$ 804,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 804,000
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ 1,910,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,910,000
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ 27,000	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(38)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(39)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(40)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(41)	<b>Total Misc. Costs</b>	\$ 27,000	\$ -	\$ -	\$ -	\$ 27,000	\$ -	\$ -
<b>Total Project Costs</b>								
(42)	<b>Total Project Costs</b>	\$ 29,836,000	\$ -	\$ 2,459,000	\$ -	\$ 25,467,000	\$ -	\$ 1,910,000
<b>Project Contingency</b>								
(43)	5% for New	\$ 1,227,000	\$ -	\$ -	\$ -	\$ 1,227,000	\$ -	\$ -
(44)	10% for Renovation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 1,227,000	\$ -	\$ -	\$ -	\$ 1,227,000	\$ -	\$ -
<b>Total Budget Request</b>								
(46)	<b>Total Budget Request</b>	\$ 31,063,000	\$ -	\$ 2,459,000	\$ -	\$ 26,694,000	\$ -	\$ 1,910,000
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ 6,667,000	\$ -	\$ 614,750	\$ -	\$ 6,052,250	\$ -	\$ -
(48)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ 24,396,000	\$ -	\$ 1,844,250	\$ -	\$ 20,641,750	\$ -	\$ 1,910,000
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ 31,063,000	\$ -	\$ 2,459,000	\$ -	\$ 26,694,000	\$ -	\$ 1,910,000



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
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FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Project Title	Sterling Correctional Facility (SCF) Steam Condensate Line Replacement		
B	(1) Agency:	Department of Corrections	(2) OSA Delegate Signature:	Refer to PDF for James C. Ramsey Signature 29 June 2020
C	(1) Funding Type:	General Fund	(2) DPA's Risk Management ID#:	Not Applicable
D	(1) Project Phase (Phase_of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):	Not Applicable
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC)	(2) Principal Representative Signature:	Refer to PDF for Travis Trani Signature 26 June 2020
		<input checked="" type="checkbox"/> Capital Renewal (CR)		
F	(1) First Year Requested:	FY 2019-2020	(2) OSA Review Signature	Date
G	(1) Priority Number:	1 of 10	(2) Revision Date:	Date
H	(1) Total Project Cost:	\$8,495,755	(2) Current Phase Cost:	\$8,495,755

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No X Date Approved: N.A.
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes X No \_\_\_\_\_ Date Approved: \_\_\_\_\_
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI  
Reported FCI: 40% Projected FCI: 56%

**B. PROJECT SUMMARY/STATUS:**

This Capital Renewal Project Request will replace the degraded and failing piping for the steam system that provides heating for the entire facility with new insulated condensate lines. This request is for a single-phase project; no prior phases have occurred. The project scope includes associated fittings and control valves at each building as well as isolation valves in other strategic locations. The entire steam condensate system made up of these lines (*approximately 10,020 linear feet*) is anticipated for imminent failure and are currently patched as breaks occur. Seven breaks occurred in the six months between January thru June 2018.

This facility houses 2,488 offenders and is the largest for the Department of Corrections housing all five of the State's male offender custody levels. The 24/7 operation Facility opened in 1999, with all building systems over 20 years in age.

Due to the remote location, SCF heavily utilizes the steam heating system eight months out of every year. The winter conditions are some of the most severe in the state with temperature extremes to -18°F compounded by winds up to 50 miles per hour. The combination of the size of the facility, the quantity/type of offenders and the climate requires the need for a functioning heating system for the daily function of the facility. Failure of this system will result in the loss of use of the facility.

Since October 2015, the steam condensate piping system has been failing prematurely from corrosion in multiple facility locations and continues to get worse. The corrosion is occurring on both the interior and exterior of the piping; however, it appears to have initially started on the inside of the piping. The piping failures of the steam condensate system have occurred in random locations, both close and far from the central plant, and other locations throughout the facility.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$8,495,755	\$0	\$8,495,755	\$0	\$0	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0

(52) Total Funds (TF)	\$8,495,755	\$0	\$8,495,755	\$0	\$0	\$0	\$0
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**D. PROGRAM INFORMATION:**

As this project will replace the entirety of the steam condensate lines within the facility, all programs will be impacted. This will affect all facility functions that include offender housing, offender programs, food service and laundry, clinical services, recreation, security, administration, and support services.

Support facilities refer to basic physical plant infrastructure, including water, heat, electricity, sewage treatment, and building maintenance systems. In general, these systems were designed to accommodate a specific maximum population level. Deterioration of these systems over time may result in a subsequent decrease in the actual capacity of a facility as their functionality diminishes. The number of “down cells” or cells that cannot be occupied due to physical plant problems is directly related to the condition of these support facilities.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

This Capital Renewal Project Request is in response to multiple large-scale leaks in the piping of the steam condensate system around the entire facility. These leaks are occurring frequently, causing extreme amounts of water loss, a poorly operational system and innumerable man-hours excavating the direct bury lines. Temporary repair requires shutting down the entire heating system to the facility while the temporary repair of the leaks occurs. The shut downs must be strategically timed based on the outside climate temperatures and other condition impacts (*i.e. rain, snow, etc.*). During times leading up to the shutdown and repair of the leak, the facility has lost up to 700 gallons of potable city water per hour, and struggles to keep the poorly functioning heating system operational.

The heating system consists of numerous components, which include the boiler, steam supply lines running underground from the central plant boiler to heat the facility buildings and steam condensate lines returning the water to a deaeration tank returning back again to the boiler. It is critical to the function of this complex system the steam condensate lines remain pressurized with treated water and not leak. Leaks and small amounts of impurities in the water cause (*and have caused*) a chemical reaction inside the lines resulting in highly corrosive carbonic acid running through the lines. This acid has corroded the lines and associated components from inside-out, resulting in the perimeter lines failing in multiple locations simultaneously.

Since the facility has experienced a break nearly every month since October 2015, a significant financial and operational impact exists for each repair to maintain operation. Each leak or break has taken up to six weeks to repair due to weather conditions, locating the break, excavation to nearly 12 feet deep by 20 feet in width (*to access the line*), shutting off the facility’s heating system to allow the removal and the installation of a temporary patch with new compression fittings and pipe.

Additionally, the amount of potable water lost has been upwards of 700 gallons per hour, which can add up to over 600,000 gallons per leak and totals over 4 million gallons lost to date. The temporary repairs have been self-performed by SCF maintenance staff and offenders, with an average of 700 man-hours expended for each leak, over 4,900 hours to date. Each incident impacts the operation and puts a great strain on the facility.

In addition to the temporary patches, the facility is installing new underground concrete vaults to provide access to newly installed condensate lines and shut-off valves in strategic locations. These vaults will allow for proper maintenance access and will be incorporated into the system replacement design and work.

DOC Facility Management Services (*FMS*) contracted with Schendt Engineering to conduct an assessment and study of the existing systems to verify their condition. Their assessment is the basis for the Sterling Correctional Facility Steam Condensate Line Replacement study dated June 2018. The findings in this report concluded that due to the amount of decay, damage, poor soil, corrosive water and the direct bury pipe conditions, complete replacement of the steam condensate lines is required. This includes the supply and return lines, required connections and isolation valves that will provide maintenance access.

The report findings identifying system component failures described below:

- *The condensate piping system has failed prematurely from corrosion in multiple facility locations and continues to get worse. The corrosion is occurring on both the interior and exterior of the piping; however, it appears to have initially started on the inside of the piping. The condensate piping failures have occurred in random locations, both close and far from the central plant, and in areas of the facility.*
- *Condensate failures are occurring more and more frequently and the SCF maintenance staff is constantly providing temporary fixes to keep the facility operating. The piping used for the temporary repairs is not schedule 80 seamless carbon steel service pipe, with 1.5" of polyurethane insulation, and a fiberglass reinforced polymer resin jacket (FRP) jacket; therefore, it is not watertight and will not have a long service life.*
- *The steam piping should be replaced, since the excavation would already be completed with condensate pipe replacement. In addition, the new condensate piping will be above the steam piping, making it very difficult to replace the steam piping after the condensate piping is in place.*
- *Placing the entire loop in a concrete covered trench would be preferred, although the cost would be prohibitive, therefore direct-bury for the majority of the pipe is recommended with access at strategic locations such as valves and other connections points to*



be placed in maintenance vaults. A majority of the branches serving the buildings are in vaults; however, five of the minimum restricted (“T”) buildings do not have vaults where the branches tee off the mains. In addition, the vaults are too small (7 feet by 7 feet) to facilitate maintenance. Good practice would be 10 feet by 10 feet to ensure 3 feet between each pipe, so valves and traps can be operated, maintained, and replaced without standing on the adjacent pipe.

- Currently, only the mains have isolation valves. There should be valves isolating both mains and building branches located in accessible vaults. This allows maintenance staff to isolate sections of piping safely for repair and troubleshooting.
- The condensate is collected in each building and pumped back to the central plant with steam powered condensate pumps. The majority of the pumps are original and are past their expected service life.

The report recommendations are described below:

- Replace all pumped condensate piping (approximately 10,020 LF) and 230 associated isolation valves between steam condensate pumps and deaerator tank. The piping shall be a pressure testable cased piping system with schedule 80 seamless piping, 1.5” or greater polyurethane insulation, and an HDPE jacket.
- Replace bucket traps in vaults and at locations where steam piping enters each building
- Replace 27 steam powered condensate pumps and 46 associated isolation valves
- Provide 6 (10 x 10) vaults with louvers, hatches and ladders for branches that do not have vaults
- A select portion of the steam line will need to be replaced due to an existing puncture, but the remainder of the steam lines have no reported failures and is anticipated to continue to function properly for its intended life expectancy

This project includes a single construction phase to complete the essential improvements detailed in this construction, by installing a complete new system while the existing remains operational, will reduce the disruption of services and systems serving the offenders and staff at SCF. These improvements will restore the performance of the critical system for Sterling Correctional Facility.

The project includes professional services to analyze, design and produce construction documents for the project, equipment and materials. The project scope includes demolition and installation of all the lines around the entire facility, and connection with the ending leg that meets with the deaeration tank outside of the existing Lethal Fence.

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.			
Project No.	Project Title	Project Cost \$	Completion date or status
2020-085M19	SCF Deaeration Tank Replacement	\$1,457,417	Design
Utility Contingency FY2018-19	Water Tank, Blasted, & Recoated	\$75,000	June 2019
MC18-101	Condensation Line Replacement Parts – Back Gate	\$22,038	March 2018
MC18-083	Condensation Line Replacement Parts	\$120,000	January 2018
Utility Contingency FY2017-18	Boiler Impellor Motor	\$8,223	June 2018
MC18-06	LU 23 and 24 Shower Renovations	\$25,919	Dec. 2017
PD16-002	Shower Renovations	\$25,000	June 2016
PD17-012	LU 21 Water Coils	\$16,800	Sept 2016
PD15-037	Shower Renovations	\$25,000	June 2015
PD16-014	Water Softener Tanks	\$100	Sept 2015
PD17-011	LU ORA Drains	\$3,300	Sept 2015
EMP #39370	Energy Performance Contract	\$6,012,340	Sept 2013
INA	SCF Flood / No Flush Order		Sept 2013
SNA	SCF FEMA Flood		Sept 2013
IND	SCF / Flood / PS & Grounds Balance		Sept 2013

**F. CONSEQUENCES IF NOT FUNDED:**

Without the replacement and upgrades detailed in this Project Request, the steam heating system will fail. The significant amount of degradation and the inability to continue patching the existing lines is a significant and continual issue for the facility. This could result in loss of use of the Facility, as it would not be fit for occupancy by staff and offenders.

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

The continual issues undermine the effectiveness of the system and jeopardize the ability to provide heat and other hot water services for the function of the entire facility. These leaks result in utility cost increases at SCF.

Due to the significant amount of degradation and the increasing difficulty to locate and patch leaks in the system, a complete replacement is warranted over continued fragmental repairs. The longer this system is in service, the more problematic it will become.

Completing this project under a single phase will provide savings made possible through an accelerated construction schedule resulting in limited cost escalation and a reduction in overhead costs. The State will also likely avoid future emergency costs for repairs of these systems.

This project, initially submitted in FY19-20, will indirectly improve fossil fuel consumption for SCF and the Department. The replacement of the steam condensate lines will improve efficiency of the hot water system and heating, with a direct impact to the existing boilers by reducing excess operation.

**H. ASSUMPTIONS FOR CALCULATIONS:**

The description and breakdown of assumptions used to calculate the project budget is as follows:

- 1) Professional Services of \$751,083 calculated using the Construction Improvement Total (CIT)
  - A/E Basic Services \$654,357 - 12% of the CIT
  - Code Review and Inspections \$ 27,265 - 0.5% of CIT
  - Advertising, Printing, Cellphones & Administration \$ 54,530 - 1% of CIT
- 2) Base Project Costs of \$4,374,988 calculated as follows:
  - Base and Alternate costs for this Project Request were taken directly from the “Findings and Recommendations Report” as prepared by Schendt Engineering on 25 June 2018.
  - Contractor’s General Conditions 10% of Subtotal of project costs.
  - Contractor’s Labor Burden of 8% of the Labor of project costs
  - Overhead & Profit of 15% of Supplier Subtotal
- 3) Miscellaneous expenses of \$934,627 calculated as follows:
  - Secure Facility Environment Factor that accounts for contractor work inefficiencies due to working in a prison environment of 20% of labor only of the CIT
  - Site Location Factor of 20% of base and alternates that accounts for remote location of the facility
  - Addition of Prevailing Wages of \$110,598 was calculated for work starting after June 2021 for plumbing items.
- 4) Project Contingency of \$772,341 calculated at 10% of the sum of Professional Services, Base Project Costs, and Miscellaneous expenses
- 5) DOC Facility Management Services escalated the costs above by 2.7% to June 2020, then 5.8% to June 2022, and an additional 4.5% for each year compounded to November 2023 – the anticipated mid-point of construction. The inflation factors were calculated using the four-year average of inflation from the RS Means Data, Building Cost Index.

**I. SUSTAINABILITY:**

This Capital Renewal project is exempt from the High Performance Certification Program (HPCP) requirements as it is a controlled maintenance project in excess of \$2,000,000. Appropriate strategies of the HPCP will be included in the project where applicable and cost effective.

**J. OPERATING BUDGET IMPACT:**

Having a working steam and condensate return system will reduce material repair costs to the existing system, reduce staff overtime and allow routine physical plant maintenance to occur, keeping the facility functioning.

**K. 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	July 2021	October 2021
Design, Bid & Award	November 2021	March 2023
Construction	April 2023	June 2024
FF&E /Other	N/A	N/A
Occupancy	July 2024	

**L. ADDITIONAL INFORMATION:**

**Single Phase**

Completing the various improvements detailed in this request as a single project rather than multiple controlled maintenance requests will reduce the disruption of services and systems serving the offenders and staff at the SCF. These disruptions impact the entire facility.

In addition, completing this project request as a single project will provide savings made possible through an accelerated construction schedule resulting in limited cost escalation and a reduction in overhead costs. The State will likely avoid future emergency controlled maintenance costs for repairs of these systems.

This project will have an immediate positive impact on the FCI. This request has the potential to reduce damage to building finishes and equipment, inclusive of fire alarm control panels and security door control panels, with the elimination of water leaks. The project reduces the likelihood of a facility closure and loss of use should emergency repair/replacement of the water service lines be required.

**External Capacity**

This project will not require the correctional housing unit cells to be vacated during construction and will not impact external capacity funding.



STATE OF COLORADO  
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OFFICE OF THE STATE ARCHITECT

**FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)\***

(A)	(1) Funding Type:	<b>General Funded</b>	(2) Project Title:	Sterling Correctional Facility (SCF) Steam Condensate Line Replacement
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase ( ___ of ___):	Phase 1 of 1
(C)	(1) OSA Delegate Name:	James C. Ramsey	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2019-2020	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	29 July 2020	(2) Revision Date:	

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land /Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic Services	\$ 654,357	\$ -	\$ 654,357	\$ -	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 27,265	\$ -	\$ 27,265	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ 54,530	\$ -	\$ 54,530	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 189,107	\$ -	\$ 189,107	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 925,259	\$ -	\$ 925,259	\$ -	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ 3,115,422	\$ -	\$ 3,115,422	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ _____ X GSF							
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ _____ X							
(22)	Cost for Capital Renewal (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(23)	Renewal at \$ _____ X GSF							
(24)	Other - Site Location Factor	\$ 623,084	\$ -	\$ 623,084	\$ -	\$ -	\$ -	\$ -
	Other - Secure Environment Factor	\$ 311,542	\$ -	\$ 311,542	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages	\$ 110,598	\$ -	\$ 110,598	\$ -	\$ -	\$ -	\$ -
	Other - Contractor's general conditions	\$ 405,005	\$ -	\$ 405,005	\$ -	\$ -	\$ -	\$ -
	Other - Contractor's add'l labor burden	\$ 162,002	\$ -	\$ 162,002	\$ -	\$ -	\$ -	\$ -
	Other - Contractor's overhead and profit	\$ 692,558	\$ -	\$ 692,558	\$ -	\$ -	\$ -	\$ -
(27)	Inflation for Construction	\$ 1,377,944	\$ -	\$ 1,377,944	\$ -	\$ -	\$ -	\$ -
(28)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 6,798,155	\$ -	\$ 6,798,155	\$ -	\$ -	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(38)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(39)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(40)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(41)	<b>Total Misc. Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>								
(42)	<b>Total Project Costs</b>	\$ 7,723,414	\$ -	\$ 7,723,414	\$ -	\$ -	\$ -	\$ -
<b>Project Contingency</b>								
(43)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(44)	10% for Renovation	\$ 772,341	\$ -	\$ 772,341	\$ -	\$ -	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 772,341	\$ -	\$ 772,341	\$ -	\$ -	\$ -	\$ -
<b>Total Budget Request</b>								
(46)	<b>Total Budget Request</b>	\$ 8,495,755	\$ -	\$ 8,495,755	\$ -	\$ -	\$ -	\$ -
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ 8,495,755	\$ -	\$ 8,495,755	\$ -	\$ -	\$ -	\$ -
(48)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ 8,495,755	\$ -	\$ 8,495,755	\$ -	\$ -	\$ -	\$ -



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Project Title	East Canon City Prison Complex (ECCPC) Water Tank Repair-Replacement		
B	(1) Agency:	Department of Corrections	(2) OSA Delegate Signature:	Refer to PDF for James C. Ramsey signature – 29 June 2020
C	(1) Funding Type:	General Funded	(2) DPA’s Risk Management ID#:	COCM7611, COCM7613
D	(1) Project Phase (Phase_of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):	Not Applicable
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC) <input checked="" type="checkbox"/> Capital Renewal (CR)	(2) Principal Representative Signature:	Refer to PDF for Travis Trani signature – 26 June 2020
F	(1) First Year Requested:	FY2021-22	(2) OSA Review Signature	Date
G	(1) Priority Number:	2 of 10	(2) Revision Date:	Date
H	(1) Total Project Cost:	\$4,765,057	(2) Current Phase Cost:	\$4,765,057

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No X Date Approved: Not Applicable
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes X No \_\_\_\_\_ Date Approved: April, 2020
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI  
Reported FCI – South Tank: 38% Projected FCI: 56%  
Reported FCI – North Tank: 58% Projected FCI: 76%

**B. PROJECT SUMMARY/STATUS:**

This Capital Renewal request is for a new 1.63 million gallon (MG) steel water tank, repair of the existing 1.6 MG tank and all associated required infrastructure to properly serve and sustain the East Canon City Prison Complex (ECCPC or Complex). The single point of failure of the existing 1.6 MG water tank will result in loss of use of all facilities on the ECCPC, impacting 5,024 multi-custody level male offenders. Two tanks will give redundancy for the Complex.

The purpose of this request is to meet the long-term water storage and supply needs at the Complex. The existing 1.6 MG North Water Storage Tank at ECCPC is insufficiently sized to provide water for code-required fire suppression duration of a major fire event at any of the facilities on the Complex. This project would provide for an additional, new 1.63 MG South Water Tank at ECCPC meeting the required ADD (Average Daily Demand) of water and fire storage requirements. This project will maintain a secure and safe environment for the staff, offenders, and public.

There are three additional components to complete the ECCPC water storage and water quality. Two are included in this project, one is urgent and a separately-funded project. The descriptions are as follows:

- First – a hydraulic connection will be installed between the existing North Storage Tank and the new South Storage Tank, as part of this project, allowing the tanks to operate as a system.
- Second – the existing North Tank will be restored as part of this project, in order to maximize its remaining useful life.
- Third – replacement of the existing 6-inch diameter pipe from the City connection, with a new 12-inch diameter pipe. This work is funded by current operating dollars and will be completed in August of 2021. It is not part of this request. This improvement will result in an increased water flow capacity, replenishing the water supply within 24 hours after use in a fire event.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$4,765,057	\$0	<b>\$4,765,057</b>	\$0	\$0	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(49) Reappropriated	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0

Funds (RF)							
(50) Federal Funds (FF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$4,765,057	\$0	\$4,765,057	\$0	\$0	\$0	\$0

**D. PROGRAM INFORMATION:**

This request impacts operations and safety of all ECCPC facilities, including six correctional facilities, an international training center and support facilities. It will ensure sufficient, code-required, water storage in the case of a major fire event, while still supplying adequate water for daily needs at all locations, for an increased offender population. All six ECCPC correctional facilities depend on this water supply system for life sustaining water needs.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

In the fall of 2019, Facility Management Services (FMS) contracted with Plummer for an evaluation and recommendations regarding the water storage and distribution infrastructure at ECCPC. Final assessments of the complex were completed in April of 2020. This Capital Construction Project Request is based on the findings and recommendations, including the project’s Opinion of Probable Costs. The report includes the following:

**Overall Assessment:**

- The East Canon City Prison Complex (ECCPC) is a 5,400 acre site located adjacent to Canon City, Colorado (the City), comprised of:
  - 6 correctional facilities – 105 buildings
  - Multiple corrections support facilities - 28 buildings
  - Multiple Colorado Correctional Industries (CCI) facilities – 79 buildings
  - The International Correctional Management Training Center (ICMTC) – 32 buildings.
  - The male correctional facilities housed on ECCPC range from security level I to level V with a total of 5,024 offenders.
- Potable water for the Complex is provided by the City and is stored and distributed via CDOC’s potable water system, which consists of two storage tanks, two pump stations, one cistern (below grade concrete clear well for the South Pump Station), and distribution piping. The existing North Storage Tank has a capacity of 1.6 MG. The existing South Storage Tank has a capacity of 0.15 MG.
- ECCPC has two connections to the City’s distribution system that deliver water to the north and south areas of the Complex. The northern connection is on Grandview Avenue, near the ICMTC, from which the North Pump Station pumps water to the North Storage Tank. The southern connection is at MacKenzie Avenue, from which water flows to a below-grade cistern (clear well). The South Pump Station pumps water from this cistern to the South Storage Tank. Water from both tanks flows into the ECCPC water distribution system to all facilities in the Complex.
- The existing 6-inch southern water connection is currently being replaced by the Department with a 12-inch pipe. At the time of the study, 2,000 linear feet of new pipe was installed parallel to the existing pipe, with the remaining 4,300 linear feet in progress, with anticipated completion in the summer of 2021.
- Previous engineering studies have identified that additional storage is required to meet the increasing water demand and fire storage requirements for the Complex.
- Per the International Fire Code (IFC), flow rate and duration of water supplies for fire suppression is generally determined by the Authority Having Jurisdiction (AHJ). No record of recommended flow rate and duration was found for ECCPC from the Canon City Area Fire Prevention District (CCAFPD), which is the AHJ. Therefore, the IFC recommendation of using the National Fire Protection Association (NFPA) Fire Code 1 to determine flow rate and duration, is applied.
- Determination of required flow rate and duration for fire suppression is based on building type, building square footage, occupancy type and building materials. With these items taken into account, it was determined that the required fire flow rate is 8,000 gallons per minute (gpm) and the fire flow duration is four hours.
- A 75% reduction in fire flow rate is allowed by the 2018 NFPA Fire Code 1 “when the building is protected throughout by an approved automatic sprinkler system [or] approved automatic sprinkler system which utilizes quick response sprinklers throughout.” However, not all facilities at ECCPC have fire sprinklers throughout, and to achieve fire suppression in the entire Complex would not be feasible. Therefore, this 75% reduction is not permitted.
- In addition to the water requirements for fire prevention, the Average Daily Demand (ADD) for all other uses of water on the Complex was determined, and is projected to be 907 gpm with the facilities at full capacity (5,024 offender population).
- The total water required for a fire event (8,000 gpm for four hours) plus ADD (907 gpm for 24 hours) is 3.23 MG per day. The existing 1.6 MG tank leaves a shortfall of 1.63 MG, not accounting for the much smaller 0.15 MG existing tank. This is the basis for the addition of the second tank.

**Condition of Existing Components:**

The existing 1.6 MG North Storage Water Tank was installed in 1992 and is in need of rehabilitation and repairs in order to extend its useful life. The existing 0.15 MG South Storage Water Tank capacity meets less than 5% of total water required and should be replaced as a part of the main water distribution system. This tank will be repurposed as a non-potable water storage tank to meet a portion of the non-potable, agricultural water requirements of the Complex. Repurposing of this existing 0.15 MG Water Storage Tank is not included in this proposal. Additionally, the existing 6-inch pipe at the southern water connection is insufficient to refill a new 1.63 MG water storage

tank within 24 hours. The Department is currently replacing the line with a new 12-inch pipe utilizing operating funding, which is not included in this request scope. When completed, the new 12-inch pipe will be sufficient to fill the new 1.63 MG water storage tank within 24 hours.

**Proposed Solution:**

- It is the recommendation of this report that a new 1.63 MG water tank be installed near the existing South Storage Tank, to meet the required ADD and fire water storage. Modification of piping connections to and from the tank to fill the tank and convey water to the existing distribution system is also required. A Bolted Steel tank is recommended as a more cost-effective solution than a Welded Steel tank and has been successfully used by the Department at other locations.
- It is recommended that a hydraulic connection be installed between the existing 1.6 MG North Storage Tank and the new 1.63 MG South Storage Tank. This connection will allow the tanks to operate as a system, rather than independently, maximizing the use of tank volumes, rather than having one tank remain full, while the other is in a rapid drawdown and fill cycle. This operational scheme would reduce water age in the tanks. High water age is undesirable, resulting in disinfection byproduct formation, decreases chlorine residual, increases water stagnation and temperature stratification in the tanks. If the tanks are connected, both are responding to the demands of the entire system and therefore water stagnation may be reduced. This hydraulic connection will include provisions for tank isolation, allowing tanks to be operated independently when necessary, or may be taken out of operation for maintenance. A hydraulic connection requires approximately 1,300 additional linear feet of pipe from the proposed South Tank location to the water distribution system which connects to the North Tank.
- The existing North Water Tank will be rehabilitated (inspected, cleaned, blasted and recoated) as part of this project, to maximize its remaining useful life. In 2016, FMS contracted with Inland Portable Services, Inc., to perform an inspection and provide a report on the North Water Storage Tank, which was completed June 2016. This report recommends that the existing tank be blasted and recoated. This rehabilitation will proceed only after the new water storage tank is completed and in operation.
- It is recommended that once storage supplies are depleted, full water replenishment of one storage tank requires no more than 24 hours. The available system water pressure at the southern connection was determined to be sufficient for a 24-hour fill of a new tank of 1.63 MG, once the installation of the new 12-inch pipe has been completed in the summer of 2021. That work is progressing separately from this proposal.

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.			
Project No.	Project Title	Project Cost \$	Completion date or status
	ECCPC Water Line	\$110,000	Under Construction
Utility Contingency	ECCPC Water Tank - Engineering	\$125,000	Studies
	ECCPC Pivot Irrigation		

**F. CONSEQUENCES IF NOT FUNDED:**

Failure to fund this project will impact First Responders’ ability to properly fight fires in areas which are in direct contact with ECCPC staff and offenders. Lack of sufficient potable water supplies to the facilities during a fire event results in the inability to prevent extensive property damage, a life safety hazard and loss of use of part or all of a facility at ECCPC as a result of a major fire event. The complete breakdown of the existing water storage system would result in loss of use of the entire ECCPC, as the life sustaining water supply would be unavailable.

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

A bolted steel tank will be utilized for this project. The Department has successfully utilized bolted tanks at several locations and recommends that type of tank be used. A bolted steel tank not only has a lower initial cost than a welded steel tank, but also a lower Lifecycle Cost (74% of a welded tank). Welded and bolted steel tanks have differing maintenance requirements due to the interior coating type and application method. Welded steel tanks are coated in the field, which can result in uneven coating thickness and drying time, depending on factors such as wind, sun exposure, humidity, and dust. This coating method can lead to more rapid deterioration over time, so it is generally recommended that the interior of welded steel tanks be blasted and recoated every 20 to 30 years. Additional maintenance requirements include repair or replacement of items that have corroded, such as ladders which are often galvanized, and repair of any cathodic protection. Bolted tanks, however, are coated and cured in the factory with a powder coated finish. The application of this product is done in a controlled environment and therefore, a much more even coating can be achieved. It is generally recommended that coating maintenance be performed about every 25 years.

The existing 1.6 MG North Water Storage Tank is a 28 year-old welded steel tank. Because of its age (30 years in 2022) a full rehabilitation of blasting and recoating in order to maximize its service life is recommended. Recoating of this tank is included in this project scope.

This project will support all ECCPC Facilities with proper potable water distribution. Fossil fuel consumption will not be impacted nor anticipated to change.

**H. ASSUMPTIONS FOR CALCULATIONS:**

The land is already owned by the Department of Corrections. No building acquisitions or dispositions are required.

The description and breakdown of assumptions used to calculate the project budget is as follows:

1. Professional Services were calculated using the Construction Improvement Total (CIT)
  - Site Survey & Geotech \$ 49,788; 1.5% of CIT
  - A/E Basic Services \$398,305; 12% of CIT
  - Code Review/Inspections \$ 33,192; 1.0% of CIT
  - Advertisements, Printing, Cellphones, Admin. \$ 16,596; 0.5% of CIT
2. Base Costs of \$2,250,000 were taken directly from the Study as prepared by Plummer.
3. Miscellaneous expenses of \$231,745 calculated as follows:
  - Site Location Factor of \$168,750 was calculated at 7.5% of the Project Base Costs
  - Secure Facility Environment Factor of \$56,250 was calculated at 5% of the Project Base Costs on Labor only (50% of Project Base Costs)
  - Addition of Prevailing Wages of \$6,745 was calculated for work starting after June 2021 for electrical items.
4. Contractor’s Costs of \$247,500 which includes Contractor’s General Conditions & Bonds was calculated at 10% of the Project Base Costs and Miscellaneous expenses
5. Contractor’s Overhead and Profit of \$408,375 was calculated at 15% of the Project Base Costs, Miscellaneous expenses, and the Contractor’s Costs
6. Project Contingency of \$433,187 calculated at 10% of the sum of Professional Services and the Construction Improvement Total.
7. All costs were then escalated by DOC Facility Management Services by 5.8% each year compounded to account for inflation to April 2021, 5.8% to inflate to April 2022, and an additional 4.5% for each year compounded to account for anticipated mid-point of construction occurring in September 2023 to reach our budget number for this submittal. These factors were calculated using the four-year average of inflation from the RS Means Data, Building Cost Index.

**I. SUSTAINABILITY:**

This Capital Renewal project is exempt from the High Performance Certification Program (HPCP) requirements as it is a Capital Renewal project in excess of \$2,000,000. Appropriate strategies of the HPCP will be included in the project where applicable and cost effective. This project includes no new energy using equipment, other than controls.

**J. OPERATING BUDGET IMPACT:**

This project should not have an impact on the DOC Operating Budget. Fees for regular water usage, ADD multiplied by the Offender Population Capacity, are already covered. The DOC currently pays tap fees to the City sufficient for a 5,185 offender population, exceeding the capacity of 5,024 offenders with the reopening of CCF-5. No additional water fees will be required. The same amount of water will be pumped into the ECCPC distribution system for daily needs, with or without this project. The savings is simply a safeguard in the case of a major fire event.

**K. PROJECT SCHEDULE:**

Phase 1 of 1	Start Date	Completion Date
Pre-Design	July 2021	October 2021
Design	November 2021	July 2022
Bid/Award	August 2022	November 2022
Construction	January 2023	June 2024
Occupancy	July 2024	

**L. ADDITIONAL INFORMATION:**

**Single Phase**

It is recommended that this project be completed in a single phase for a completely functional life sustaining water supply system. It does not lend itself to being phased. Bidding this work as a single-phase project to a single contractor, the facility will receive a completely integrated and standardized facility wide water system. Maintaining a consistent and standardized product for the Complex will improve operations and maintenance of the Facility. Splitting this project into phases is not recommended and will result in mis-matched systems, of which the Department currently has too many.

Completing the various improvements detailed in this request as a single project rather than multiple controlled maintenance projects will reduce the disruption of services and systems serving the offenders and staff at the Complex. The main portion of the work – the new tank, with all increases for Site Location, Secure Facility, Contractor’s General Conditions and Overhead & Profit, plus Contingency – would exceed the Department’s Construction Maintenance threshold. In addition, completing this project request as a single project will provide savings made possible through an accelerated construction schedule resulting in limited cost escalation and a reduction in overhead costs due to greater efficiency. The life safety and preservation of existing property will be improved. There will be an immediate positive impact to the FCI of buildings throughout the Complex.



**External Capacity**

This project will not require the correctional housing unit cells to be vacated during construction and will not impact external capacity funding.



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

**FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)\***

(A)	(1) Funding Type:	<b>General Funded</b>	(2) Project Title:	East Canon City Prison Complex (ECCPC) Water Tank Repair-Replacement
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase ( ___ of ___ ):	Phase 1 of 1
(C)	(1) OSA Delegate Name:	James C. Ramsey	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2021-2022	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	26 June 2020	(2) Revision Date:	

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land /Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ 49,788	\$ -	\$ 49,788	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic Services	\$ 398,305	\$ -	\$ 398,305	\$ -	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 33,192	\$ -	\$ 33,192	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ 16,596	\$ -	\$ 16,596	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 95,429	\$ -	\$ 95,429	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 593,310	\$ -	\$ 593,310	\$ -	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ 30,000	\$ -	\$ 30,000	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ 1,865,000	\$ -	\$ 1,865,000	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ _____ X GSF							
(20)	Cost for Renovation (GSF):	\$ 355,000	\$ -	\$ 355,000	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ _____ X							
(22)	Cost for Capital Renewal (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(23)	Renewal at \$ _____ X GSF							
(24)	Other - Site Location Factor	\$ 168,750	\$ -	\$ 168,750	\$ -	\$ -	\$ -	\$ -
	Other - Secure Environment Factor	\$ 56,250	\$ -	\$ 56,250	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages	\$ 6,745	\$ -	\$ 6,745	\$ -	\$ -	\$ -	\$ -
	Other - Contractor's general conditions	\$ 247,500	\$ -	\$ 247,500	\$ -	\$ -	\$ -	\$ -
	Other - Contractor's overhead and profit	\$ 408,375	\$ -	\$ 408,375	\$ -	\$ -	\$ -	\$ -
(27)	Inflation for Construction	\$ 600,940	\$ -	\$ 600,940	\$ -	\$ -	\$ -	\$ -
(28)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 3,738,560	\$ -	\$ 3,738,560	\$ -	\$ -	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(38)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(39)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(40)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(41)	<b>Total Misc. Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>								
(42)	<b>Total Project Costs</b>	\$ 4,331,870	\$ -	\$ 4,331,870	\$ -	\$ -	\$ -	\$ -
<b>Project Contingency</b>								
(43)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(44)	10% for Renovation	\$ 433,187	\$ -	\$ 433,187	\$ -	\$ -	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 433,187	\$ -	\$ 433,187	\$ -	\$ -	\$ -	\$ -
<b>Total Budget Request</b>								
(46)	<b>Total Budget Request</b>	\$ 4,765,057	\$ -	\$ 4,765,057	\$ -	\$ -	\$ -	\$ -
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ 4,765,057	\$ -	\$ 4,765,057	\$ -	\$ -	\$ -	\$ -
(48)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ 4,765,057	\$ -	\$ 4,765,057	\$ -	\$ -	\$ -	\$ -



STATE OF COLORADO  
 DEPARTMENT OF PERSONNEL & ADMINISTRATION  
 OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Project Title	Sterling Correctional Facility (SCF) Kitchen Renovation		
B	(1) Agency:	Department of Corrections	(2) OSA Delegate Signature:	Refer to PDF for James C. Ramsey signature – 29 June 2020
C	(1) Funding Type:	General Funded	(2) DPA’s Risk Management ID#:	COST7806
D	(1) Project Phase (Phase_of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):	Not Applicable
E	(1) Project Type:	<input type="checkbox"/>	Capital Construction (CC)	(2) Principal Representative Signature:
		<input checked="" type="checkbox"/>	Capital Renewal (CR)	
F	(1) First Year Requested:	FY2019-20	(2) OSA Review Signature	Date
G	(1) Priority Number:	03 of 10	(2) Revision Date:	Date
H	(1) Total Project Cost:	\$41,152,591.00	(2) Current Phase Cost:	\$41,152,591.00

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No X Date Approved: Not Applicable
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes X No \_\_\_\_\_ Date Approved: Per DoRM
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI Reported FCI: 50% Projected FCI: 75%

**B. PROJECT SUMMARY/STATUS:**

This Capital Renewal Project Request will renovate the poorly functioning, unsanitary and hazardous conditions within the Sterling Correctional Facility (SCF) kitchen. This project is in response to the inability to sustain dietary production requirements, countless injuries from slips and falls as well as assaults conducted in blind spots and narrow hallways due to lack of visual connectivity throughout these spaces. There have also been numerous maintenance requests for service and repairs to the floors, ceilings, walls, equipment and HVAC as well as added security cameras for offender and staff safety. This 2,488-male-offender facility houses all five of the State’s custody levels. There are approximately 2,829,480 meals (annually) prepared and served out of this kitchen, totaling over 62.2 million in 22 years. The renovation will provide an efficient, safe and secure kitchen for the offenders and the staff of SCF.

The 31,440 square foot kitchen currently provides life-sustaining meals to the offenders. The kitchen operates with a high staff and offender injury rate due to slipping and tripping hazards from severely worn and exposed rough concrete subfloor. Each incident impacts the operation and puts a great strain on a facility that is already struggling with limited personnel. This uneven surface not only causes trip hazards but also creates polluted and stagnant wet areas. These areas cannot be properly disinfected and may become a breeding ground for bacteria and other pathogens that can cause disease. The unsafe and unsanitary floor, as well as insufficient exhaust, lack of air conditioning and contamination of clean areas has resulted in multiple Colorado Department of Public Health and Environment (CDPHE) violations. Refer to attached study for listing of recent violations. The continued lack of attention to all of these needs keeps SCF subject to citations during CDPHE department inspections.

The cleanliness of the kitchen is constantly compromised with cramped spaces and cross traffic of “clean” and “dirty” functions. Soiled food trays as well as garbage are trekked through the clean cooking areas to reach the dish wash area and the corridor to the exterior building exit and dumpsters. In addition to the constantly contaminated clean areas, the insufficient heating and ventilation system causes temperatures to become unsafe for a working environment for offenders and staff. This type of environment is also unsanitary for food preparation conditions.

The layout of the existing 22-year-old kitchen consists of divided and separated spaces. The combination of the layout, with very little glass (and in some areas none) provides innumerable hidden spaces that are nearly impossible to monitor by cameras and patrolling staff. These spaces have resulted in many offender assaults and Prison Rape Elimination Act (PREA) incidents.

In addition to the layout, the function of the kitchen equipment is constrained by insufficient electrical supply causing the inability to use pieces of equipment. The electrical service requires alternate solutions to prepare the critical meals, resulting in staggering work hours for both offenders and staff.

Due to the criticality of keeping the kitchen open and being able to serve the required minimum of 2 hot meals per day to 2,488 offenders and unsafe conditions for offenders and staff, DOC Facility Management Services (FMS) contracted with CSNA Architects to conduct a study of the existing kitchen to verify the conditions and provide budgeting and distinct solutions. Their assessment resulted in the “Sterling Correctional Facility Kitchen Renovation Study”, dated June 2018. The findings in this report were conclusive that due to the amount of damage over the years and altered building use and needs, complete renovation is necessary. The recommendations include renovating the kitchen, upgrading food service equipment, upgrading the electrical and HVAC systems, and replacing the roofing.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$0	\$0	<b>\$41,152,591.00</b>	\$0	\$0	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$0	\$0	<b>\$41,152,591.00</b>	\$0	\$0	\$0	\$0

**D. PROGRAM INFORMATION:**

This project will affect the entirety of all the food service areas including the kitchen, serving and dining areas. Day to day operational procedures will be modified for uninterrupted offender meal service.

All offenders and food service staff will be impacted with interim program operations during construction. Temporary kitchens will be utilized and staff will be serving meals in day-halls, gymnasiums and other alternate locations while construction is completed.

Support facilities refer to basic physical plant infrastructure, including water, heat, electricity, sewage treatment, and building maintenance systems. In general, these systems were designed to accommodate a specific maximum population level. Deterioration of these systems over time may result in a subsequent decrease in the actual capacity of a facility as their functionality diminishes. The number of “down cells” or cells that cannot be occupied due to physical plant problems is directly related to the condition of these support facilities. Also included in the area of the support facilities are those functions that are critical or essential to maintaining the welfare of the inmates. These include functions such as dietary services, maintenance capability, health care, laundry, and warehouse space, etc. Significant deficiencies in these essential support functions will affect the capability of the facility to manage a specified number of inmates safely.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

This project is in response to the inability to sustain dietary production requirements, countless injuries from slips and falls as well as assaults conducted in blind spots and narrow hallways and lack of visual connectivity throughout these spaces. There have also been numerous maintenance requests for service and repairs to the floors, ceilings, walls, equipment and HVAC as well as added security cameras for offender and staff safety. In the spring of 2019, 300 ft of sanitary drain lines were repaired as an emergency project funded by the Office of the State Architect. This type of repair occurred in August 2019 and most recently in June 2020 during the preparation of this submittal.

CSNA Architects verified that the conditions of the kitchen and support spaces are not only inadequate to meet the production requirements, but are high security risks and high health risks also. It is recommended to do complete upgrades to the SCF kitchen in order to meet the needs, health codes and safety requirements. The recommendations are to provide a safe and sanitary environment for staff and offenders as well as sufficient space and layout to effectively produce approximately 2,829,480 annual meals. Details of the kitchen layout, safety, security, functional components, problems and shortcomings are found in the Study. Findings from their report are the basis of this Project Request and include the following components:

**Safety & Security:**

In general, the layout is lacking openness that is required for safety and security. The staff offices are not central with full views to the kitchen and other areas, which cause poor visibility for safety and security around equipment in the kitchen cooking areas, food prep rooms, kosher room, and bakery. Due to the many blind corners entering areas such as dishwashing, pot/pan wash and tray scrape, assaults on staff and offenders are frequent. In addition to the layout and blind corners, the few windows in the area have glazing is cracked and scratched causing limited visibility, exacerbating the injuries, assaults and other safety and security problems.

The floors are worn down to exposed rough concrete aggregate in high traffic areas and are beyond repair. Due to these treacherous floor conditions, slips and falls cause recurrent injuries to staff and offenders. In other areas, the existing epoxy floor finish has delaminated from the concrete floor slab at trench drains allowing for grease build-up thus creating additional safety and health hazards.

**Mechanical, Electrical & Plumbing:**

The majority of the existing mechanical system is the original 1998 construction and well past its life expectancy. The area is heated, cooled, and ventilated with a combination of steam and gas fired make-up air units with evaporative cooling and exhausted with roof top exhaust fans. The style of existing make-up air units and exhaust fans are exceedingly past their life expectancy of 10 to 15 years for a 24/7 operational facility.

The kitchen and support spaces are very humid which is a result of direct evaporative cooling as well as steam cooking equipment, wet mopping, and high water use in the dishwashing/pots and pans cleaning areas. In addition, condensation from the make-up air units has leaked into the ceiling cavity, causing the gypsum board to delaminate and fail. This results in ceilings collapsing, injuring officers and offenders, which also creates health risks and violations. Condensation has also caused door access panels, light fixtures, HVAC supply and return grilles, door frames and doors to rust creating unclean-able, degrading and decaying surfaces.

The humid spaces and lack of proper ventilation also cause extreme high temperatures in the summer and low temperatures in the winter. These conditions are not only uncomfortable, but create harsh working conditions for offenders and staff, and it does not allow for food to be maintained at proper temperatures creating large scale health risks.

**Program and Operations:**

The programs, needs, and functions of the facility at initial design and construction have drastically changed throughout the years. The size, layout and the flow of food through the kitchen prevents proper production of special diets for health and religious constitutional rights. Due to these many differing dietary needs for today's offender, the kosher room and diets rooms cannot keep up with the demand for today's food service operations.

The kosher room is extremely small for the number of meals served (396 meals per day). Strict processes are to be followed on how to prepare the meals including the counter space utilized, equipment needs, separated cooler space and what can be stored together. This small, cramped space creates unsafe working separation distances between offenders and staff as well as inefficient and proper food production.

The meals prepared in the diet room are specifically prepared in a separate space from the main kitchen to ensure integrity of meals, security of food and beverages, with the prescribed medical/religious diets prepared in a manner that is not detrimental to the offender health and religious rights. Currently this room is not large enough to properly assemble the required 40 special dietary needs trays for 158 offenders (474 meals per day). The cross contamination of diet requirements create continual health risks to offenders resulting in recurrent Health Department violations.

**Recommendations:**

It is recommended that the entirety of the west and east kitchens of the Support Building be fully demolished and rebuilt in the same location. Kitchen demolition is to include all mechanical and plumbing systems, electrical systems, security systems, existing concrete floor slab with utilities, masonry walls, hollow metal doors and frames and gypsum board ceiling system. Food service equipment will be removed, cleaned, stored, refurbished, and reinstalled or replaced with new.

A new kitchen layout will directly flow from one area to the next limiting cross traffic. There will be a separate flow of outgoing trash from clean incoming products through separate passageways. Flow of food products will begin at the receiving area and transferred to select storage rooms, coolers, and freezers as to avoid cross contamination. Food will flow to adjacent preparation rooms such as the meat preparation, vegetable preparation room, bakery, and kosher room. The preparation room's food will be properly transferred to cooking areas, then to serving rooms or the diet and tray preparation room. Meals will be prepared and stored in hot/cool carts and placed in a cart staging room that would be accessible from the secure corridor for movement to remote locations. Carts and trays will be returned to a specified cart and tray wash area then stored in the cart staging room.

A new kitchen plan will provide visibility for safety and security. Raised offices will be designed to have visibility throughout the kitchen. Shorter carts will be used in the main kitchen to allow for better visibility and the new serving rooms will include permanent hot and cold boxes in the back of the server drastically reducing the number of food carts required for daily service.

The existing failing 52,000 SF roof over the main portion of the building, excluding the intake/release wing, will be removed down to the existing structural system. A new roof will be installed and required to meet the latest ICC requirements for roof insulation assemblies. The existing roof will not be replaced over the Clinical and LU 5, 6, 7, and 8 of the building; curbs and fire separation walls allow this to occur. These roofs will be a future Controlled Maintenance (CM) project.

Proper mechanical function and climate control are critical for the project to be successful and the existing system no longer provides either. Complete mechanical replacement is required and includes the following:

- Fewer, higher quality make-up air units
- Complete kitchen exhaust system and make-up air
- Energy Recovery managed by an existing building automation system

- Electronic energy efficient motors
- Grease hoods that utilize energy saving demand control ventilation
- Dishwasher exhaust fans interlocked with the dishwashers
- Heating coils
- Offices with dedicated cooling separate from the kitchen cooling system

The existing sanitary sewer waste piping will be replaced because of age and condition. The new piping will accommodate the new space configuration and equipment layout. Waste piping will be stainless steel and vent piping will be cast iron. Trench drains and floor sinks will be added throughout to reduce moisture on the floor providing a safer work environment.

In alignment with the Governor’s Executive Order for the Greening of State Government, energy performance measures will be made to meet the latest International Energy Conservation Code, that includes energy recovering equipment, demand control ventilation, LED light fixtures, lighting controls, low flow plumbing equipment, and insulated roofs.

The electrical distribution panel boards, panel board feeders, equipment circuits and branch circuits will need to be removed and replaced. The new panel boards will be located in a secured and central electrical room that will have visual access control. All new lighting will be provided throughout the kitchen areas with LED institutional high abuse grade fixtures.

In order to maintain proper food service to offenders, a temporary kitchen will be constructed where meals can be prepared, distributed, and carts returned from remote locations. These will be installed on site prior to any demolition beginning inside the facility. The temporary kitchen will provide fully operational components that include a bakery, special diets area, dish and pot washing areas, coolers/freezers and cart staging areas. The facility will utilize the current tray cart delivery system with adjusted serving locations at the gymnasiums for those that traditionally eat in the dining areas. The remainder of the facility will be served within their day-hall or cell-side as per their current custody level requirements. The existing dining rooms will be able to be utilized for secure General Contractor staging during construction.

These improvements will greatly improve the working conditions and the operation of the Sterling Correctional Facility kitchen. The project includes professional services to analyze, design and produce construction documents for the project, equipment, specification, a temporary modular kitchen, demolition and renovation for a complete project.

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.

Project No.	Project Title	Project Cost \$	Completion date or status
MC20-076	Kitchen Drain Failure	\$14,500.00	In progress
MC19-010	Kitchen Drain Failure	\$75,320.00	August 2019
2020-085M19	SCF Deaeration Tank	\$1,457,417.00	In Design
2019-038M18	SCF Replace Fire Alarm, 2 Phases	\$1,717,223.00	Under Construction
2015-087M14	SCR Replace Roof, Phase 2 of 2 <i>(included in SB17-267)</i>	\$763,748.00	May 2020
2018-069M19	CDOC Warehouses Freezer/Cooler Equipment Repair and Replacement <i>(Included in SB17-267)</i>	\$1,261,563.00	Resubmittal due to underfunded approp.
PD18-029	New Laundry Washers	\$525,000.00	June 2019
EM	Kitchen Drain Failure	\$75,320.00	Fall 2018
MC18-022	Make-up Air Unit and Support	\$31,000.00	Sept 2017
PD18-016	New Kitchen Skillets		Sept 2017
PD18-013	Food Service Office	\$6,759	Sept 2017
PD17-013	Kitchen 3-Bin Sink Replacement	\$3,650	Sept 2016
EMP #39370	Energy Performance Contract	\$6,012,340	Sept 2013
INA	SCF Flood / No Flush Order	\$68,372.82	Sept 2013
SNA	SCF FEMA Floor	\$81,980.48	Sept 2013
IND	SCF Floor / PS & Grounds Balance	\$32,356.00	Sept 2013

**F. CONSEQUENCES IF NOT FUNDED:**

Continued operation of the unhealthy and unsafe kitchen will result in continued injuries and assaults, potential contamination of food with an increased strain on already overwhelmed staff. There is great potential of a full kitchen operation shutdown by the CDPHE due to life safety and health hazard issues. This will result in meals potentially prepared by another facility (creating an extreme hardship on that facility) as well as large-scale temporary modular kitchens brought into SCF. Both temporary solutions are a premium monthly cost to the State until a long-term solution can be funded. If temporary solution funding is unavailable, the facility will no longer be able to provide life-sustaining offender meals resulting in loss of use of the facility.

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

Having served over 62.2 million meals since opening, the kitchen has served its useful life and the facility has increasing difficulty to maintain operations with antiquated equipment coupled with health and safety risks. These issues undermine the effectiveness of the facility and create hazards, continual maintenance items for facility staff, and jeopardize the safety of the kitchen. A complete renovation is warranted over continued repairs.

**H. ASSUMPTIONS FOR CALCULATIONS:**

The description and breakdown of assumptions used to calculate the project budget is as follows:

- 1) Professional Services of \$4,376,212 calculated using the Construction Improvement Total (CIT)
  - A/E Basic Services \$2,596,760 - 12% of the CIT
  - Code Review and Inspections \$108,198 - 0.5% of CIT
  - Advertising, Printing, Cellphones and Admin. \$216,397 - 1% of CIT
  - 3rd Party Construction Admin/Post Const. \$692,469 - 3.2% of CIT
  - A/E HPCP/LEED Design \$411,154 - 1.9% of CIT
  - Commissioning \$346,235 - 1.6% of CIT
  - LEED Registration & Review \$5,000 - allowance
- 2) Base Project Costs of \$13,620,872 calculated as follows:
  - Costs for this Project Request were taken directly from the “Sterling Correctional Facility Kitchen Renovation Study”, dated June 2018, as prepared by CSNA Architects.
- 3) Miscellaneous Costs of \$3,676,344 calculated as follows:
  - High Performance Certification Program of \$420,885 calculated at 3.09% of the Base Project Costs (5% less design & registration & review)
  - Site Location Factor of \$2,724,174 was calculated at 20% of the Base Project Costs
  - Secure Facility Environment Factor of \$340,522 was calculated at 5% of the Base Project Costs
- 4) Contractor’s General Conditions of \$1,710,645 which was calculated at 10% of the Base Project Costs and Miscellaneous Costs
- 5) Contractor’s Overhead and Profit of \$2,822,565 was calculated at 15% of the Base Project Costs, Miscellaneous expenses, and the Contractor’s Costs
- 6) Project Contingency of \$2,163,966 calculated at 10% of the sum of Professional Services and the Construction Improvement Total
- 7) Temporary Kitchen rental, setup and takedown allowance of \$1,690,030
- 8) DOC Facility Management Services escalated all costs noted above by 2.7% to compounded annually account for inflation to June 2020 and 5.8% compounded annually to account for mid-point of anticipated construction occurring in August 2020 to achieve the final budget number for FY20-21. Then the budget was increased by 4.5% for one year, compounded the estimated costs to mid-point of construction to arrive at the budget for FY21-22. The inflation factors were calculated using RS Means Data, Building Cost Index.

**I. SUSTAINABILITY:**

The SCF Kitchen renovation, per C.R.S. 24-30-1305.5 High Performance Standards, will strive to achieve the highest performance certification attainable as certified by an independent third party; U.S. Green Building Council, Leadership in Energy and Environment Design (LEED), with Gold as the targeted certification level. Enhanced Commissioning will be performed to see that all of the building’s systems and assemblies are planned, designed, installed, tested, and operating to meet the project requirements.

The design team will develop a LEED checklist for the project and level of LEED certification possible will be determined. It is noted that detention facilities, not accessible to the public, are inherently challenged in reaching LEED requirements for certain credits. Should Gold Certification not be obtainable, an explanation will be included in a waiver or modification request to the Office of the State Architect.

**J. OPERATING BUDGET IMPACT:**

Having a safe, efficient and fully functioning kitchen as well as support spaces will reduce service calls for repairs, staff and offender injuries, reduce overtime due to inefficiencies of the foodservice process and reduce costs and fines associated with health codes and religious violations.

**K. PROJECT SCHEDULE:**

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

Phase 1_ of 1_	Start Date	Completion Date
Pre-Design	July 2021	October 2021
Design	November 2021	September 2022
Construction	October 2022	June 2024
FF&E /Other	May 2024	June 2024
Occupancy	July 2024	

**L. ADDITIONAL INFORMATION:**

In the Colorado Prison Utilization Study, dated June 2013, prepared by CNA it stated:  
“Support Facilities:

Support facilities refer to basic physical plant infrastructure, including water, heat, electricity, sewage treatment, and building maintenance systems. In general, these systems were designed to accommodate a specific maximum population level. Deterioration of these systems over time may result in a subsequent decrease in the actual capacity of a facility as their functionality diminishes. The number of “down cells” or cells that cannot be occupied due to physical plant problems is directly related to the condition of these support facilities. Also included in the area of the support facilities are those functions that are critical or essential to maintaining the welfare of the inmates. These include functions such as dietary services, maintenance capability, health care, laundry, and warehouse space, etc. Significant deficiencies in these essential support functions will affect the capability of the facility to manage safely specified number of inmates.

Also included in the area of support facilities are those functions that are critical or essential to maintaining the welfare of the inmates. These include functions such as dietary services, maintenance capability, health care, laundry, and warehouse space, etc. Significant deficiencies in these essential support functions will affect the capability of the facility to manage safely a specified number of inmates.

**Program Services:**

Any consideration of capacity must take into account the ability of a facility to provide an adequate level of mandatory services. Mandatory program services in correctional facilities include basic medical/mental health treatment, visitation, dietary services, case management, religious services, and recreation. Academic/vocational programming and substance abuse treatment are also key program services components. Lack of access to these critical services can act to diminish the effective capacity level of a facility.

Moreover, some program functions require reserve capacity that diminishes the overall number of beds available for general population inmates. For example, reception and intake units must have enough dedicated beds available for use in housing general population offenders. As a result, capacity analyses typically do not count these beds in a facility’s overall capacity numbers.

Some programs, such as therapeutic communities, re-entry preparation, or youthful offender, often require dedicated housing for offenders participating in the program. Depending upon housing unit configuration, a large number of programs with dedicated housing can make full use of available capacity difficult.”

**Single Phase**

Completing the various improvements detailed in this request as a single project rather than multiple controlled maintenance requests will reduce the disruption of services and systems serving the offenders and staff at the SCF. These disruptions impact the entire facility.

In addition, completing this project request as a single project will provide savings made possible through an accelerated construction schedule resulting in limited cost escalation and a reduction in overhead costs. The State will likely avoid future emergency controlled maintenance costs for repairs of these systems.

This project will have an immediate positive impact on the FCI. This request has the potential to reduce damage to building finishes and equipment, inclusive of fire alarm control panels and security door control panels, with the elimination of water leaks. The project reduces the likelihood of a facility closure and loss of use should emergency repair/replacement of the water service lines be required.

**External Capacity:**

This project will not require the housing unit cells to be vacated during construction and will not impact external capacity funding.

**FCI Increase:**

This project’s overall FCI increase for the building is only 25%, the overall impact for the kitchen is a 61% increase.

**M. CASH FUND PROJECTIONS:**

Cash Fund name and number:	<b>Not Applicable</b>	
Statutory reference to Cash Fund:		
Describe how revenue accrues to the fund:		
Describe any changes in revenue collections that will be necessary to fund this project:		
If this project is being financed, describe the terms of the bond, including the length of the bond, the expected interest rate, when the		



agency/institution plans to go to market, and the expected average annual payment (As applicable):			
<b>Prior Year Actual Ending Fund Balance</b>	<b>Current Year Projected Ending Fund Balance</b>	<b>Year 2 Projected Ending Fund Balance with Project Approval</b>	<b>Year 3 Projected Ending Fund Balance with Project Approval</b>
NA	NA	NA	NA



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*			
(A)	(1) Funding Type:	General Funded	(2) Project Title: Sterling Correctional Facility (SCF) Kitchen Renovation
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase (01 of 01): Phase 1 of 1
(C)	(1) OSA Delegate Name:	James C. Ramsey	(2) Project Type: Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2019-20	(2) State Controller Project #: Not Applicable
(E)	(1) Narrative Signature Date:	26 June 2020	(2) Revision Date:

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land /Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic Services	\$ 3,115,459	\$ -	\$ 3,115,459	\$ -	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 108,198	\$ -	\$ 108,198	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ 692,469	\$ -	\$ 692,469	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ 216,397	\$ -	\$ 216,397	\$ -	\$ -	\$ -	\$ -
(11)	Other AE HPCP/LEED/Commissioning	\$ 762,389	\$ -	\$ 762,389	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 1,654,361	\$ -	\$ 1,654,361	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 6,549,273	\$ -	\$ 6,549,273	\$ -	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ X							
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ X							
(22)	Cost for Capital Renewal (GSF):	\$ 14,336,329	\$ -	\$ 14,336,329	\$ -	\$ -	\$ -	\$ -
(23)	Renewal at \$455.99 X 31,440 GSF							
(24)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ 420,885	\$ -	\$ 420,885	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages	\$ 372,329	\$ -	\$ 372,329	\$ -	\$ -	\$ -	\$ -
(27)	Inflation for Construction	\$ 2,805,697	\$ -	\$ 2,805,697	\$ -	\$ -	\$ -	\$ -
(28)	Inflation Percentage Applied		0.00%	15.60%	0.00%	0.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 17,935,240	\$ -	\$ 17,935,240	\$ -	\$ -	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment - Temporary Kitchen	\$ 1,690,030	\$ -	\$ 1,690,030	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ 328,720	\$ -	\$ 328,720	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	15.60%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ 2,018,750	\$ -	\$ 2,018,750	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(38)	Other Costs Site Location Factor 20%	\$ 2,724,174	\$ -	\$ 2,724,174	\$ -	\$ -	\$ -	\$ -
(39)	Other Costs Security Factor 5%	\$ 340,522	\$ -	\$ 340,522	\$ -	\$ -	\$ -	\$ -
(40)	Other Costs General Conditions - 10%	\$ 1,710,645	\$ -	\$ 1,710,645	\$ -	\$ -	\$ -	\$ -
(41)	Other Costs GC OHP - 15%	\$ 2,822,565	\$ -	\$ 2,822,565	\$ -	\$ -	\$ -	\$ -
(42)	Inflation for Miscellaneous Costs	\$ 3,493,800	\$ -	\$ 3,493,800	\$ -	\$ -	\$ -	\$ -
(43)	<b>Total Misc. Costs</b>	\$ 11,091,706	\$ -	\$ 11,091,706	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>								
(44)	<b>Total Project Costs</b>	\$ 37,594,969	\$ -	\$ 37,594,969	\$ -	\$ -	\$ -	\$ -
<b>Project Contingency</b>								
(45)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(46)	10% for Renovation	\$ 3,557,622	\$ -	\$ 3,557,622	\$ -	\$ -	\$ -	\$ -
(47)	<b>Total Contingency</b>	\$ 3,557,622	\$ -	\$ 3,557,622	\$ -	\$ -	\$ -	\$ -
<b>Total Budget Request</b>								
(48)	<b>Total Budget Request</b>	\$ 41,152,591	\$ -	\$ 41,152,591	\$ -	\$ -	\$ -	\$ -
<b>Funding Source</b>								
(49)	Capital Construction Fund (CCF)	\$ 41,152,591	\$ -	\$ 41,152,591	\$ -	\$ -	\$ -	\$ -
(50)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(53)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(54)	<b>Total Funds (TF)</b>	\$ 41,152,591	\$ -	\$ 41,152,591	\$ -	\$ -	\$ -	\$ -



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*			
A	(1) Project Title	Buena Vista Correctional Facility (BVCF) Sanitary Sewer Line Replacement	
B	(1) Agency:	Department of Corrections	(2) OSA Delegate Signature: Refer to PDF for James C. Ramsey signature – 29 June 2020
C	(1) Funding Type:	General Funded	(2) DPA’s Risk Management ID#: COBV9999
D	(1) Project Phase (Phase_of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation): Not Applicable
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC) <input checked="" type="checkbox"/> Capital Renewal (CR)	(2) Principal Representative Signature: Refer to PDF for Travis Trani signature – 26 June 2020
F	(1) First Year Requested:	FY2021-22	(2) OSA Review Signature Date
G	(1) Priority Number:	4 of 10	(2) Revision Date: Date
H	(1) Total Project Cost:	\$2,144,180	(2) Current Phase Cost: \$2,144,180

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No X Date Approved: N.A.
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes X No \_\_\_\_\_ Date Approved: June, 2015
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI Reported FCI: 45% Projected FCI: 54%

**B. PROJECT SUMMARY/STATUS:**

This Capital Renewal request is for the replacement and rehabilitation of failing sanitary sewer lines serving the medium-security prison at the Buena Vista Correctional Facility (BVCF), a Level III male Facility. These lines are in danger of complete failure which will result in loss of use of the Facility.

The existing BVCF sanitary wastewater collection system consists of approximately 3,000 linear feet of sewer pipe, ranging in diameter from 2 inches to 12 inches. Pipe construction materials vary, and include ductile iron, clay, PVC, and asbestos cement piping, with conditions ranging from poor to good. The Buena Vista Waste Water Treatment Plant (WWTP), operated by the Buena Vista Sanitation District (BVSD) is located approximately two miles south of BVCF. Wastewater discharging from the Facility flows south to the WWTP.

A portion of the BVCF sewer pipelines exhibit evidence of having a negative slope, greatly inhibiting proper wastewater flow. Additional issues have developed over time, including the regular build-up of grease (from inability to properly jet the line, due to severe deterioration of the existing sewer line) and the presence of grit and gravel in the sewer lines, indicating a break in the sewer. The pipes also have “Infiltration and Inflow” (I&I) – the seepage of groundwater into the pipelines, due to a deteriorated sewer line (separated joint connections, cracks, holes, etc.). The increased amount of water discharge from I&I into the WWTP increases sewage use charges to the Department. The manholes were observed to have deficiencies.

A parallel sewer has been installed along a portion of one sewer main in 2008, but not placed into service. The study found that the 2008 system has a lower capacity than the existing line. The study recommends the parallel sewer line be connected to the existing sewer and serve as the main sewer line, with overflow weirs to the existing manholes, which would direct overflow wastewater into what is now the existing sewer line. Although this parallel line has a lower capacity by approximately 36%, it is made of PVC, which is a more ideal material for a sewer line, with a longer expected life than other pipe materials.

This project contains two critical steps of work to resolve these problems. The steps are:

First: Connect the existing sewer system to the newly installed, yet unused parallel system. This will allow for work to proceed on the existing system with less disruption and maintain use of the Facility.

Second: Rehabilitation or replacement of particular pipelines, as shown in a schedule provided in the study, inclusive of the manholes with deficiencies. Pipe rehabilitation would involve installing an internal liner without pipe excavation. This will be done only in pipe sections that remain viable. Those sections in the worst condition and those without sufficient slopes, would be replaced.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$2,144,180	\$0	<b>\$2,144,180</b>	\$0	\$0	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$2,144,180	\$0	<b>\$2,144,180</b>	\$0	\$0	\$0	\$0

**D. PROGRAM INFORMATION:**

This project will replace and repair much of the sanitary sewer lines of the medium security portion of the Facility. This will include all security functions and programs that include: offender housing, offender programs, food service and laundry, clinical services, recreation, security, administration, and support services. The programs in the Minimum Center will also be impacted.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

This Capital Renewal Project Request is based on multiple findings and recommendations, including the project’s Opinion of Probable Costs. Beginning in 2018, Facility Management Services (FMS) contracted with Tetra Tech for a BVCF sanitary sewer system evaluation and recommendation report. In July 2018, Tetra Tech conducted a condition assessment of the manholes, where multiple manholes were found to have deficiencies. In April 2019, Tetra Tech completed the I&I study that identified the medium-security facility as likely having I&I issues. In May 2019, Landmark Surveying and Mapping conducted a survey of select sewer lines as identified by Tetra Tech. Tetra Tech compiled the findings and completed the sewer system assessment in April 2020, expanding on the previously completed body of work and providing rehabilitation options to mitigate the identified I&I issues. The findings and recommendations from this report include the following:

**Overall Assessment:**

- The sanitary sewer system of BVCF consists of approximately 3,000 linear feet of sanitary sewer line varying between 2 and 12 inches in diameter. Two main trunk lines serve the facility, one to the medium-security facility and one to the minimum-security facility. The sewer system mirrors the general layout with the two systems combining shortly before entering the pretreatment station on the south-east corner of the site.
- The study found that the minimum-security facility did not have apparent I&I. The medium-security facility does appear to have I&I issues, as the flows observed during the flow monitoring period were approximately 65% higher than measured flows at the pretreatment station. Due to minimal rainfall events during the monitoring period, the I&I cannot be fully characterized. However, the increased flows indicate consistent infiltration associated with high groundwater or saturated soils around the existing sewer lines. The medium-security facility is identified as the likely source of the I&I, as the flow per square foot of sewer line is 52% higher in the medium-security facility than in the minimum-security facility.
- Tetra Tech analyzed the capacity of each sewer line using Manning’s Equation based on a survey completed by Landmark Surveying and Mapping. Due to limitations in the equation, the capacity of pipes without sufficient slopes could not be calculated. Tetra Tech found that the pipes should have adequate capacity to convey the wastewater flows. However, grease buildup and water infiltration can lead to reduced sewer capacity, leading to sanitary sewer overflows and further sewer damage.
- Twenty percent (9 out of 48) of the manholes surveyed are in poor condition and an additional 33 percent (14 manholes) are in fair condition. The assessment also found multiple sewer lines to be in poor condition. These issues are primarily identified in sewer lines that are made from vitrified clay or asbestos cement, while the PVC lines are generally in better condition.
- The CCTV inspections further support the findings from the condition assessment, that no deficiencies were found in the PVC pipe and many deficiencies are found in the vitrified clay pipe. Sewer lines that flow south from the kitchen toward the main entrance of the medium-security facility (between manhole 34 and manhole 40, as well as the pipe between manhole 40 and manhole 33) were unable to be properly inspected, due to the completely submerged condition of these pipes during the time of inspection. Full-pipe conditions can be caused by: reduced sewer capacity from grease buildup, pipe failure, or high flow conditions during the CCTV inspection. The inspections identified 10 deficiencies in various sewer lines that allow ground water to enter the sanitary sewer system. The ground water entering the sewer is then metered by Buena Vista Sanitary District resulting in concomitant increases to the Department’s wastewater invoices. The sewers running along the south side of the medium-security facility, west to east, were identified with having structural deficiencies (the line between manhole 56 and manhole 34 and the line between manhole 34 and manhole 55).

- BVCF staff have noted that the sewer line exiting the kitchen's grease interceptor is of most critical significance. This line is regularly jetted and evidence of grit and gravel are routinely removed from this line, indicating a sewer break. Any improvements to the site should include improvements to this critical line at this location.

**Condition of Existing Components:**

- The existing gravity sewer is generally made from vitrified clay pipe (VCP) and PVC pipe.
- Sewer lines made from VCP are consistently found to have more defects and capacity issues. VCP has been found to be susceptible to leaks, joint slippage, root intrusion and is no longer a standard pipe used in sewer construction. Rehabilitating the existing VCP is possible by lining them with either an Ultra-Violet Cured-In-Place Pipe (UV CIPP) or steam-cured Cast-In-Place Pipe (CIPP).
- The existing PVC pipes appear to be in good condition and did not have apparent deficiency or capacity issues.
- Several of the existing manholes have been covered.

Currently, BVCF should not have any capacity issues if the sewer lines are maintained free of debris. However, there is presence of a grease build up in the sewer lines, especially in the VCP sewer lines exiting the kitchen, which should be maintained regularly.

BVCF staff installed a PVC sewer system in parallel with the VCP sewer system, but never placed this line into service. This line was undersized by approximately 36% when installed with an 8-inch main and does not have the same capacity as the existing 10-inch VCP sewer main.

**Proposed Solution:**

- The study describes two methods considered for repairing the BVCF sewer system: trenchless rehabilitation of the existing sewer by installing a UV CIPP liner and traditional open cut and replacement of the existing sewer with PVC.
  - CIPP is a trenchless pipe repair technology first developed in the 1970s. CIPP is a joint-less tube made of polyester or fiberglass cloth, impregnated with resin. CIPP works by pulling the liner tube through the sewer line, inflating the tube and curing the resin in the pipe with a heat source. UV CIPP is a version of CIPP where the tube is cured instead with ultraviolet light. This finished product is tight-fitting, smooth, corrosion resistant, and provides a joint-less pipe, with only a slightly smaller internal diameter than the original pipe. UV CIPP has a fast curing time of less than one day. Contractors can typically install 1 or 2 pipe segments of sewer line per work shift. The design life expectancy is 50 years for UV CIPP, with many lines lasting longer. One major advantage of UV CIPP lining is that there is little to no need for excavation, and the existing utilities are not impacted. The UV CIPP costs substantially less than traditional alternatives as there is little to no excavation and associated restoration.
  - Polyvinyl Chloride (PVC) pipe was first used in 1930 and is one of the most commonly used pipe materials for sewer construction. PVC pipe is lightweight, flexible, corrosion resistant, and is very smooth, which makes it a good option for use in sewer systems, with a watertight seal. PVC pipe for gravity flow conditions must be installed in a cut and cover methodology, requiring excavation, demolishing the existing pipe, installing the new PVC pipe, backfilling, and restoring the disturbed surface. One advantage of this method is that it allows for slope correction for sewer lines without sufficient slope, thereby improving drainage of the sewer pipe. The design life for PVC pipe is 100 years.
  - Both systems will be utilized to replace and repair the sanitary system.
- The study developed three Priority Tasks, with the Department recommending Priority Task #1 with Option 2 and Priority Task #2, as described below:
  - Priority Task #1 – Main Sewer Lining (or Replacement) and Manhole Rehabilitation.
    - Option 1 is to mitigate by lining the sewer with a CIPP liner, and rehabilitate the manholes. This option would mitigate I&I, but would not fix the insufficiently-sloped sections of the wastewater collection system, which may be causing some of the current issues.
    - Option 2 is to mitigate with a combination of CIPP liner, while also replacing the sewer line coming out of the grease trap and the sewer line along the south side of the medium-security facility, as well as rehabilitation of manholes. Option 2 is more costly than Option 1, but would mitigate the insufficiently-sloped section of sewer line and facilitate better performance in the wastewater collection system. Option 2 is included in the project scope.
  - Priority Task #2 – Connection of New Sewer to Existing System. The existing sewer would be connected into the parallel PVC sewer line, which is not yet in service. This line does not match the capacity of the existing line, but specific measures will be taken to address this. To address the possibility of sanitary sewer overflows and mitigate capacity concerns, Tetra Tech recommends connecting the parallel sewer to the existing system along with overflow weirs in the existing manholes. The intent of the overflow weirs is to direct wastewater into the new sewers, but allow for the existing sewers to be used for overflow if the new sewer lines exceed their capacity.

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.

Project No.	Project Title	Project Cost \$	Completion date or status
PD20-007 PD20-010	Boot Camp	\$94,027	Feb 2020 Partial
Utility Contingency	BVCC Sewer Engineering	\$73,000	April 2020
MC19-094	BVCC EPDM Roof Repairs	\$23,498	June 2019
MC19-030	BVCC Boiler UPS Study	\$16,975	Feb 2019
PD19-031	BVCC Food Service Oven Upgrade	\$23,302	Mar 2019
MC18-001	BVCC Kitchen Floor Tile Installation	\$21,576	June 2018
PD18-038	BVCC Exterior Freezer/Cooler	\$155,825	Under Construction
PD18-035	BVCC Cooler Doors	\$31,553	Jan 2018
PD18-034	BVCC Veggie Prep Cooler	\$21,446	June 2018
PD18-021	BVCC Culinary Arts	\$396,157	Under Construction
PD17-20	BVCC Main Kitchen Floor Replacement	\$67,305	April 2017

**F. CONSEQUENCES IF NOT FUNDED:**

Failure to fund this project will continue high maintenance repair costs, and higher-than-necessary Department utility costs for sewage discharge. Failure to fund this project will result in the loss of use of the Facility, due to a non-functioning sanitary sewer line and will interrupt life sustaining offender meals.

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

This project will lengthen the effective life of the entire sanitary sewer system at the Facility by addressing expensive long-standing issues.

This project will not impact fossil fuel consumption.

The engineers who developed the study proposed an alternative solution which was less costly, that involved lining more of the existing sections of pipeline and replacing fewer pipelines, without addressing the adversely sloping sections of existing pipeline. This was unacceptable to the Department as it is only a partial solution without correcting the insufficient pipe slopes. The project request must fix the problem in its entirety.

**H. ASSUMPTIONS FOR CALCULATIONS:**

All property is already owned by the Department of Corrections and is part of BVCF. No building acquisitions or dispositions are required.

The description and breakdown of assumptions used to calculate the project budget is as follows:

1. Professional Services were calculated using the Construction Improvement Total (CIT)
  - A/E Basic Services \$170,775; 12% of CIT
  - Construction Management \$ 85,388; 6% of CIT
  - Code Review/Inspections \$ 14,231; 1.0% of CIT
  - Advertisements, Printing, Cellphones, Admin. \$ 14,231; 1.0% of CIT
2. Base Costs of \$844,000 were taken directly from the Study as prepared by Tetra Tech.
3. Miscellaneous expenses of \$221,037 calculated as follows:
  - Site Location Factor of \$126,600 was calculated at 15% of the Project Base Costs
  - Secure Facility Environment Factor of \$63,300 was calculated at 15% of the Project Base Costs on Labor only (50% of Project Base Costs)
  - Addition of Prevailing Wages of \$31,137 was calculated for work starting after June 2021 for plumbing work.
4. Contractor’s Costs of \$103,390 which includes Contractor’s General Conditions & Bonds was calculated at 10% of the Project Base Costs and Miscellaneous expenses
5. Contractor’s Overhead and Profit of \$170,594 was calculated at 15% of the Project Base Costs, Miscellaneous expenses, and the Contractor’s Costs
6. Project Contingency of \$194,925 calculated at 10% of the sum of Professional Services and the Construction Improvement Total.
7. All costs were then escalated by DOC Facility Management Services by 5.8% each year compounded to account for inflation to May 2021, 5.8% to inflate to May 2022, and an additional 4.5% for each year compounded to account for anticipated mid-point of construction occurring in November 2023 to reach our budget number for this submittal. These factors were calculated using the four-year average of inflation from the RS Means Data, Building Cost Index.

**I. SUSTAINABILITY:**

This Capital Renewal project is exempt from the High Performance Certification Program (HPCP) requirements as it is a controlled maintenance project in excess of \$2,000,000. Appropriate strategies of the HPCP will be included in the project where applicable and cost effective. This project includes no new parking spaces and no new energy using equipment.

**J. OPERATING BUDGET IMPACT:**

Replacement and rehabilitation of the existing failing sanitary sewer lines will result in immediate savings to the general fund utility operating budget and reduced service calls and materials needed for repairs.

**K. PROJECT SCHEDULE:**

<b>Phase 1 of 1</b>	<b>Start Date</b>	<b>Completion Date</b>
Pre-Design	<b>July 2021</b>	<b>October 2021</b>
Design, Bid & Award	<b>November 2021</b>	<b>March 2023</b>
Construction	<b>April 2023</b>	<b>June 2024</b>
FF&E /Other	<b>N/A</b>	<b>N/A</b>
Occupancy	<b>July 2024</b>	

**L. ADDITIONAL INFORMATION:**

**Single Phase**

It is recommended that this project be completed in a single phase. It does not lend itself to being phased. By bidding this work as a single-phase project to a single contractor, the facility will receive a completely integrated and standardized system facility-wide. Maintaining a consistent and standardized product throughout the facility will improve operations and maintenance of the Facility. Splitting this project into phases will result in mis-matched systems, of which the Department currently has too many. Completing the various improvements detailed in this request as a single project rather than multiple controlled maintenance projects will reduce the disruption of services and systems serving the offenders and staff at the Facility. In addition, completing this project request as a single project will provide savings made possible through an accelerated construction schedule resulting in limited cost escalation and a reduction in overhead costs due to greater efficiency. A single phased project will provide a better solution in a more timely manner at a lower cost.

**External Capacity**

It is anticipated that this project will not require housing unit cells to be vacated during construction and will not impact external capacity funding. If necessary, this operating funding will be requested through the normal budget process pending approval of this Capital Renewal request.



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**FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)\***

(A)	(1) Funding Type:	<b>General Funded</b>	(2) Project Title:	Buena Vista Correctional Facility (BVCF) Sanitary Sewer Line Replacement
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase ( ___ of ___):	Phase 1 of 1
(C)	(1) OSA Delegate Name:	James C. Ramsey	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2021-2022	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	26 June 2020	(2) Revision Date:	

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land /Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic Services	\$ 170,775	\$ -	\$ 170,775	\$ -	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 14,231	\$ -	\$ 14,231	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ 85,388	\$ -	\$ 85,388	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ 14,231	\$ -	\$ 14,231	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 55,803	\$ -	\$ 55,803	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		compounded annually	5.8, 4.5%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 340,428	\$ -	\$ 340,428	\$ -	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ _____ X GSF							
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ _____ X							
(22)	Cost for Capital Renewal (GSF):	\$ 844,000	\$ -	\$ 844,000	\$ -	\$ -	\$ -	\$ -
(23)	Renewal at \$ _____ X GSF							
(24)	Other - Site Location Factor	\$ 126,600	\$ -	\$ 126,600	\$ -	\$ -	\$ -	\$ -
	Other - Secure Environment Factor	\$ 63,300	\$ -	\$ 63,300	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages	\$ 31,137	\$ -	\$ 31,137	\$ -	\$ -	\$ -	\$ -
	Other - Contractor's General Conditions	\$ 103,390	\$ -	\$ 103,390	\$ -	\$ -	\$ -	\$ -
	Other - Contractor's Overhead and	\$ 170,594	\$ -	\$ 170,594	\$ -	\$ -	\$ -	\$ -
(27)	Inflation for Construction	\$ 269,806	\$ -	\$ 269,806	\$ -	\$ -	\$ -	\$ -
(28)	Inflation Percentage Applied		compounded annually	5.8, 4.5%	0.00%	0.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 1,608,827	\$ -	\$ 1,608,827	\$ -	\$ -	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(38)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(39)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(40)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(41)	<b>Total Misc. Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>								
(42)	<b>Total Project Costs</b>	\$ 1,949,255	\$ -	\$ 1,949,255	\$ -	\$ -	\$ -	\$ -
<b>Project Contingency</b>								
(43)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(44)	10% for Renovation	\$ 194,925	\$ -	\$ 194,925	\$ -	\$ -	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 194,925	\$ -	\$ 194,925	\$ -	\$ -	\$ -	\$ -
<b>Total Budget Request</b>								
(46)	<b>Total Budget Request</b>	\$ 2,144,180	\$ -	\$ 2,144,180	\$ -	\$ -	\$ -	\$ -
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ 2,144,180	\$ -	\$ 2,144,180	\$ -	\$ -	\$ -	\$ -
(48)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ 2,144,180	\$ -	\$ 2,144,180	\$ -	\$ -	\$ -	\$ -





STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Project Title	Arkansas Valley Correctional Facility (AVCF) Utility Water Lines Replacement		
B	(1) Agency:	Department of Corrections	(2) OSA Delegate Signature:	Refer to PDF for James C. Ramsey signature – 29 June 2020
C	(1) Funding Type:	General Fund	(2) DPA’s Risk Management ID#:	COOR0910, COOR0911, COOR2169, COOR9999
D	(1) Project Phase (Phase_of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):	Not Applicable
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC)	(2) Principal Representative Signature:	Refer to PDF for Travis Trani signature – 26 June 2020
		<input checked="" type="checkbox"/> Capital Renewal (CR)		
F	(1) First Year Requested:	FY 2019-2020	(2) OSA Review Signature	Date
G	(1) Priority Number:	5 of 10	(2) Revision Date:	Date
H	(1) Total Project Cost:	\$8,817,987	(2) Current Phase Cost:	\$8,817,987

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No  X  Date Approved:  Not Applicable
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes  X  No \_\_\_\_\_ Date Approved:  Per DoRM
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI  
Reported FCI:  45%  Projected FCI:  61%

**B. PROJECT SUMMARY/STATUS:**

This Capital Renewal Project Request is for the replacement of the existing water lines (*hot water and chilled water line loops*) due to continually failing Victaulic couplings and numerous breaks and leaks. The project includes the replacement of the exterior water utility distribution system, hot water piping mains, interior hot water distribution piping systems, chilled water piping mains, and existing water softener system, inclusive of associated fittings, valves, hangers, and insulation. Professional Services are included in the project to consist of field verification and analysis of the existing water line systems, the design and construction documents necessary for their replacement, and construction administration. This request is for a single-phase project; no prior phases have occurred.

The Arkansas Valley Correctional Facility is a security Level III facility with a capacity of 1,089 offenders that opened in 1987. The facility has a central heating and cooling plant located outside of its secure perimeter with direct bury pre-insulated piping systems from the plant to the secure facility. The piping within the central plant and secure facilities is steel pipe with Victaulic connections. The heating hot water piping system within the central plant and secure facility has had chronic problems with leaks at the Victaulic fittings with significant change in hot water temperature, particularly when the boilers are shut down and then re-started. These leaks require a significant amount of staff time and cost for repairs. Failure of the hot water system affects the hot water used for building heat with the potential loss of heat to all buildings within the facility. Failures of the direct bury piping of the hot water piping has occurred previously requiring piecemeal repairs and disruption of services to the facility. Closure of living units due to lack of heat could result in the loss of use of the facility.

The entire hot water loop system has to be shut down whenever a leak has to be repaired. The hot water loop shutdown interrupts all HVAC heating hot water for the entire facility. Each time the hot water loop cools down for repairs the piping contracts with the lower temperatures, causing potential loss of seals and leaks at the Victaulic fittings at any interior hot water piping joints throughout the buildings. The leaks result in water damage at ceilings, walls, and equipment as well as loss of water. The leaks must be repaired where the fittings do not completely seal once the heat is restored and piping expands to operating temperatures. The loop must be shut down again to make those repairs. The damaged ceilings and walls must then be repaired again, an endless cycle.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$8,817,987	\$0	<b>\$8,817,987</b>	\$0	\$0	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$8,817,987	\$0	<b>\$8,817,987</b>	\$0	\$0	\$0	\$0

**D. PROGRAM INFORMATION:**

This project will impact all programs as these water lines serve housing, food service and laundry, space heating and maintenance. Loss of any of these water service lines could result in an emergency closure of the facility requiring the relocation of up to 1,089 medium custody offenders. The potential for significant disruption of basic facility programs and services will continue until the new piping system is in place.

Support facilities refer to basic physical plant infrastructure, including water, heat, electricity, sewage treatment, and building maintenance systems. In general, these systems were designed to accommodate a specific maximum population level. Deterioration of these systems over time may result in a subsequent decrease in the actual capacity of a facility as their functionality diminishes. The number of “down cells” or cells that cannot be occupied due to physical plant problems is directly related to the condition of these support facilities.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

Facility Management Services (FMS) contracted with Schendt Engineering Corp. (SEC) for an evaluation and recommendations for the repair and/or replacement of the Utility Water Lines at the AVCF. This Capital Renewal Project Request is based on their findings and recommendations including the projects Opinion of Probable Costs. The findings and recommendations from this report include the following:

Findings

- A. The existing underground exterior piping system conveying heating hot water from the central plant to the facilities is a pre-insulated “FRP” (Fiberglass Reinforced Thermosetting Plastic) piping system installed approximately 8 years ago, which replaced the original abandoned insulated pipe in concrete utility trenches. AVCF staff reported the first underground FRP pipe failure 14 months after installation, and subsequently over a dozen underground piping failures have been logged with increasing frequency. The grooved clamping joints on the interior heating hot water piping distribution system leak whenever the heating system is shut down to repair exterior pipe failures or when the heating system temperature is allowed to drop below 160 degrees F, as the piping mains begin to contract due to the temperature drop.
- B. Chilled water fittings inside building show signs of minor leakage at coupling locations, however, not approaching the extent on the hot water system. The exterior chilled water distribution system is assumed to be direct-buried thermoplastic pipe without insulation, and to date, exterior chilled water piping system has not experienced a failure.
- C. The existing 32-year-old Culligan model no HB-2800 duplex softener system has surpassed its expected service life and has been temporarily offline during repairs; this may be contributing to failures of the interior copper piping distribution system and the failure of the exterior water loop.

Recommendations

- A. For the exterior hot water heating system distribution mains, replace existing system with direct-bury type pre-insulated cased piping system with a HDPE (high density polyethylene) jacket and pressure testable joint closures. A recommendation for the interior hot water piping systems is to replace grooved pipe clamp couplings with welded joints.
- B. For the domestic water piping systems, it is recommended to replace interior domestic piping distribution system with polypropylene PP-R faser-composite piping systems and replace exterior water loop main with HDPE SDR 11 or PVC C900. Also, the existing 32-year-old duplex water softener has surpassed its expected service life and is recommended for replacement.
- C. The chilled water systems repair and replacement are not considered as critical as priorities 1-5, however it is recommended to include in future budgeting for project capital funding.

**Priorities**

The following are priorities based on risk of continued probable failure and are included in this Capital Renewal Project Request:

1. Priority No. 1 – Replace Exterior HW Piping Mains
2. Priority No. 2 – Repair/Replace Interior HW Distribution Piping Systems
3. Priority No. 3 – Replace Interior Domestic CW Piping Mains
4. Priority No. 4 – Replace Exterior Water Utility Distribution System
5. Priority No. 5 – Replace Existing Water Softener System

A more detailed description of the findings and recommendations can be found in the AVCF Heating, Chilled, and Domestic Utility Systems Piping Replacement Study, June 30, 2018, as prepared by Schendt Engineering Corp.

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.			
Project No.	Project Title	Project Cost \$	Completion date or status
2017-097P18	AVCF Fire Alarm Replacement	\$2,543,505	In Design
Utility Contingency FY2018-19	Waste Water Pumps	\$41,856	In Construction
EMP #63553	Energy Performance Contract (with LCF)	\$10,870,772	Settled May 2019
MC19-001	Boiler 2 Replacement	\$134,140	July 2018
M1301	AVCF Replace Electrical System – 3 Phases		June 2018
MC18-CC	Utility Line Replacement	\$10,750	April 2018
MC18-085	RH Plumbing Renovation	\$9,700	Jan 2018
PD18-032	Food Service Hot Water Upgrade	\$85,000	Dec 2017
Utility Contingency FY2015-16	Water Tank Re-coat	\$34,495	June 2016
Utility Contingency FY2015-16	Upgrade Hot Water Laundry Equipment	\$2,956	June 2016
PD16-060	Culinary Arts Grease trap	\$4,013	Mar 2016
PD16-034	Replace Food Service Hot Water Source	\$28,718	Dec 2015
P1304	AVCF Waste-Water Pre-Treatment Plant	\$1,422,802	June 2015
PD15-047	Laundry Hot Water Storage	\$15,000	March 2015
M07006	LCF/AVCF Kitchen Drain Line Replacement (Phase 2)		Oct 2011

**F. CONSEQUENCES IF NOT FUNDED:**

Not funding this project request will result in the continual leaking of water from couplings and joints from the water piping systems, resulting in damage to finishes and eventual premature failure of equipment at a significant cost. Failures of the direct bury piping of any of these water service lines will require piecemeal repairs and disruption of programs and services to the facility. Loss of any of these water service lines could result in an emergency closure of the facility requiring relocation of up to 1,089 medium custody offenders with emergency funds needing to be allocated to perform repair/replacement.

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

The continual issues undermine the effectiveness of the system and jeopardize the ability to provide heat and other hot water services for the function of the entire facility. These leaks result in utility cost increases and extreme amounts of overtime for the already overwhelmed staff at AVCF.

Due to the significant amount of degradation and the increasing difficulty to locate and patch leaks in the system, a complete replacement is warranted over continued piecemeal repairs. The longer this system is in service, the more problematic it will become.

Completing this project request as a single-phase project will provide savings made possible through an accelerated construction schedule resulting in limited cost escalation and a reduction in overhead costs. The State will also likely avoid future emergency costs for repairs of these systems.

This project, initially submitted in FY19-20, will support the entire AVCF Facility with new water distribution. The replacement of the hot water system distribution will improve efficiency of the hot water system and heating, with a direct impact to the existing boilers by reducing excess operation.

**H. ASSUMPTIONS FOR CALCULATIONS:**

The description and breakdown of assumptions used to calculate the project budget is as follows:

1. Professional Services were calculated using the Construction Improvement Total (CIT)
  - A/E Basic Services \$1,007,033; 16.86% of CIT
  - Code Review/Inspections \$ 29,865; 0.5% of CIT
  - Advertisements, Printing, Cellphones, Admin. \$ 59,729; 1.0% of CIT
2. Infrastructure Services/Utilities Costs of \$3,376,727 were taken directly from the Study as prepared by Schendt Engineering.
3. Miscellaneous expenses of \$712,306 calculated as follows:
  - Site Location Factor of \$506,509 was calculated at 15% of the Project Base Costs
  - Secure Facility environment Factor of \$253,255 was calculated at 15% of the Project Base Costs on Labor only (50% of Project Base Costs)
4. Contractor’s Costs of \$413,649 which includes Contractor’s General Conditions & Bonds was calculated at 10% of the Project Base Costs and Miscellaneous expenses
5. Contractor’s Overhead and Profit of \$682,521 was calculated at 15% of the Project Base Costs, Miscellaneous expenses, and the Contractor’s Costs
6. Project Contingency of \$801,635 calculated at 10% of the sum of Professional Services and the Construction Improvement Total.
7. All costs were then escalated by DOC Facility Management Services by 2.7% each year compounded to account for inflation to July 2020 and an additional 5.8% for each year compounded to inflate to July 2022, then at an additional 4.5% for each year compounded to account for anticipated mid-point of construction occurring in August 2023 to reach our budget number for this submittal. These factors were calculated using the four-year average of inflation from the RS Means Data, Building Cost Index.

**I. SUSTAINABILITY:**

This Capital Renewal project is exempt from the High Performance Certification Program (HPCP) requirements as it is a controlled maintenance project in excess of \$2,000,000. Appropriate strategies of the HPCP will be included in the project where applicable and cost effective.

**J. OPERATING BUDGET IMPACT:**

Replacement of the existing failing water lines will result in reduced service calls needed for repairs as well as savings from premature equipment replacement due to water damage.

**K. 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	July 2021	October 2021
Design / Bid / Award	November 2021	September 2022
Construction	October 2022	June 2024
FF&E /Other	N/A	N/A
Occupancy	July 2024	

**L. ADDITIONAL INFORMATION:**

**Single Phase**

Completing the various improvements detailed in this request as a single project rather than multiple controlled maintenance requests will reduce the disruption of services and systems serving the offenders and staff at the AVCF. These disruptions impact the entire facility. In addition, completing this project request as a single project will provide savings made possible through an accelerated construction schedule resulting in limited cost escalation and a reduction in overhead costs. The State will likely avoid future emergency controlled maintenance costs for repairs of these systems.

This project will have an immediate positive impact on the FCI. This request has the potential to reduce damage to building finishes and equipment, inclusive of fire alarm control panels and security door control panels, with the elimination of water leaks. The project reduces the likelihood of a facility closure and loss of use should emergency repair/replacement of the water service lines be required.

**External Capacity**

This project will not require the correctional housing unit cells to be vacated during construction and will not impact external capacity funding.



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

**FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)\***

(A)	(1) Funding Type:	<b>General Funded</b>	(2) Project Title:	Arkansas Valley Correctional Facility (AVCF) Utility Water Lines Replacement
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase ( ___ of ___):	Phase 1 of 1
(C)	(1) OSA Delegate Name:	James C. Ramsey	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2019-2020	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	26 June 2020	(2) Revision Date:	

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land /Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic Services	\$ 1,007,033	\$ -	\$ 1,007,033	\$ -	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 29,865	\$ -	\$ 29,865	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ 59,729	\$ -	\$ 59,729	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 266,487	\$ -	\$ 266,487	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 1,363,114	\$ -	\$ 1,363,114	\$ -	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ 3,376,727	\$ -	\$ 3,376,727	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ ___ X GSF							
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ ___ X							
(22)	Cost for Capital Renewal (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(23)	Renewal at \$ ___ X GSF							
(24)	Other - Site Location Factor	\$ 506,509	\$ -	\$ 506,509	\$ -	\$ -	\$ -	\$ -
	Other - Secure Environment Factor	\$ 253,255	\$ -	\$ 253,255	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages	\$ 133,767	\$ -	\$ 133,767	\$ -	\$ -	\$ -	\$ -
	Other - Contractor's general conditions	\$ 413,649	\$ -	\$ 413,649	\$ -	\$ -	\$ -	\$ -
	Other - Contractor's overhead and profit	\$ 682,521	\$ -	\$ 682,521	\$ -	\$ -	\$ -	\$ -
(27)	Inflation for Construction	\$ 1,286,810	\$ -	\$ 1,286,810	\$ -	\$ -	\$ -	\$ -
(28)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 6,653,238	\$ -	\$ 6,653,238	\$ -	\$ -	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(38)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(39)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(40)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(41)	<b>Total Misc. Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>								
(42)	<b>Total Project Costs</b>	\$ 8,016,352	\$ -	\$ 8,016,352	\$ -	\$ -	\$ -	\$ -
<b>Project Contingency</b>								
(43)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(44)	10% for Renovation	\$ 801,635	\$ -	\$ 801,635	\$ -	\$ -	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 801,635	\$ -	\$ 801,635	\$ -	\$ -	\$ -	\$ -
<b>Total Budget Request</b>								
(46)	<b>Total Budget Request</b>	\$ 8,817,987	\$ -	\$ 8,817,987	\$ -	\$ -	\$ -	\$ -
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ 8,817,987	\$ -	\$ 8,817,987	\$ -	\$ -	\$ -	\$ -
(48)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ 8,817,987	\$ -	\$ 8,817,987	\$ -	\$ -	\$ -	\$ -



STATE OF COLORADO  
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FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Project Title	Arkansas Valley Correctional Facility (AVCF) Electronic Security System Replacement		
B	(1) Agency:	Department of Corrections	(2) OSA Delegate Signature:	Refer to PDF for James C. Ramsey signature – 29 June 2020
C	(1) Funding Type:	General Fund	(2) DPA’s Risk Management ID#:	COOR0910, COOR2169, COOR9999
D	(1) Project Phase (Phase_of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):	Not Applicable
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC) <input checked="" type="checkbox"/> Capital Renewal (CR)	(2) Principal Representative Signature:	Refer to PDF for Travis Trani signature – 26 June 2020
F	(1) First Year Requested:	FY19-20	(2) OSA Review Signature	Date
G	(1) Priority Number:	8 of 10	(2) Revision Date:	Date
H	(1) Total Project Cost:	\$3,410,433	(2) Current Phase Cost:	\$3,410,433

**A. FACILITY PLANNING DOCUMENTATION:**

1) OSA approved Facility Program Plan/Capital Construction?	Yes _____	No <u>X</u>	Date Approved: <u>Not Applicable</u>
2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal	Yes <u>X</u>	No _____	Date Approved: <u>July 2019</u>
3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI	Reported FCI: _____	53%, 53%, 68%	Projected FCI: <u>55%, 55%, 70%</u>

**B. PROJECT SUMMARY/STATUS:**

This Capital Renewal Project Request will upgrade the Arkansas Valley Correctional Facility (AVCF) outdated door control and intercom systems to meet the current DOC standard (*Programmable PLC with Computer Graphics Interface*) which has been installed recently at four Department Facilities (*Denver Reception and Diagnostic Center (DRDC), San Carlos Correctional Facility (SCCF), Colorado State Penitentiary (CSP) and Limon Correctional Facility (LCF)*). This 1,089-offender facility, located in Ordway, Crowley County, Colorado, houses Level III male offenders. Loss of use of this facility due to failing security systems will be detrimental to the Department. Faults, failures, and outages in these systems create significant security and life safety risks for offenders, staff and the public.

The systems that maintain security and life safety in the Arkansas Valley Correctional Facility (AVCF) include the door control system and associated user graphic interface, intercom and paging system, connections to the existing Programmable Logic Controller (PLC) based system and security integration with current video system. The existing system that will be replaced is similar to the door control switch system recently replaced at Limon Correctional Facility (LCF). A significant portion of the existing security and life safety systems at AVCF are original with the original construction of the facility and over 33 years old. Over time the process of maintaining and repairing these systems has left the current system in a state of unreliability. A majority of the replacement parts for the existing systems are no longer available.

Due to the critical nature of the systems and the potential for serious life safety issues, DOC Facility Management Services (FMS) contracted with Maximum Security Engineering (MSE) to conduct an assessment and study of the existing systems to verify their condition. Their assessment resulted in the Arkansas Valley Correctional Facility, Electronic Security System Study, dated February 2018. The findings in this report were conclusive that due to the age, poor conditions, and lack of availability of the systems and their components, replacement is necessary. The recommendations include replacing the door control system, intercom system, Uninterrupted Power Source (UPS) system and locking system.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$3,410,433	\$0	\$3,410,433	\$0	\$0	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(49) Reappropriated	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Funds (RF)							
(50) Federal Funds (FF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$3,410,433	\$0	\$3,410,433	\$0	\$0	\$0	\$0

**D. PROGRAM INFORMATION:**

This project will impact all programs as these are security upgrades throughout the Facility. These systems are used to protect and safe guard staff, public and offenders. The door control and intercom upgrades will primarily be a benefit within the offender housing units by increasing security and reducing life safety risk.

Support systems refer to basic physical plant infrastructure, including water, heat, electricity, sewage treatment, security and building maintenance systems. In general, these systems were designed to accommodate a specific maximum population level. Deterioration of these systems over time may result in a subsequent decrease in the actual capacity of a facility as their functionality diminishes. The number of “down cells” or cells that cannot be occupied due to physical plant problems is directly related to the condition of these support facilities. Also included in the area of the support facilities are those functions that are critical or essential to maintaining the welfare of the inmates. These include functions such as dietary services, maintenance capability, health care, laundry, and warehouse space, etc. Significant deficiencies in these essential support functions will affect the capability of the facility to manage safely specified number of inmates.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

This project is in response to several maintenance requests for service and repairs to the existing door control, intercom and paging systems. The facility was built and opened in 1987. A significant portion of these systems are the original systems that were installed when the facility was built. The systems are outdated and in need of replacement.

Over time, due to system faults and failures, these systems have been serviced, adjusted and repaired. In the process, wiring, terminations and components have been removed, replaced and relocated. The result of this process has left the current state of the system in an unreliable condition. A door control system failure, communication system failure or catastrophic system failure in these security and life safety systems has the potential to endanger the lives of staff, offenders, and the public.

Because these systems are mission critical and their failure creates significant risks, the DOC Facility Management Services contracted with Maximum Security Engineering (MSE) to make an assessment and study of the existing security systems. MSE verified the system’s condition and recommended operational system upgrades that reflect the needs of the facility, so a secure and safe environment for staff, offenders and public can be maintained. Details of the system’s components, problems and shortcomings can be found in the Study. Findings from their report are the basis of this Project Request and include the following elements:

**Intercom and Paging System**

1. Replace the intercom and paging system to include the following
  - Replace the intercom and paging system with a new digital intercom system. This allows flexibility of intercom station control and control from Master Control in the event of a housing unit takeover. This will also improve operation, understanding and maintenance of the system.
  - Replace the Paging Amplifiers
  - Replace the Intercom Amplifiers
  - Replace the Intercom Stations
  - Replace the Paging Speakers
  - Add intercoms to both sides of the gates entering from the exterior of Housing Unit 6 to assist in remotely operating the gate locks
  - Replace the master intercom HMI (Human Machine Interface) microphone, speaker and volume control units at the HMI control stations for intercom control
  - Replace the staff intercom system with new master intercom stations with dial pad, display, handset, speaker and microphone for control room to control room staff communications at each HMI station
  - Replace the paging horns and cabling on the North Recreation Yard and add additional paging horns on the opposite side of the yard
  - Replace the Airphone Intercom stations in the office of each housing unit with intercom stations compatible with the new intercom system. This will allow communications and annunciation at the control room in each housing unit control room from the office in each housing unit
  - Install the HMI stations in the farthest side of the control room in Housing Units 1 through 5. Orient the HMI mapping software to represent the officers’ point of view from the control room.
  - Adjust the wiring at the doors with intercom stations on both sides to allow separate communications to both sides of the door from the control room. Utilize the existing wire by using two conductors from the four-conductor cable to each intercom station.

- Modify the HMI stations to allow automated selection of pre-recorded announcements over the paging system into the individual housing pods to satisfy the Prison Rape Elimination ACT (PREA) announcement requirements.

#### Door Control System

1. Replace the existing HMI touchscreen systems and control panels with new HMI touchscreen stations to include the following:
  - Provide new HMI touchscreens at each of the existing security control stations
  - Provide Mini PC workstations at each new HMI touchscreen location with solid state drives and fan-less PC's for long term industrial use
  - Provide redundant servers to support the HMI system
  - Provide updated, latest version HMI software
  - Replace the CJ1 series PLC system with a new PLC Platform. Provide new PLC equipment with enough future capacity to replace what exists and to support the future control and monitoring of the cell doors
  - Provide update communication network switches with improved speed, reliability and connectivity between buildings. Re-use the fiber between buildings
  - Provide new equipment enclosures, interface relay devices, fuse blocks, terminal blocks, cabling, connections, cabling and programming to support the installation
  - Provide integration with the existing video system to allow the control officer at Master Control and the two towers the ability to easily call up the video cameras. Include camera call up with dedicated icons, intercom calls, panic alarms, door alarms and perimeter alarms
  - Modify and update the millwork in each control room to accommodate the new HMI systems
  - Calculate and provide the energy savings to the State at the completion of the project

#### Uninterruptible Power Supplies

1. Provide new Uninterruptible Power Systems (UPS) systems at each of the security equipment room locations

#### Locks and Motors

1. Provide Electric Lock and Motors at the following locations:
  - Replace the Magnetic locking devices on the 2 doors entering each of the 6 housing units with controlled/monitored and key releasable electro-mechanical locking devices
  - Provide Electric Locks at the two man gates leading to the North Yard
  - Provide Electric Motors at the two sliding gates leading to the North Yard

Architect/Engineer (A/E) professional services will be procured for this project request to include schematic and design development, construction documentation, and construction administration.

The existing security control and monitoring systems for AVCF are in need of replacement. Operation, function and maintenance of these systems is becoming more difficult. A majority of the replacement parts for these systems are no longer available. Replacing these systems before they completely fail will save funds that would have to be spent on repairing and replacing the systems in an emergency situation.

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.

Project No.	Project Title	Project Cost \$	Completion date or status
2017-097P18	AVCF Fire Alarm Replacement	\$2,543,505	In Design
EMP #63553	Energy Performance Contract (with LCF)	\$10,870,772	Settled May 2019
PD19-036	Mental Health Ceiling	\$20,000	Dec 2018
PD19-007	Canteen Expansion	\$43,560	Aug 2018
M1301	AVCF Replace Electrical System – 3 Phases		Complete June 2018
PD18-007	E-Scan Wall Penetration	\$550	Aug 2017
PD17-055	Laundry New Dryers	\$79,410	April 2017
PD17-047	Asbestos Abatement	\$25,303	Mar 2017
PD17-026	New Walk-In Freezer	\$86,639	Oct 2016
PD16-013	Panel w/Door LU6	\$1,430	Sept 2015
PD16-011	Mental Health Observation, Segregation, Intake	\$2,670	Aug 2015
PD16-007	Gym Classroom	\$13,597	July 2015
PD15-058	Midway Corridor Drive Gate	\$18,997	April 2015
M07001	Perimeter Security – 3 Phases	\$958,713	Complete June 2010



#### **F. CONSEQUENCES IF NOT FUNDED:**

The upgrades outlined in this Project Request are all security and life safety systems. These systems are used to protect and safe guard staff, public and offenders. They are used to control and restrict movement, monitor and maintain secure conditions, observe and prevent incidents, provide communication throughout the facility, as well as support mission critical tasks.

These systems are old, outdated and in need of replacement. If they are not replaced, funds will still have to be expended to keep them up and running. Many of the replacement parts for these systems are unavailable. These parts are major components of the security and life safety systems and when they fail and replacement parts cannot be acquired, the facility will be at significant risk.

#### **G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

Due to age and the increasing difficulty in obtaining parts and service for the existing lock control and intercom systems, a complete replacement is warranted over continued "piece-meal" repair. As systems reach the concluding years of their life cycle, finding sufficient support and replacement parts can become a challenge. These issues undermine the effectiveness of the systems and create headaches for facility staff, and jeopardize the safety of the facility.

The process of locating parts for failing systems, or finding supplementary parts that will mesh with old systems to bring them up to standard, can be extremely time consuming and can distract facility staff from their principal duties. If the facility does not have a broad network for obtaining obsolete parts, they will quickly find that it is extremely difficult to obtain critical parts in a timely fashion, potentially taking critical systems out of service until parts can be acquired.

This project, initially submitted in FY19-20, while improving electronic door controls, will utilize efficient computer servers and monitors with an unknown fossil fuel consumption impact. The anticipated impact to fossil fuels will be analyzed upon approval of the Capital Renewal request and will be based directly on the technology available at that time.

#### **H. ASSUMPTIONS FOR CALCULATIONS:**

The description and breakdown of assumptions used to calculate the project budget is as follows:

1. Professional Services were calculated using the Construction Improvement Total (CIT)
  - A/E Basic Services \$385,111; 16.86% of CIT
  - Code Review/Inspections \$ 11,421; 0.5% of CIT
  - Advertising, Printing and Administration \$ 22,842; 1.0% of CIT
2. Base Project Costs of \$1,345, 000 were taken directly from the Study as prepared by MSE Engineering.
3. Miscellaneous expenses of \$953,691 calculated as follows:
  - Site Location Factor of \$134,500 was calculated at 10% of the Project Base Costs
  - Secure Facility environment Factor of \$100,875 was calculated at 15% of the Project Base Costs on Labor only (50% of Project Base Costs)
  - Addition of Prevailing Wages of \$53,282 was calculated for work starting after June 2021 for electrical items.
4. Contractor's Costs of \$150,038 which includes Contractor's General Conditions & Bonds was calculated at 10% of the Project Base Costs and Miscellaneous expenses
5. Contractor's Overhead and Profit of \$260,762 was calculated at 15% of the Project Base Costs, Miscellaneous expenses, and the Contractor's Costs
6. Project Contingency of \$310,039 calculated at 10% of the sum of Professional Services and the Construction Improvement Total.
7. All costs were then escalated by DOC Facility Management Services by 2.7% each year compounded to account for inflation to April 2020, 5.8% to inflate to April 2021, and an additional 4.5% for each year compounded to account for anticipated mid-point of construction occurring in August 2023 to reach our budget number for this submittal. These factors were calculated using the four-year average of inflation from the RSMeans Data, Building Cost Index.

#### **I. SUSTAINABILITY:**

This Capital Renewal project is exempt from the High Performance Certification Program (HPCP) requirements as it is a controlled maintenance project in excess of \$2,000,000. Appropriate strategies of the HPCP will be included in the project where applicable and cost effective.

#### **J. OPERATING BUDGET IMPACT:**

The systems included in this Project Request are all security and life safety systems. These systems are used to protect and safeguard staff, public, and offenders. They are used to control and restrict movement, monitor, maintain secure conditions, observe and prevent incidents, provide communication throughout the facility, as well as many other mission critical tasks.

These systems are old, outdated and in need of replacement. If they are not replaced, funds will still have to be expended to keep them up and running. Many of the replacement parts for these systems are already unavailable and more of them are becoming daily. These parts are major components of the security and life safety systems and when they fail and replacement parts can't be acquired, the facility will be at significant risk.

The demand of staff to repeatedly work on these systems will continue to increase as well and the number of staff required to be on duty to cover for the failing system to keep staff and other offenders safe.

**K. PROJECT SCHEDULE:**

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

Phase 1 of 1	Start Date	Completion Date
Pre-Design	July 2021	October 2021
Design	November 2021	May 2022
Bid / Award	June 2022	September 2022
Construction	October 2022	June 2024
Occupancy	July 2024	

**L. ADDITIONAL INFORMATION:**

**Single Phase**

It is strongly recommended that this project not be phased as this typically creates inconsistencies in the final product throughout the facility. By bidding this work as a single-phase project to a single contractor, the facility will receive a completely integrated and standardized system facility wide. Maintaining a consistent and standardized product throughout the facility will improve operations and maintenance of the Facility. Splitting this project into phases will result in the same kind of mis-matched systems the Department currently has. Completing the various improvements detailed in this request as a single project rather than multiple controlled maintenance requests will reduce the disruption of services and systems serving the offenders and staff at the AVCF. These disruptions impact the entire facility.

In addition, completing this project request as a single project will provide savings made possible through an accelerated construction schedule resulting in limited cost escalation and a reduction in overhead costs. The State will likely avoid future emergency controlled maintenance costs for repairs of these systems.

Security and life safety will be improved, that results in an immediate positive impact on the FCI.

**External Capacity**

This project will require the housing unit cells in the affected dayhalls to be vacated during construction, and may impact external capacity funding. If necessary, this operating funding will be requested through the normal budget process pending approval of this capital renewal request.

**M. CASH FUND PROJECTIONS:**

Cash Fund name and number:		<u>Not Applicable</u>	
Statutory reference to Cash Fund:			
Describe how revenue accrues to the fund:			
Describe any changes in revenue collections that will be necessary to fund this project:			
If this project is being financed, describe the terms of the bond, including the length of the bond, the expected interest rate, when the agency/institution plans to go to market, and the expected average annual payment (As applicable):			
<b>Prior Year Actual Ending Fund Balance</b>	<b>Current Year Projected Ending Fund Balance</b>	<b>Year 2 Projected Ending Fund Balance with Project Approval</b>	<b>Year 3 Projected Ending Fund Balance with Project Approval</b>
\$	\$	\$	\$



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
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**FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)\***

(A)	(1) Funding Type:	<b>General Funded</b>	(2) Project Title:	Arkansas Valley Correctional Facility (AVCF) Electronic Security System Replacement
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase ( _ of _ ):	Phase 1 of 1
(C)	(1) OSA Delegate Name:	James C. Ramsey	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2019-2020	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	26 June 2020	(2) Revision Date:	

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land /Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic Services	\$ 385,111	\$ -	\$ 385,111	\$ -	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 11,421	\$ -	\$ 11,421	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ 22,842	\$ -	\$ 22,842	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 89,330	\$ -	\$ 89,330	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 508,704	\$ -	\$ 508,704	\$ -	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ X							
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ X							
(22)	Cost for Capital Renewal (GSF):	\$ 1,345,000	\$ -	\$ 1,345,000	\$ -	\$ -	\$ -	\$ -
(23)	Renewal at \$ X GSF							
	Other Costs - Site Location Factor	\$ 134,500	\$ -	\$ 134,500	\$ -	\$ -	\$ -	\$ -
(24)	Other Costs - Secure Environment Factor	\$ 100,875	\$ -	\$ 100,875	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages	\$ 53,282	\$ -	\$ 53,282	\$ -	\$ -	\$ -	\$ -
	Other Costs- Contractor's general	\$ 158,038	\$ -	\$ 158,038				
	Other Costs - Contractor's overhead	\$ 260,762	\$ -	\$ 260,762				
(27)	Inflation for Construction	\$ 365,131	\$ -	\$ 365,131	\$ -	\$ -	\$ -	\$ -
(28)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 2,417,588	\$ -	\$ 2,417,588	\$ -	\$ -	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Inflation for Misc Costs	\$ 174,102	\$ -	\$ 174,102	\$ -	\$ -	\$ -	\$ -
(40)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(41)	<b>Total Misc. Costs</b>	\$ 174,102	\$ -	\$ 174,102	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>								
(42)	<b>Total Project Costs</b>	\$ 3,100,394	\$ -	\$ 3,100,394	\$ -	\$ -	\$ -	\$ -
<b>Project Contingency</b>								
(43)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(44)	10% for Renovation	\$ 310,039	\$ -	\$ 310,039	\$ -	\$ -	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 310,039	\$ -	\$ 310,039	\$ -	\$ -	\$ -	\$ -
<b>Total Budget Request</b>								
(46)	<b>Total Budget Request</b>	\$ 3,410,433	\$ -	\$ 3,410,433	\$ -	\$ -	\$ -	\$ -
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(48)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



STATE OF COLORADO  
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OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Project Title	Colorado State Penitentiary (CSP) Electronic Security System Replacement		
B	(1) Agency:	Department of Corrections	(2) OSA Delegate Signature:	Refer to PDF for James C. Ramsey signature – 29 June 2020
C	(1) Funding Type:	General Fund	(2) DPA’s Risk Management ID#:	COPE6068
D	(1) Project Phase (Phase_of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):	Not Applicable
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC)	(2) Principal Representative Signature:	Refer to PDF for Travis Trani signature – 26 June 2020
		<input checked="" type="checkbox"/> Capital Renewal (CR)		
F	(1) First Year Requested:	FY20-21	(2) OSA Review Signature	Date
G	(1) Priority Number:	7 of 10	(2) Revision Date:	Date
H	(1) Total Project Cost:	\$4,406,356	(2) Current Phase Cost:	\$4,406,356

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No X Date Approved: Not Applicable
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes X No \_\_\_\_\_ Date Approved: July 2019
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI Reported FCI: 64% Projected FCI: 66%

**B. PROJECT SUMMARY/STATUS:**

The Colorado State Penitentiary (CSP) is located on the East Canon City Prison Complex in Canon City, Colorado. The 458,906 Square Foot (SF) facility was constructed to a Level V Security with a capacity of 756 single bunked wet cells. The facility was funded and constructed under two distinct project phases. The first phase opened in 1993 to include the central mechanical plant, central support functions and 500 cells. The second phase included 256 additional cells and opened in 1998. The population is currently male high custody offenders.

The CSP Electronic Security Control System (ESCS) is the system that supports the door control, intercom, man-down and video call-up functions. The existing security control and monitoring systems for CSP are in need of replacement. Operation, function and maintenance of these systems are becoming more and more challenging. A majority of the replacement parts for these systems are no longer available. Replacing these systems before they completely fail will save funds that would have to be spent repairing and replacing the systems in an emergency.

The originally installed Man Down system was a stand-alone system. The original system is the Ultrasonic Personal Alarm System (PAS) by Perimeter Products Inc. (PPI). PAS transmitters and Personal Alarm Receivers (PAR) were used in conjunction with PPI Personal Alarm Receiver/Communicator (PARC) boards and Central Processing Units(CPU) with proprietary software. The PARC receiver boards received alarm signals from a group of receiver units and then sent the alarm to the CPU that processed the data for display in Master Control. Production of the PAR system ceased in the mid-90’s. The PAR receivers were installed at the facility in 1992. These systems are outdated and replacement parts have become unavailable. The originally installed man-down system does not work at all. With the change of facility mission from Administrative-Segregation to more open offender movement and increased rehabilitation efforts through programs and education, there has been a significant increase in direct offender and staff contact. This increased contact has raised safety and security concerns in managing Colorado’s most dangerous, most violent and most disruptive offenders.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$4,406,356	\$0	<b>\$4,406,356</b>	\$0	\$0	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(50) Federal Funds	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0

(FF)							
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$4,406,356	\$0	\$4,406,356	\$0	\$0	\$0	\$0

**D. PROGRAM INFORMATION:**

This project will impact all programs as these are security upgrades throughout the Facility. These systems are used to protect and safe guard staff, public and offenders. The door control, intercom upgrades, and man down panic alarm will be a benefit to the entire facility increasing security and reducing life safety risk for all.

Support facilities refer to basic physical plant infrastructure, including water, heat, electricity, sewage treatment, and building maintenance systems. In general, these systems were designed to accommodate a specific maximum population level. Deterioration of these systems over time may result in a subsequent decrease in the actual capacity of a facility as their functionality diminishes. The number of “down cells” or cells that cannot be occupied due to physical plant problems is directly related to the condition of these support facilities.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

The following security components of work will comprise the project scope. They include:

**Electronic Security Control System (ESCS)**

1. Update the security workstations and software. Provide revised Human Machine Interface(HMI) and Programmable Logic Controller(PLC) programming to the existing security HMI locations to allow replacement of the security workstations and software. Provide and install new security HMI workstations with the latest supported versions of windows and Wonderware HMI software. Provide a system architecture that is reliable, maintainable and supportable. Provide Industrial PC (IPC) workstations with solid state drives and no moving parts for system longevity at the HMI workstation locations. Connect the IPC workstations to the existing security PLC system at the HMI workstation locations in each control location.
2. Replace, upgrade and update the security PLC Central Processing Units (CPU’s), software, power supplies, communication modules and PLC system communication cabling between systems.
3. Replace the existing HMI monitors. Update to support the current 16:9 aspect ratio and 1920x1080 HD resolution. The monitors do not have a touchscreen overlay, they are driven by trackballs. Include with the new workstations, replacement trackball and or mouse control devices.
4. Update the existing redundant server system to support the updated HMI system and software.
5. Update the system networking and support structure to allow implementing the updated HMI solution.
6. Update the event logger to support system logging and reporting.
7. Maintain and update the existing interface between the security HMI system and the video system for controlled selection of video to alarmed or called-up areas.
8. Coordinate and update the security HMI programming with the ESCS CSP Custody and Control Staff Recommended Changes noted in the ESCS custody and control staff recommended changes section above.
9. Replace the cabinets and turrets in the control rooms to accommodate the new security control equipment.
10. Update the UPS power systems to support the updated ESCS system.
11. Update the intercom and paging system to support the following:
  - Upgrade of the security HMI system.
  - Replacement of the intercom relays with a digital intercom system, similar to the Harding DXL system or equal.
  - Replace the remote intercom stations with two wire type intercom stations to allow improved audible communications.
  - Replace the intercom master stations at each HMI location.
  - Replace the intercom amplifiers to integrate with the new HMI and digital intercom system.
  - Provide icons on the security HMI workstations to allow selection of the paging zones.
  - Reconnect the paging system input to the telephone system for automated paging selection from the telephone system.
  - Include Prison Rape Elimination Act (PREA) announcements to support the required announcements when someone of the opposite gender enters a housing unit.
12. Calculate and provide the energy savings to the State at the completion of the project.

**Man Down System**

Make the man-down system functional:

1. Provide a seamless facility wide Radio Frequency Man-Down system that will work in all areas of the facility.
2. Provide updated locating devices and repeaters that will replace the existing nonfunctioning ultrasonic system and work in all areas throughout the facility.
3. Include zoning for the administrative, service, living and new recreation yards which currently do not have provisions for man-down signaling.
4. Incorporate Man Down alarms for the new classroom in “B” pod and the common areas in “F” pod including B & F, 400 Level Classrooms areas.
5. Coordinate and update the security HMI programming with the ESCS CSP Custody and Control Staff Recommended Changes.
6. Update the existing interface between the security HMI system and the video system for controlled selection of video to alarmed and called-up areas.

7. Provide man-down transmitters for use by the staff and visitors

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.			
Project No.	Project Title	Project Cost \$	Completion date or status
2015-133M15	Replace Fire Alarm System	\$1,341,403	June 2019
2015-052P15	Close Custody Outdoor Recreation Yards	\$4,780,979	6/30/2018
PD19-060	Gym Floor Replacement	\$58,762	In Design
PD19-046	Library Renovation	\$83,847	In Design
MC19-068	Proxy Card System Upgrade	\$27,274	March 2018
PD18-051	GEC Classroom Move – Electrical and Data	\$19,059	Feb 2018
PD18-050	High Security Individual Recreation Modules	\$43,000	Feb 2018
PD18-040	New Close Custody Unit – High Custody Security Desk	\$4,008	Dec 2017
MC18-046	Security Network Switch Replacement	\$19,256	Oct 2017
PD15*007	Visiting Upgrade	\$878	Aug 2014
M06045	Security Electronics Replacement	\$1,530,782	6/30/2009

**F. CONSEQUENCES IF NOT FUNDED:**

The systems reviewed and assessed in the Maximum Security Engineering report are all critical security and life safety systems. These systems are used to protect and safe guard staff, public and offenders. These systems control and restrict movement, monitor and maintain secure conditions, observe and prevent incidents, and provide communication throughout the facility supporting mission critical tasks.

These systems are old, outdated and in need of replacement. If these systems are not replaced, funds will still have to be expended to keep the current systems up and running. Many of the replacement parts for these systems are unavailable. These parts can be major components of the security and life safety systems for the facility. When key components fail, replacement parts cannot always be located and acquired putting facility staff and inmates at significant risk.

Not funding this request has the potential of causing hampered emergency control, alarming and annunciation of violent incidents and delayed response time by First Responders to areas with direct Staff and offender contact. Due to the changing mission of the facility and increased offender movement, these events are occurring at a more significant and alarming rate. The reliability of the security and man-down systems is a life safety issue that needs to be corrected.

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

Due to age and the increasing difficulty in obtaining parts and service for the existing lock control, intercom systems, and man down panic alarms, a complete replacement is warranted over continued “piece-meal” repair. As systems reach the end of their useful life cycle, finding sufficient support and replacement parts can become a challenge. These issues undermine the reliability of the systems and create headaches for facility staff, and jeopardize the safety of the facility.

The process of locating parts for failing systems, or finding compatible parts that will mesh with old systems to bring them up to standard, can be extremely time consuming and can distract facility staff from their principal duties. If the facility does not have a broad network for obtaining obsolete parts, they will quickly find that it is extremely difficult to obtain critical parts in a timely fashion, potentially taking critical systems out of service until parts can be acquired.

This project, initially submitted in FY20-21, while improving electronic door controls, will utilize efficient computer servers and monitors, with an unknown fossil fuel consumption impact. The anticipated impact to fossil fuels will be analyzed upon approval of the Capital Renewal request and will be based directly on the technology available at that time.

**H. ASSUMPTIONS FOR CALCULATIONS:**

The description and breakdown of assumptions used to calculate the project budget is as follows:

1. Professional Services were calculated using the Construction Improvement Total (CIT)
  - A/E Basic Services \$490,134; 16.86% of CIT
  - Code Review/Inspections \$ 14,535; 0.5% of CIT
  - Advertising, Printing and Administration \$ 29,071; 1.0% of CIT
2. Base Project Costs of \$1,800,000 were taken directly from the Study as prepared by MSE Engineering.
3. Miscellaneous expenses of \$315,000 calculated as follows:
  - Site Location Factor of \$135,000 was calculated at 7.5% of the Project Base Costs
  - Secure Facility environment Factor of \$180,000 was calculated at 20% of the Project Base Costs on Labor only (50% of Project Base Costs)

- Addition of Prevailing Wages of \$69,431 was calculated for work starting after June 2021 for electrical items.
4. Contractor's Costs of \$211,500 which includes Contractor's General Conditions & Bonds was calculated at 10% of the Project Base Costs and Miscellaneous expenses
  5. Contractor's Overhead and Profit of \$348,975 was calculated at 15% of the Project Base Costs, Miscellaneous expenses, and the Contractor's Costs
  6. Project Contingency of \$400,578 calculated at 10% of the sum of Professional Services and the Construction Improvement Total.

All costs were then escalated by DOC Facility Management Services by 2.7% each year compounded to account for inflation to April 2020, 5.8% to inflate to April 2021, and an additional 4.5% for each year compounded to account for anticipated mid-point of construction occurring in September 2023 to reach our budget number for this submittal. These factors were calculated using the four-year average of inflation from the RSMMeans Data, Building Cost Index.

**I. SUSTAINABILITY:**

This Capital Renewal project is exempt from the High Performance Certification Program (HPCP) requirements as it is a controlled maintenance project in excess of \$2,000,000. Appropriate strategies of the HPCP will be included in the project where applicable and cost effective.

**J. OPERATING BUDGET IMPACT:**

The systems included in this Project Request are all security and life safety systems. These systems are used to protect and safeguard staff, public, and offenders. They are used to control and restrict movement, monitor, maintain secure conditions, observe and prevent incidents, provide communication throughout the facility, as well as many other mission critical tasks.

These systems are old, outdated and in need of replacement. If they are not replaced, funds will still have to be expended to keep them up and running. Many of the replacement parts for these systems are already unavailable and more of them are becoming daily. These parts are major components of the security and life safety systems and when they fail and replacement parts can't be acquired, the facility will be at significant risk.

The demand of staff to repeatedly work on these systems will continue to increase as well and the number of staff required to be on duty to cover for the failing system to keep staff and other offenders safe.

**K. PROJECT SCHEDULE:**

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

Phase 1 of 1	Start Date	Completion Date
Pre-Design	July 2021	October 2021
Design	November 2021	May 2022
Bid / Award	June 2022	September 2022
Construction	October 2022	June 2024
FF&E /Other	N/A	N/A
Occupancy	July 2024	

**L. ADDITIONAL INFORMATION:**

**Single Phase**

It is strongly recommended that this project not be phased as this typically creates inconsistencies in the final product throughout the facility. By bidding this work as a single-phase project to a single contractor, the facility will receive a completely integrated and standardized system facility wide. Maintaining a consistent and standardized product throughout the facility will improve operations and maintenance of the Facility. Splitting this project into phases will result in the same kind of mismatched systems that currently exist.

Completing the various improvements detailed in this request as a single project rather than multiple controlled maintenance requests will reduce the disruption of services and systems serving the offenders and staff at the AVCF. These disruptions impact the entire facility.

In addition, completing this project request as a single project will provide savings made possible through an accelerated construction schedule resulting in limited cost escalation and a reduction in overhead costs. The State will likely avoid future emergency controlled maintenance costs for repairs of these systems.

Security and life safety will be improved, that results in an immediate positive impact on the FCI.

**External Capacity**

This project will require the correction housing unit cells in the affected dayhalls to be vacated during construction, and may impact external capacity funding. If necessary, this operating funding will be requested through the normal budget process pending approval of this capital renewal request.

**M. CASH FUND PROJECTIONS:**

Cash Fund name and number:		<u>Not Applicable</u>	
Statutory reference to Cash Fund:			
Describe how revenue accrues to the fund:			
Describe any changes in revenue collections that will be necessary to fund this project:			
If this project is being financed, describe the terms of the bond, including the length of the bond, the expected interest rate, when the agency/institution plans to go to market, and the expected average annual payment (As applicable):			
<b>Prior Year Actual Ending Fund Balance</b>	<b>Current Year Projected Ending Fund Balance</b>	<b>Year 2 Projected Ending Fund Balance with Project Approval</b>	<b>Year 3 Projected Ending Fund Balance with Project Approval</b>
\$	\$	\$	\$





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**FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)\***

(A)	(1) Funding Type:	<b>General Funded</b>	(2) Project Title:	Colorado State Penetentiary (CSP) Electronic Security System Replacement
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase ( ___ of ___ ):	Phase 1 of 1
(C)	(1) OSA Delegate Name:	James C. Ramsey	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2020-2021	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	26 June 2020	(2) Revision Date:	

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land /Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic Services	\$ 490,134	\$ -	\$ 490,134	\$ -	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 14,535	\$ -	\$ 14,535	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ 29,071	\$ -	\$ 29,071	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 119,474	\$ -	\$ 119,474	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 653,214	\$ -	\$ 653,214	\$ -	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ ___ X							
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ ___ X							
(22)	Cost for Capital Renewal (GSF):	\$ 1,800,000	\$ -	\$ 1,800,000	\$ -	\$ -	\$ -	\$ -
(23)	Renewal at \$ ___ X GSF							
(24)	Site Location Factor	\$ 135,000	\$ -	\$ 135,000	\$ -	\$ -	\$ -	\$ -
	Secure Environment Factor	\$ 180,000	\$ -	\$ 180,000	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages	\$ 69,431	\$ -	\$ 69,431	\$ -	\$ -	\$ -	\$ -
	Contractor's General Conditions	\$ 211,500	\$ -	\$ 211,500	\$ -	\$ -	\$ -	\$ -
	Contractor's Overhead and Profit	\$ 348,975	\$ -	\$ 348,975	\$ -	\$ -	\$ -	\$ -
(27)	Inflation for Construction	\$ 482,203	\$ -	\$ 482,203	\$ -	\$ -	\$ -	\$ -
(28)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 3,227,109	\$ -	\$ 3,227,109	\$ -	\$ -	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Inflation for Misc Costs	\$ 125,455	\$ -	\$ 125,455	\$ -	\$ -	\$ -	\$ -
	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(41)	<b>Total Misc. Costs</b>	\$ 125,455	\$ -	\$ 125,455	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>								
(42)	<b>Total Project Costs</b>	\$ 4,005,778	\$ -	\$ 4,005,778	\$ -	\$ -	\$ -	\$ -
<b>Project Contingency</b>								
(43)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(44)	10% for Renovation	\$ 400,578	\$ -	\$ 400,578	\$ -	\$ -	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 400,578	\$ -	\$ 400,578	\$ -	\$ -	\$ -	\$ -
<b>Total Budget Request</b>								
(46)	<b>Total Budget Request</b>	\$ 4,406,356	\$ -	\$ 4,406,356	\$ -	\$ -	\$ -	\$ -
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(48)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



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FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*			
A	(1) Project Title	Arkansas Valley Correctional Facility (AVCF) Critical Living Unit Shower/Drain and Toilet Room Improvements	
B	(1) Agency:	Dept of Corrections	(2) OSA Delegate Signature: Refer to PDF for James C. Ramsey Signature – 29 June 2020
C	(1) Funding Type:	General Fund	(2) DPA’s Risk Management ID#: COOR0910, COOR2169,
D	(1) Project Phase (Phase_of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation): Not Applicable
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC)	(2) Principal Representative Signature: Date Refer to PDF for Travis Trani Signature – 26 June 2020
		<input checked="" type="checkbox"/> Capital Renewal (CR)	
F	(1) First Year Requested:	FY2020-21	(2) OSA Review Signature Date
G	(1) Priority Number:	6 of 10	(2) Revision Date: Date
H	(1) Total Project Cost:	\$11,430,262	(2) Current Phase Cost: \$11,430,262

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No X Date Approved: Not Applicable
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes X No \_\_\_\_\_ Date Approved: July 2019
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI Reported FCI: 53% Projected FCI: 73%

**B. PROJECT SUMMARY/STATUS:**

This request is for the renovation of the existing facilities and systems at Arkansas Valley Correctional Facility to upgrade all plumbing fixtures in all the living units. This request is being submitted as a one-phase Capital Renewal project due to the scope being too large to break into 5 phases under the required budget amount for a Controlled Maintenance project. A major investment is needed for the upgrading of the facilities in order to meet State of Colorado building code requirements, pass State of Colorado health inspections, meet Americans with Disabilities Act guidelines, and maintain American Correctional Association accreditation. Arkansas Valley Correctional Facility is a 1,089 male offender level III medium security facility.

Arkansas Valley is not a typical design for Level III construction as the cells are dry (without sinks and toilets). This design requires the offenders to use community sinks, toilets and showering areas. As a Level III facility, typically each cell would have a toilet and sink and only the showers would be communal. The toilets and lavatories have a very high use because they are communal. The showers’ drain design has proven to be not successful to containing the amount of water that is used by offenders on a daily basis. These drains leak into the restroom area, under the floor, and behind the walls, further deteriorating other systems in these buildings. The shower/toilet areas have not been renovated since the facility opened over 33 years ago. Additionally, the ratio of toilets and sinks is less than a typical Security Level III facility, the ratio of fixture to offender does not meet State of Colorado penal code, State of Colorado Department of Health and Environment, or International Building and Plumbing Code requirements as adopted by the State of Colorado.

Previously a controlled maintenance project was completed that updated and replaced the electrical infrastructure in the facility. Currently the showers in the living units drain above the electrical rooms and leak into the electrical rooms and onto the newly installed equipment degrading the new equipment on a daily basis. This current deficiency is destroying the newly completed electrical project; without this project the electrical service out of the main electrical rooms will need to be replaced again.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$11,430,262	\$0	\$11,430,262	\$0	\$0	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$11,430,262	\$0	\$11,430,262	\$0	\$0	\$0	\$0

**D. PROGRAM INFORMATION:**

As this project will replace the entirety of the drain and plumbing lines within all of the living units, all programs will be impacted. This will include all facility functions that include: offender housing, offender programs, food service and laundry, clinical services, recreation, security, administration, and support services.

Support facilities refer to basic physical plant infrastructure, including water, heat, electricity, sewage treatment, and building maintenance systems. In general, these systems were designed to accommodate a specific maximum population level. Deterioration of these systems over time will result in a subsequent decrease in the actual capacity of a facility as their functionality diminishes. The number of “down cells” or cells that cannot be occupied due to physical plant problems is directly related to the condition of these support facilities.

**E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

In the spring of 2018, Facility Management Services (FMS) contracted with Schendt Engineering Corp. (SEC) and CSNA Architects (CSNA) for an evaluation and recommendations for the repair and/or replacement of the Utility Water Lines at the AVCF. Final assessments of the facility were complete in April 2019. This Capital Renewal Project Request is based on their findings and recommendations including the project’s Opinion of Probable Costs. The findings and recommendations from this report include the following:

**Record Drawing Review:**

- Based on review of the as-built 1986 construction documents and the subsequent bid package for Housing Units 5 and 6, a fixture count calculation to determine compliance with the minimum requirements established by the CDPHE Sanitary Standards for Penal Institutions. The deficiencies show the number of installed fixtures per Housing Unit is below standards.
- CDPHE Sanitary Standards for Penal Institutions item 10.5 requires a drying area equivalent to the size of showers; record documents do not indicate a designated drying area. The existing toilet/shower areas on the ground level are approximately 150 ft<sup>2</sup> and occupy 126 ft<sup>2</sup> on the upper 2 levels.
- Based on review of the as-built 1986 construction documents and non-destructive field observations, it appears the showers were field-fabricated with a waterproof membrane over precast concrete floor. Sloped concrete topping to drain was installed with a nonslip “dry shake” finish with integral emery aggregate surfacing with color. A product information sheet of the specified waterproofing membrane which is labeled as a “Dual Reinforced Membrane Specified for Exposed Waterproofing” was manufactured by Derbigum SP (Special Polyester) in South Africa, advertised for harsh climates. On their website, applications include roofing systems, but shower liner membrane was not a listed application.

**Field Observations:**

- The original DWV (Drainage, Waste, and Vent) above-grade piping systems material is a service class cast-iron with hubless type stainless steel banded fittings. The Cast Iron Soil Pipe Institute claims pipe durability should exceed the expected life of the building. According to an article published in 2011 in the American Water Works Association Journal, thicker wall cast-iron manufactured in the previous century once had an expected life of 75 to 100 years. In a 2014 Fannie Mae published a table based on US Office of Management and Budget studies indicating an estimated useful life of sanitary sewer at 50+ years for multi-family units; for a heavy institutional use, depending on the external environmental conditions and the corrosiveness of the effluent and gasses within the pipes, the industry consensus is a service life range for cast-iron is 35 to 50 years. It is important to note the 32 years old piping at the AVCF facility has been operated 24/7 without timers on showers or flush valves.
- The AVCF Housing unit piping systems are exhibiting severe corrosion on both inside and outside, with numerous observed cracks and holes, particularly at wye-type fittings. At some locations, cast iron piping was disintegrating at joints. Physical Plant staff noted some sections of the vent pipe exhibited corrosion even worse than drainage. A representative from Olson Plumbing & Heating of Colorado Springs was escorted to the site to perform sewer video imaging; this effort was abandoned due to risk of assuming liability for damaging piping system.

- Maintenance staff report 3 to 5 shower blockages daily and continuous grout repairs at all showers are required constantly due to excess humidity and offender degradation. During site surveys, heavy plumbing systems usage of the 24/7/365 occupied facilities was observed, including water closets flushed on fifteen to twenty second intervals, which is common according to Physical Plant Staff.
- It was also observed that there was minimal or no shower drying area with a water closet egress shared with the access to the shower(s); CDPHE Sanitary Standards for Penal Institutions states that “dry dressing room space at least equivalent to the shower's floor area shall be provided adjacent to the shower facilities”.
- The existing plumbing fixtures are vitreous china type; non-vandal proof fixtures when damaged or fragmented have the potential to become weapons posing a risk to correctional facility staff or other inmates.
- The existing indirect water heaters are also exhibiting severe corrosion at piping connections and observed common tank base failure on several units. In addition, there appears to be a violation of IPC code item 607.2, which states “*developed length of hot or tempered water* piping, from the source of hot water to the fixtures that require *hot or tempered water*, shall not exceed 50 feet”. Also, a heated water circulation and temperature maintenance system required by item C404.6 of the International Energy Conservation Code was not observed.
- Within the past year, an electrical remodel replaced raceway systems throughout the Housing Units. During fieldwork, it was observed the recent electrical remodel project (reference Appendix A photo nos. 26 and 27) included reinstallation of wireway directly below shower mixing valve penetration and existing hot and cold water supplies, which appears to violate NEC Article 110.26A working clearances requirement. Also, besides being originally installed in this location through either poor coordination among contractors or simply poor contractor practice, the new wireway is subject to the same water damage which precipitated the replacement. It is noted by the consulting firm during investigations for this study that the installation of the new system may possibly in the future be construed by a code official as not in compliance with NEC Article 376.12 as subject to a corrosive environment though it passed inspections during the time of construction.
- Each Housing Unit has three mechanical rooms accessible from the exterior, with one mechanical room interconnected to the adjacent Housing Unit. Excess humidity was recorded greater than 40%RH in the non-ventilated mechanical rooms and plumbing chases.
- The existing 32 year-old Culligan model no. HB-2800 duplex softener system has surpassed its expected service life by double. According to Physical Plant staff, it was completely rebuilt approximately three years ago after an extended downtime, during which the domestic water supply bypassed the water treatment directly into the facility.

## RECOMMENDATIONS

- It is strongly advised to address the deficiency in the number of minimum state code required plumbing fixtures and potential ADA compliance issues, and it is further recommended to proceed with the proposed complete remodel of existing toilet/shower areas, including utilizing adjacent cells to increase required area. As an additional benefit, relocating the showers will remediate the issue with shower water supplies over the newly replaced electrical raceway system, and will provide an increased dedicated plumbing chase for maintenance. As shown on Appendix D concept drawings, it is recommended convert the existing cells adjacent to the toilets on the ground level (approximately 170 ft.<sup>2</sup>) and adjacent cells (approximately 90 ft.<sup>2</sup>) on the upper 2 levels into separate shower facilities with a drying area with clear view for supervisory staff.
- As noted, the above-grade DWV piping systems are exhibiting severe corrosion induced deterioration with many recent failures in work order queue for repair and fittings at point of imminent failure well before expected end of useful service life for this type of pipe system. A complete replacement of DWV, along with both the domestic cold and hot piping systems is recommended. Metallurgist Alan Humphreys, Ph.D. in a 2014 PME magazine article noted there is industry evidence the DWV corrosion rate has increased within the last 20 years, as recent pipe replacements appear to be corroding at a faster rate than the original pipe. He postulates excess water-softened salts, soaps, and detergent have reduced the presence of protective scale on the pipe walls, resulting in the increased corrosion rates. For institutional applications, the standard specification is cast-iron based on its performance characteristics including non-combustibility, resistance to thermal expansion and contraction, and general durability. However, based on the heavy usage contributing to elevated methane and hydrogen sulfide quantities and harsh conditions including quality of the hard water, it would be difficult to recommend replacement of existing system with the same type of material. Therefore, a solid core thermoplastic piping system solution with better resistant to corrosion for this low pressure application should be considered. It was observed ABS (Acrylonitrile Butadiene Styrene) pipe with cellular foam type wall has been the preferred and successful replacement material by facilities maintenance, mainly due to its lighter weight and ease of installation. If thermoplastic piping is the chosen replacement solution, it is highly recommended to specify Schedule 40 DWV solid wall (ASTM D2661) since this material has better thermal and durability properties than the cellular wall pipe.
- It is recommended to replace the existing shower construction with CDPHE compliant quantity of showers and adequate drying area. It is also recommended to consider UL listed low maintenance multi-year warranted pre-fabricated pan construction and to coordinate a difficult flush transition between the room floor and the finish shower level. An alternate solution is to specify strict compliance with ANSI Standards recommendations with slope tiled floor under a waterproofing membrane and using a linear stainless steel trench drain which will eliminate need for a dam or any change in floor level.
- Concurrent with additional provision of code compliant plumbing fixtures, it is recommended to specify seamless welded heavy-gauge stainless steel manufactured units including water closets, urinals, lavatories, and showers, with no accessible crevices for contraband to be concealed in lieu of porcelain fixtures. Please refer to Appendix B for suggested fixtures.
- For water usage control, it is recommended to provide a programmable controller system programmed for scheduled runtimes, prevent over usage delays (repeated flushes), or to provide complete system lockouts to prohibit improper usage of water closets, lavatories, and showers.

- To remedy the lack of ventilation, it is recommended to upgrade the existing toilet/shower exhaust system to include mechanical room and chases. An existing wall opening formerly used for fan coil intake louver that has been abandoned and covered with sheet metal could serve as a new intake location at the ground level, with exhaust drawn up through the man access openings and exit the facility at the top of the 3rd level.
- Cells will be permanently taken offline in the course of this project, however this facility houses both single and double bunked cells. It is anticipated that some remaining single bunks will become double bunks to get the bed count back to official capacity when the project is complete.

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.

Project No.	Project Title	Project Cost \$	Completion date or status
	2018: Boiler No. 3 Replacement		In Design
EMP #63553	Energy Performance Contract (with LCF)	\$10,870,772	Settled May 2019
M13001	AVCF Replace Electrical System – 3 Phases	\$3,448,307	Complete June 2018
MC18-085	Restricted Housing Plumbing Renovation	\$9,700	Jan 2018
PL18-095	Water Leak Damage		
PD16-019	Segregation Shower Stall Door	\$1,300	Sept 2015
	2016: Boiler Replacement		Complete
P1304	AVCF Waste-Water Pre-Treatment Plant		Complete June 2015
	2014: Chiller Replacement		Complete

#### **F. CONSEQUENCES IF NOT FUNDED:**

Not funding this project request will result in the continual leaking of water from couplings and joints from the water piping systems, resulting in damage to finishes and eventual premature failure of new electrical equipment at a significant cost.

#### **G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

These leaks result in water utility cost increases and extreme amounts of overtime for the already overwhelmed staff at AVCF.

Due to the significant amount of degradation and the increasing difficulty to locate and patch leaks in the system, a complete replacement is warranted over continued piecemeal repairs. The longer this system is in service, the more problematic it will become. The State will also likely avoid future emergency costs for repairs of these systems.

This project, initially submitted in FY20-21, will impact the living unit showers with non-leaking drains. The drain replacement will not impact fossil fuel consumption.

#### **H. ASSUMPTIONS FOR CALCULATIONS:**

The description and breakdown of assumptions used to calculate the project budget is as follows:

1. Professional Services were calculated using the Construction Improvement Total (CIT)
  - A/E Basic Services \$1,565,759; 16.86% of CIT
  - Code Review/Inspections \$ 42,640; 0.5% of CIT
  - Advertisements, Printing, Cellphones, Admin. \$ 85,281; 1.0% of CIT
2. Base Costs of \$4,741,006 were taken directly from the Study as prepared by Schendt Engineering.
3. Miscellaneous expenses of \$953,691 calculated as follows:
  - Site Location Factor of \$456,009 was calculated at 10% of the Project Base Costs
  - Secure Facility environment Factor of \$426,331 was calculated at 15% of the Project Base Costs on Labor only (50% of Project Base Costs)
  - Addition of Prevailing Wages of \$119,722 was calculated for work starting after June 2021 for plumbing items.
4. Contractor's Costs of \$550,853 which includes Contractor's General Conditions & Bonds was calculated at 10% of the Project Base Costs and Miscellaneous expenses
5. Contractor's Overhead and Profit of \$908,908 was calculated at 15% of the Project Base Costs, Miscellaneous expenses, and the Contractor's Costs
6. Project Contingency of \$1,022,870 calculated at 10% of the sum of Professional Services and the Construction Improvement Total.
7. All costs were then escalated by DOC Facility Management Services by 2.7% each year compounded to account for inflation to April 2020, 5.8% to inflate to April 2021, and an additional 4.5% for each year compounded to account for anticipated mid-point of construction occurring in September 2023 to reach our budget number for this submittal. These factors were calculated using the four-year average of inflation from the RSMeans Data, Building Cost Index.

#### **I. SUSTAINABILITY:**

This Capital Renewal project is exempt from the High-Performance Certification Program (HPCP) requirements as it is a controlled maintenance project in excess of \$2,000,000. Appropriate strategies of the HPCP will be included in the project where applicable and cost effective.

**J. OPERATING BUDGET IMPACT:**

Replacement of the existing failing water lines will result in reduced service calls and materials needed for repairs as well as savings from premature electrical equipment replacement due to water damage.

**K. PROJECT SCHEDULE:**

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

Phase 1 of 1	Start Date	Completion Date
Pre-Design	July 2021	October 2021
Design	November 2021	May 2022
Bid / Award	June 2022	September 2022
Construction	October 2022	June 2024
Occupancy	July 2024	

**L. ADDITIONAL INFORMATION:**

**Single Phase**

Completing the various improvements detailed in this request as a single project rather than multiple controlled maintenance requests as each living unit needs to be completed at one time, and one living unit is more than the allowable budget amount for a controlled maintenance request. Also there are 6 living units which would make this a 6 phase controlled maintenance project which is also not allowed, This project under one phase will reduce the disruption of services and systems serving the offenders and staff at the AVCF. These disruptions impact the entire facility. In addition, completing this project request as a single project will provide savings made possible through an accelerated construction schedule resulting in limited cost escalation and a reduction in overhead costs. The State will likely avoid future emergency controlled maintenance costs for repairs of these systems.

This project will have an immediate noticeable positive impact on the FCI. This request has the potential to reduce damage to building finishes and equipment, inclusive of recently updated electrical system, with the elimination of water leaks. The project reduces the likelihood of a facility closure and loss of use should emergency repair/replacement of the water service lines be required.

**External Capacity**

This project will require the housing unit cells in the affected dayhalls to be vacated during construction, and impact funding to external capacity. This operating funding will be requested through the normal budget process pending approval of this capital renewal request. Permanent loss of cells will not decrease capacity as current single cells will be upgraded double cells to reach bed counts as needed.

**M. CASH FUND PROJECTIONS:**

Cash Fund name and number:		<u>Not Applicable</u>	
Statutory reference to Cash Fund:			
Describe how revenue accrues to the fund:			
Describe any changes in revenue collections that will be necessary to fund this project:			
If this project is being financed, describe the terms of the bond, including the length of the bond, the expected interest rate, when the agency/institution plans to go to market, and the expected average annual payment (As applicable):			
<b>Prior Year Actual Ending Fund Balance</b>	<b>Current Year Projected Ending Fund Balance</b>	<b>Year 2 Projected Ending Fund Balance with Project Approval</b>	<b>Year 3 Projected Ending Fund Balance with Project Approval</b>
\$	\$	\$	\$



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**FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)\***

(A)	(1) Funding Type: <b>General Funded</b>	(2) Project Title: Arkansas Valley Correctional Facility (AVCF) Critical Living Unit Shower/Drain and Toilet Room Improvements
(B)	(1) Agency/Institution: Dept. of Corrections	(2) Project Phase ( _ of _ ): Phase 1 of 1
(C)	(1) OSA Delegate Name: James C. Ramsey	(2) Project Type: Capital Renewal (CR)
(D)	(1) Year First Requested: FY 2020-2021	(2) State Controller Project #: Not Applicable
(E)	(1) Narrative Signature Date: 26 June 2020	(2) Revision Date:

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land /Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic Services	\$ 1,296,742	\$ -	\$ 1,296,742	\$ -	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 38,456	\$ -	\$ 38,456	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ 76,912	\$ -	\$ 76,912	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 316,091	\$ -	\$ 316,091	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied	compounded annually		5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 1,728,201	\$ -	\$ 1,728,201	\$ -	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ _____ X GSF							
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ _____ X							
(22)	Cost for Capital Renewal (GSF):	\$ 4,741,006	\$ -	\$ 4,741,006	\$ -	\$ -	\$ -	\$ -
(23)	Renewal at \$ _____ X GSF							
(24)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Other - Site Location Factor	\$ 396,672	\$ -	\$ 396,672	\$ -	\$ -	\$ -	\$ -
	Other - Secure Facility Environment	\$ 370,856	\$ -	\$ 370,856	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages / Apprenticeship	\$ 119,721	\$ -	\$ 119,721	\$ -	\$ -	\$ -	\$ -
	Other - Contractor's general conditions	\$ 550,853	\$ -	\$ 550,853	\$ -	\$ -	\$ -	\$ -
	Other - Contractor's overhead and	\$ 908,908	\$ -	\$ 908,908	\$ -	\$ -	\$ -	\$ -
(27)	Inflation for Construction	\$ 1,367,894	\$ -	\$ 1,367,894	\$ -	\$ -	\$ -	\$ -
(28)	Inflation Percentage Applied	compounded annually		5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 8,455,910	\$ -	\$ 8,455,910	\$ -	\$ -	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(39)	Inflation for Misc Costs	\$ 207,036	\$ -	\$ 207,036	\$ -	\$ -	\$ -	\$ -
(40)	Inflation Percentage Applied - 5.8%, 4.5%	compounded annually		5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(41)	<b>Total Misc. Costs</b>	\$ 207,036	\$ -	\$ 207,036	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>								
(42)	<b>Total Project Costs</b>	\$ 10,391,147	\$ -	\$ 10,391,147	\$ -	\$ -	\$ -	\$ -
<b>Project Contingency</b>								
(43)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(44)	10% for Renovation	\$ 1,039,115	\$ -	\$ 1,039,115	\$ -	\$ -	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 1,039,115	\$ -	\$ 1,039,115	\$ -	\$ -	\$ -	\$ -
<b>Total Budget Request</b>								
(46)	<b>Total Budget Request</b>	\$ 11,430,262	\$ -	\$ 11,430,262	\$ -	\$ -	\$ -	\$ -
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(48)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



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FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Project Title	Denver Women's Correctional Facility (DWCF) Support Building Roof Replacement		
B	(1) Agency:	Department of Corrections	(2) OSA Delegate Signature:	Refer to PDF for James C. Ramsey signature – 29 June 2020
C	(1) Funding Type:	General Fund	(2) DPA's Risk Management ID#:	CODW7774
D	(1) Project Phase (Phase_of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):	Not Applicable
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC) <input checked="" type="checkbox"/> Capital Renewal (CR)	(2) Principal Representative Signature:	Refer to PDF for Travis Trani signature – 26 June 2020
F	(1) First Year Requested:	FY20-21	(2) OSA Review Signature	Date
G	(1) Priority Number:	9 of 10	(2) Revision Date:	Date
H	(1) Total Project Cost:	\$2,026,199	(2) Current Phase Cost:	\$2,026,199

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No X Date Approved: Not Applicable
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes X No \_\_\_\_\_ Date Approved: July 2019
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI Reported FCI: 52% Projected FCI: 53%

**B. PROJECT SUMMARY/STATUS:**

This request is for the replacement of the roof of the support building as Denver Women's Correctional Facility (DWCF). This facility is located in Denver, Colorado. This request is being submitted as a one-phase Capital Renewal project due to the scope being too large to break into 2 phases under the required budget amount for a Controlled Maintenance project. This project was previously submitted as a Controlled Maintenance project, but due to inflation the costs have increased and the project now meets the Capital Renewal requirements. This investment is needed for the protection of the facilities in order to meet State of Colorado building code requirements, pass State of Colorado health inspections, meet Americans with Disabilities Act guidelines, and maintain American Correctional Association accreditation. Denver Women's Correctional Facility is a 434,292 SF, 1,048 female offender level V maximum security facility.

The construction for the Denver Women's Correctional Facility (DWCF) occurred 22 years ago. The original ballasted EPDM roofing systems on the Support Buildings is now at the end of its useful life and requires replacement. The existing roofing requires extensive maintenance and has developed leaks which are causing damage to finishes and equipment, disruption of operations and program activities, in particular the kitchen, and could lead to possible loss of use if replacement is not made. The maintenance staff must use their time and operating budget making repairs relating to interior finishes when leaks occur.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$2,026,199	\$0	\$2,026,199	\$0	\$0	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$2,026,199	\$0	\$2,026,199	\$0	\$0	\$0	\$0

**D. PROGRAM INFORMATION:**



As this project will replace the entirety of the roof of the Support building, a few of the major necessary programs will be impacted. This will include all facility functions that include: offender programs – education and job training and food service and laundry, and support services.

Support facilities refer to basic physical plant infrastructure, including water, heat, electricity, sewage treatment, and building maintenance systems. In general, these systems were designed to accommodate a specific maximum population level. Deterioration of these systems over time will result in a subsequent decrease in the actual capacity of a facility as their functionality diminishes. The number of “down cells” or cells that cannot be occupied due to physical plant problems is directly related to the condition of these support facilities.

#### **E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

The Department contracted with Pie Consulting & Engineering (Pie) to conduct an evaluation of the existing roofing system in May 2019. Their final report, Denver Women’s Correctional Facility (DWCF) – Support Building and Armory Roof Replacement Study, May 2019, included with this request, evaluated all the roofs at the Denver facility. On May 1st and 6th of 2019, Pie performed a roof replacement study on the Support Building and Armory located at DWCF in Denver, Colorado. The roof study included all primary roof areas of the Support building and excluded the metal standing-seam roof canopies. The Support Building roof consists of five (5) separate roof sections which are divided by parapets and/or building elevations. The roofs observed are predominately covered with low-slope, loose-laid ballasted ethylene propylene diene monomer (EPDM) rubber roofing system. On each roof section, roof cores were performed to verify the underlying roof components and roof deck for each section. Recommendation for the Support Building was the complete replacement of the existing EPDM roof membrane with an asphalt Built-Up Roof system. The Report notes the following:

#### **Overall Roof Condition**

EPDM: It is our understanding that the EPDM roof system is approximately 20 years or more in age. The EPDM roofing membrane is nearing the end of its useful service life. Multiple open seams, membrane tenting/shrinkage, embrittled flashings, membrane punctures at curb-mounted mechanical units, ponding water conditions, and evidence of water intrusion were observed during the site visit. The EPDM roofing system of the Support Building should be replaced within the next three (3) years.

#### **Findings:**

The roof is divided by parapets, walls, and building elevations that create five (5) separate roof sections. Each roof section has its own drainage plan with a generally positive slope into either through-wall roof scuppers or roof drains. Pie’s site visit of Roof Areas A, B, C, and E indicated that the existing roof components are as follows (listed from the top down):

- Rock Ballast
- 60 Mil Loose-Laid EPDM Rubber Membrane
- 4-inch Total Loose-Laid Rigid Board ISO Insulation System
- Vapor Barrier
- Gypsum board
- Metal Deck

Roof Area D: Pie’s site visit revealed that the roof components on the roof section are as follows (listed from the top down):

- 60 Mil Adhered EPDM Rubber Membrane
- Adhered Wood-fiber Coverboard
- 4-1/2-inch Total Loose-Laid Rigid Board ISO Insulation System
- Vapor Barrier
- Gypsum board
- Metal Deck

It was apparent that this roof area had been recently replaced. However, Pie was not provided with the age of the roof. Pie observed open laps, ponding water, membrane adhesion failure at rising wall, displaced counter flashing, piping stands digging into membrane, and blistering of the membrane. These conditions are reflective of likely poor workmanship during roofing installation.

#### **General / Noted Roof Deficiencies:**

The EPDM roofing system is experiencing numerous deficiencies and is in poor condition, some due to improper installation. In addition, Pie noted that the roof cores indicated that the ISO insulation appeared to be loose laid. It should be noted that loose-laid insulation should not be used in roofing installations without being ballasted. Due to these observed deficiencies and point sources for water intrusion, it is Pie’s opinion that this EPDM roofing should be removed and properly replaced. Several open laps, membrane craze-cracking, membrane tenting/shrinkage, ponding water, and punctures at curb-mounted mechanical equipment were observed. In addition, previous roof repairs were evident throughout the roof sections.

#### **Support Building Replacement Options**

Based upon the condition of the existing roof areas, attempting to repair the existing roof membranes to achieve additional years of service is not recommended. In addition, punctures within the EPDM membrane at curb-mounted mechanical equipment should be properly repaired due to the likelihood for leaks to occur. Pie evaluated roof recover (installation of a new roof membrane without removal of the existing roofing materials) as an option and determined it is not recommended for the following reasons:

- The ballasted roof sections consist of an insulation system that is laid loose on a concrete or steel deck. Recover using a non-ballasted membrane is not a practicable solution, as the existing insulation cannot be practically fastened to the structural deck prior to installing the new membrane.

- Recover is not a viable solution due to shrinkage/tenting of existing membrane along parapets where the existing membrane is no longer properly fastened/adhered.
- It is our understanding that ponding/drainage issues are prevalent throughout the roof areas. Installing a new membrane will likely not correct these reported issues.
- Based upon the condition of the existing roofs and the presence of water infiltration into select roofing systems, Section 1511.3.1.1 of the 2015 International Building Code (IBC) likely prohibits installation of a recover. This section of the code prohibits recovers on roofs “where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.”

**Roof Design Concerns for Replacement**

The Colorado Department of Corrections (DOC) requested a multi-ply BUR asphaltic membrane system with a flood coat and embedded gravel surfacing to be used for the replacement roof covering, with proposed alterations to the existing drainage patterns of the roof to improve overall drainage. The effects to consider are as follows:

- BUR membrane system. A BUR system is typically hot-mopped with asphalt, which requires the use of asphalt kettles and hot asphalt on the roof. This can require fire watch, special hot-work permits, and other provisions associated with performing work using hot materials.
- The roof system shall meet the requirements of the 2015 International Building Code (IBC).
- The roofing system as designed will meet the requirements of a Factory Mutual Global (FM) 1-90 wind-uplift resistance.

At the request of the DOC, to improve overall roof drainage at the Support Building, the reroofing will incorporate alteration of the existing roof drainage along the parapets due to reported drainage issues with the scuppers. Instead, primary interior roof drains with sump pans, along with overflow scuppers will be implemented.

In the Colorado Prison Utilization Study, dated June 2013, prepared by CNA it stated:

*“Support Facilities:*

*Support facilities refer to basic physical plant infrastructure, including water, heat, electricity, sewage treatment, and building maintenance systems. In general, these systems were designed to accommodate a specific maximum population level. Deterioration of these systems over time may result in a subsequent decrease in the actual capacity of a facility as their functionality diminishes. The number of “down cells” or cells that cannot be occupied due to physical plant problems is directly related to the condition of these support facilities. Also included in the area of the support facilities are those functions that are critical or essential to maintaining the welfare of the inmates. These include functions such as dietary services, maintenance capability, health care, laundry, and warehouse space, etc. Significant deficiencies in these essential support functions will affect the capability of the facility to manage safely specified number of inmates.*

*Also included in the area of support facilities are those functions that are critical or essential to maintaining the welfare of the inmates. These include functions such as dietary services, maintenance capability, health care, laundry, and warehouse space, etc. Significant deficiencies in these essential support functions will affect the capability of the facility to manage safely a specified number of inmates.*

*Program Services:*

*Any consideration of capacity must take into account the ability of a facility to provide an adequate level of mandatory services. Mandatory program services in correctional facilities include basic medical/mental health treatment, visitation, dietary services, case management, religious services, and recreation. Academic/vocational programming and substance abuse treatment are also key program services components. Lack of access to these critical services can act to diminish the effective capacity level of a facility.*

*Moreover, some program functions require reserve capacity that diminishes the overall number of beds available for general population inmates. For example, reception and intake units must have enough dedicated beds available for use in housing general population offenders. As a result, capacity analyses typically do not count these beds in a facility’s overall capacity numbers.*

*Some programs, such as therapeutic communities, re-entry preparation, or youthful offender, often require dedicated housing for offenders participating in the program. Depending upon housing unit configuration, a large number of programs with dedicated housing can make full use of available capacity difficult.”*

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.			
Project No.	Project Title	Project Cost \$	Completion date or status
2019-066M19	Replace Electronic Security System	\$1,998,638	In Design
2015-136M16	Perimeter Security Phase 2	\$1,205,969	In Design
PD19-041	Main Kitchen Refrigeration Equipment	\$294,278	Under Construction
PD19-013	Print Press – CCI Electrical Upgrades		June 2019
Utility Contingency FY2018	Boiler Re-Rating CA	\$3,988	June 2018

PD18-057	3D Printer CCI Print Shop		In Design
PD18-055	Cosmetology Washer/Dryer	\$7,000	June 2018
PD18-045	CR Door Installation	\$3,719	Mar 2018
PD18-041	Restroom swap	\$2,057	Dec 2017
PD18-014	Culinary Arts Phase 2	\$200,000	Under Construction
PD18-014	Culinary Arts Phase 1	\$70,000	June 2018
Utility Contingency FY2017	Boiler Re-Rate Design/ Construction	\$119,300	June 2017
PD17-014	Medline Renovation	\$2,500	October 2018
PD16-050	Lightning Protection	\$12,750 (Ins)	Mar 2016
PD16-017	Laundry / Canteen Window	\$2,500	Sept 2015
PD15-025	Dining Hall Remodel	\$32,340	Dec 2014
PD15-002	Fence Upgrades	\$44,899	Sept 2015

**F. CONSEQUENCES IF NOT FUNDED:**

1. Potential loss of use of building spaces and systems equipment due to water leaks
2. Continued excessive personnel time and expense used to maintain the roofs
3. Continued damage to building finishes and equipment resulting in the limited availability of programs for offenders.

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

Due to the significant amount of degradation and the increasing difficulty to locate and patch leaks in the roofing system, a complete replacement is warranted over continued piecemeal repairs. The longer this system is in service, the more problematic it will become. The State will also likely avoid future emergency costs for repairs of these systems.

This project will replace the current leaking roof alleviating interior damage to building systems and equipment. The installation of the new roof will meet current IBC requirements providing an R-30 roof. Increasing insulation values beyond R-30 impacts –

- the structural integrity of the building
- mechanical curb heights will need to be increased
- vent stacks heights increased
- parapet heights extended to accommodate additional insulation thickness
- increased financial costs

**H. ASSUMPTIONS FOR CALCULATIONS:**

The description and breakdown of assumptions used to calculate the project budget is as follows:

1. Professional Services were calculated using the Construction Improvement Total (CIT)
  - A/E Basic Services \$1,565,759; 16.86% of CIT
  - Code Review/Inspections \$ 42,640; 0.5% of CIT
  - Advertisements, Printing, Cellphones, Admin. \$ 85,281; 1.0% of CIT
2. Base Costs of \$4,741,006 were taken directly from the Study as prepared by Schendt Engineering.
3. Miscellaneous expenses of \$953,691 calculated as follows:
  - Site Location Factor of \$456,009 was calculated at 10% of the Project Base Costs
  - Secure Facility environment Factor of \$426,331 was calculated at 15% of the Project Base Costs on Labor only (50% of Project Base Costs)
  - Addition of Prevailing Wages of \$119,722 was calculated for work starting after June 2021 for plumbing items.
4. Contractor’s Costs of \$550,853 which includes Contractor’s General Conditions & Bonds was calculated at 10% of the Project Base Costs and Miscellaneous expenses
5. Contractor’s Overhead and Profit of \$908,908 was calculated at 15% of the Project Base Costs, Miscellaneous expenses, and the Contractor’s Costs
6. Project Contingency of \$1,022,870 calculated at 10% of the sum of Professional Services and the Construction Improvement Total.
7. All costs were then escalated by DOC Facility Management Services by 2.7% each year compounded to account for inflation to April 2020, 5.8% to inflate to April 2021, and an additional 4.5% for each year compounded to account for anticipated mid-point of construction occurring in September 2023 to reach our budget number for this submittal. These factors were calculated using the four-year average of inflation from the RSMeans Data, Building Cost Index.

**I. SUSTAINABILITY:**

This Capital Renewal project is exempt from the High-Performance Certification Program (HPCP) requirements as it is a controlled maintenance project in excess of \$2,000,000. Appropriate strategies of the HPCP will be included in the project where applicable and cost effective.

**J. OPERATING BUDGET IMPACT:**

Replacement of the existing roof will result in reduced service calls and materials needed for repairs as well as savings from premature equipment replacement due to water damage.

**K. PROJECT SCHEDULE:**

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

Phase 1 of 1	Start Date	Completion Date
Pre-Design	July 2020	October 2020
Design	November 2020	June 2021
Bid / Award	November 2021	March 2022
Construction	April 2022	June 2023
Occupancy	July 2023	

**L. ADDITIONAL INFORMATION:**

**Single Phase**

Completing the various improvements detailed in this request as a single project rather than multiple controlled maintenance requests as this is for only one building. These disruptions impact the entire facility.

In addition, completing this project request as a single project will provide savings made possible through an accelerated construction schedule resulting in limited cost escalation and a reduction in overhead costs. The State will likely avoid future emergency controlled maintenance costs for repairs of the roof systems and the systems inside the building.

This project will have an immediate noticeable positive impact on the FCI. This request has the potential to reduce damage to building finishes and equipment, with the elimination of water leaks.

**External Capacity**

This project will not require the correctional housing unit cells to be vacated during construction, and therefore will not impact external capacity funding.

**M. CASH FUND PROJECTIONS:**

Cash Fund name and number:		<b>Not Applicable</b>	
Statutory reference to Cash Fund:			
Describe how revenue accrues to the fund:			
Describe any changes in revenue collections that will be necessary to fund this project:			
If this project is being financed, describe the terms of the bond, including the length of the bond, the expected interest rate, when the agency/institution plans to go to market, and the expected average annual payment (As applicable):			
<b>Prior Year Actual Ending Fund Balance</b>	<b>Current Year Projected Ending Fund Balance</b>	<b>Year 2 Projected Ending Fund Balance with Project Approval</b>	<b>Year 3 Projected Ending Fund Balance with Project Approval</b>
\$	\$	\$	\$



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

**FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)\***

(A)	(1) Funding Type:	<b>General Funded</b>	(2) Project Title:	Denver Women's Correctional Facility Support Building Roof Replacement
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase ( ___ of ___ ):	Phase 1 of 1
(C)	(1) OSA Delegate Name:	James C. Ramsey	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2020-2021	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	26 June 2020	(2) Revision Date:	

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land /Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic Services	\$ 158,431	\$ -	\$ 158,431	\$ -	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 6,601	\$ -	\$ 6,601	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ 19,804	\$ -	\$ 19,804	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 41,374	\$ -	\$ 41,374	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 226,210	\$ -	\$ 226,210	\$ -	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ ___ X							
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ ___ X							
(22)	Cost for Capital Renewal (GSF):	\$ 888,241	\$ -	\$ 888,241	\$ -	\$ -	\$ -	\$ -
(23)	Renewal at \$ ___ X GSF							
(24)	Other - Site Location Factor	\$ 66,618	\$ -	\$ 66,618	\$ -	\$ -	\$ -	\$ -
(25)	Other - Secure Environment Factor	\$ 88,824	\$ -	\$ 88,824	\$ -	\$ -	\$ -	\$ -
(26)	Other - Contractor's General Conditions	\$ 10,368	\$ -	\$ 10,368	\$ -	\$ -	\$ -	\$ -
(27)	Other - Contractor's overhead and profit	\$ 172,208	\$ -	\$ 172,208	\$ -	\$ -	\$ -	\$ -
(28)	Inflation for Construction	\$ 198,826	\$ -	\$ 198,826	\$ -	\$ -	\$ -	\$ -
(29)	<b>Total Construction Costs</b>	\$ 1,425,085	\$ -	\$ 1,425,085	\$ -	\$ -	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(38)	Inflation for Misc Costs	\$ 190,704	\$ -	\$ 190,704	\$ -	\$ -	\$ -	\$ -
(39)	Inflation Percentage Applied		compounded annually	5.8%, 4.5%	0.00%	0.00%	0.00%	0.00%
(40)	<b>Total Misc. Costs</b>	\$ 190,704	\$ -	\$ 190,704	\$ -	\$ -	\$ -	\$ -
(41)	<b>Total Project Costs</b>	\$ 1,841,999	\$ -	\$ 1,841,999	\$ -	\$ -	\$ -	\$ -
<b>Project Contingency</b>								
(42)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(43)	10% for Renovation	\$ 184,200	\$ -	\$ 184,200	\$ -	\$ -	\$ -	\$ -
(44)	<b>Total Contingency</b>	\$ 184,200	\$ -	\$ 184,200	\$ -	\$ -	\$ -	\$ -
(45)	<b>Total Budget Request</b>	\$ 2,026,199	\$ -	\$ 2,026,199	\$ -	\$ -	\$ -	\$ -
<b>Funding Source</b>								
(46)	Capital Construction Fund (CCF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(47)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(48)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	<b>Total Funds (TF)</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



STATE OF COLORADO  
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FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Project Title	East Canon City Prison Complex (ECCPC) Electrical Distribution Infrastructure Replacement		
B	(1) Agency:	Department of Corrections	(2) OSA Delegate Signature:	Refer to PDF for James C. Ramsey signature – 29 June 2020
C	(1) Funding Type:	General Fund	(2) DPA’s Risk Management ID#:	Varies
D	(1) Project Phase (Phase_of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):	Not Applicable
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC) <input checked="" type="checkbox"/> Capital Renewal (CR)	(2) Principal Representative Signature:	Refer to PDF for Travis Trani signature – 26 June 2020
F	(1) First Year Requested:	FY21-22	(2) OSA Review Signature	Date
G	(1) Priority Number:	10 of 10	(2) Revision Date:	Date
H	(1) Total Project Cost:	\$13,522,053	(2) Current Phase Cost:	\$13,522,053

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No  X  Date Approved:  Not Applicable
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes  X  No \_\_\_\_\_ Date Approved:  July 2019
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI  
Reported FCI:  Complex Average 66%  Projected FCI:  Complex Average 73%

**B. PROJECT SUMMARY/STATUS:**

This request is for the renovation of the existing electrical infrastructure and systems at East Canon City Prison Complex in Canon City, Colorado. This request is being submitted as a one-phase Capital Renewal project due to the scope being too large to break into smaller phases under the required budget amount for a Controlled Maintenance project. In addition, each phase would not be able to stand on its’ own as an individual project as required for a Controlled Maintenance project. A major investment is needed for the upgrading of this infrastructure in order to maintain State of Colorado building code requirements, pass State of Colorado health inspections, and American Correctional Association accreditation.

East Canon City Prison Complex (ECCPC) is a 5,400 acre site that is comprised of 244 buildings that breakdown into the following: 6 correctional facilities with 105 buildings, multiple corrections support facilities with 28 buildings, multiple Correctional Industries (CCI) facilities with 79 buildings, and the International Correctional Management Training Center (ICMTC) with 32 buildings. The facilities housed on ECCPC range from level I to level V in security levels with a total of 5,024 male offenders.

Continuous and non-interrupted power to the complex is essential to insure a safety of the general public, offenders and correctional staff.

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$13,522,053	\$0	<b>\$13,522,053</b>	\$0	\$0	\$0	\$0
(48) Cash Funds (CF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$13,522,053	\$0	<b>\$13,522,053</b>	\$0	\$0	\$0	\$0

#### **D. PROGRAM INFORMATION:**

This project will replace the entirety of the electrical infrastructure all of the complex and all programs will be impacted. This will include all facility functions that include: offender housing, offender programs and jobs, food service and laundry, clinical services, recreation, security, administration, and support services.

Support facilities refer to basic physical plant infrastructure, including water, heat, electricity, sewage treatment, and building maintenance systems. In general, these systems were designed to accommodate a specific maximum population level. Deterioration of these systems over time will result in a subsequent decrease in the actual capacity of a facility as their functionality diminishes. The number of “down cells” or cells that cannot be occupied due to physical plant problems is directly related to the condition of these support facilities.

#### **E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

In the spring of 2019, Facility Management Services (FMS) contracted with Schendt Engineering Corp. (SEC) for an evaluation and recommendations for the repair and/or replacement of the electrical infrastructure at ECCPC. Final assessments of the complex were complete in June 2019. This Capital Renewal Project Request is based on their findings and recommendations including the project’s Opinion of Probable Costs. This report includes the following:

##### **Overall Assessment:**

- The East Canon City Prison Complex (ECCPC) is a large correctional complex that includes Colorado State Penitentiary (CSP), Centennial Correctional Facility (CCF), Arrowhead Correctional Center (ACC), Skyline Correctional Center (SCC), Fremont Correctional Facility (FCF), Four Mile Correctional Facility (FMcF), ICMTC formerly known as Colorado Women’s Correctional Facility (CWCF), and with multiple variations and programs associated with Colorado Corrections industries (CCI). Continuous and non-interrupted power to complex is essential to insure a safety of the general public, offenders and correctional staff.
- The condition of the overhead electrical distribution system appears to be in average to below average condition. There are several conditions that required immediate attention, short term attention and long-term maintenance.
- The main transmission lines are close to being at full capacity and will not facilitate significant growth in the future.
- The entire complex is served power from one source and subject to prolonged outages if damage to the source were to occur.
- Most of the prison complex is not supported by emergency power. Standby emergency power is currently available at Centennial Correction Facility (CCF) and Colorado State Penitentiary (CSP). There are several small generators dedicated to the supply of local loads such as at the pump house at ICMTC, at the green houses to the west of ACC and inside the secure perimeter of FCF.
- The majority of the distribution system is provided by overhead power lines, not only at medium voltage, but at line voltage. The overhead power lines are more susceptible to damage caused by strong winds, ice build-up and lightning activity. These environmental conditions can and have been problematic, causing power outages, operational challenges and potential safety issues for offenders and correctional staff.
- The current overhead distribution network is difficult to maintain and requires third party involvement. If a problem arises it is difficult and sometimes impossible to isolate the problem without impacting multiple facilities and large geographical areas.

##### **Condition of Existing Components:**

The condition of the primary overhead system appears to be in average to below average condition. In the coming years the system will require many remedial repairs such as pole replacements, transformer replacements, fuses and fused cut out replacements, lightning arrester replacements and overhead switch replacements. Line voltage repair projects will also be required.

##### **Proposed Solution:**

- It is the recommendation of this report to replace the single point supply, overhead transmission line distribution with an underground loop type distribution network that is capable of supplying power to the complex from two different power supply points.
- The underground loop would be established using pad mounted sectionalizer switches so that problems can be isolated without impacting adjacent facilities and/or geographical areas.
- The new power distribution loop should extend from the north end of the complex to the south end of the complex serving all critical facilities and offender housing units.
- Remote and non-critical areas of the complex do not warrant new underground loop configured distribution, because the initial cost would far exceed the benefits and associated cost impacts of prolonged power outages.
- The existing emergency standby generators at the Centennial Correction Facility (CCF) should be reconfigured to support the entire prison complex. Power loss at the primary supply point should initiate automatic load shedding/isolation and power transfer to the standby generators.

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.			
Project No.	Project Title	Project Cost \$	Completion date or status
2020-086M19	FCF ADA Improvements - Phase 1 of 5	\$1,978,510	In Design
PL20-124	FCF Electrical Study	\$35,960	In Design
PL20-039	FCF MAT Medline	\$58,091	In Design
PL20-021	ECCPC Central Warehouse Security	TBD	In Pre-Design
PD20-031	FCF-CCi Spray Booth Relocation	\$1,320	In Design
PD20-030	ICMTC Interpreter Booth Access	\$1,500	Complete December 2019
PD20-022	ICMTC Bldg 1 Improvements	\$1,354	Complete September 2019
UC-FY18-19	Electrical Infrastructure Study	\$30,000	Complete August 2019
PD19-047	FMCC New Classroom Modular	\$34,342	Complete August 2019
PD19-046	CSP Library Renovation	\$83,847	Complete December 2019
PD19-045	FCF JCAP Kitchen	\$5,879	Complete September 2019
PD19-044	ICMTC Classroom Conversion to Dorm Rooms	\$2,288	In Design
PD19-029	ECCPC New Warehouse Freezer	\$254,484	Under Construction
PD19-023	FMCC Dairy Lighting	\$55,369	Complete August 2019
PD19-021	FCF Vocational Classrooms	\$31,263	In Design
PD19-017	ECCPC Vehicle Charger Stations	\$20,016	Complete December 2018
PD19-009	FCF Close Custody Classrooms	\$174,683	Under Construction
PL18-078	ICMTC Facility Improvements	\$15,000	Complete June 2019
PD18-051	GED Classroom Electrical and Data	\$19,059	Complete August 2019
PL17-006	ICMTC Mexico Expansion – Container Housing	\$1,521,780	Complete September 2018
PD17-009	FCF-CCi Furniture Shop Electrical Upgrades	\$75,148	Complete December 2018

**F. CONSEQUENCES IF NOT FUNDED:**

The electrical upgrades outlined in this Project Request supply all life sustaining, security, and life safety systems. These systems are used to protect and safe guard staff, public and offenders. They are also used to control and restrict movement, monitor and maintain secure conditions, observe and prevent incidents, provide communication throughout the facility, as well as support mission critical tasks.

These systems are old, outdated and in need of replacement. If they are not replaced, funds will still have to be expended to keep them up and running. These parts are major components of the life sustaining, security and life safety systems and when they fail, staff repeatedly dedicates significant resources to keeping this system running, the complex will be at significant risk.

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

The downtimes during power outages and extreme amounts of overtime for the already overwhelmed staff from all the facilities on ECCPC.

Due to the significant amount of degradation and the increasing difficulty to fix downed power lines – or the cost in operating funds for the service trips and staff that serves as escorts to third party entities - a complete replacement is warranted over continued piecemeal repairs. The longer this system is in service, the more problematic it will become. The State will also likely avoid future emergency costs for repairs of these systems.

This project will support all ECCPC Facilities with electrical distribution. Fossil fuel consumption will not be directly impacted nor anticipated to change.

**H. ASSUMPTIONS FOR CALCULATIONS:**

The description and breakdown of assumptions used to calculate the project budget is as follows:

1. Professional Services were calculated using the Construction Improvement Total (CIT)
  - A/E Basic Services \$1,103,843; 12% of CIT
  - Construction Management \$551,921; 6% of CIT
  - Code Review/Inspections \$ 45,993; 0.5% of CIT
  - Advertisements, Printing, Cellphones, Admin. \$ 45,993; 0.5% of CIT
2. Base Costs of \$5,946,569 were taken directly from the Study as prepared by Schendt Engineering.
3. Miscellaneous expenses of \$953,691 calculated as follows:
  - Site Location Factor of \$445,993 was calculated at 7.5% of the Project Base Costs
  - Secure Facility environment Factor of \$148,664 was calculated at 5% of the Project Base Costs on Labor only (50% of Project Base Costs)
  - Addition of Prevailing Wages of \$207,736 was calculated for work starting after June 2021 for electrical items.



4. Contractor's Costs of \$654,123 which includes Contractor's General Conditions & Bonds was calculated at 10% of the Project Base Costs and Miscellaneous expenses
5. Contractor's Overhead and Profit of \$1,079,302 was calculated at 15% of the Project Base Costs, Miscellaneous expenses, and the Contractor's Costs
6. Project Contingency of \$1,229,278 calculated at 10% of the sum of Professional Services and the Construction Improvement Total.
7. All costs were then escalated by DOC Facility Management Services by 2.7% each year compounded to account for inflation to May 2020, 5.8% to inflate to May 2021, and an additional 4.5% for each year compounded to account for anticipated mid-point of construction occurring in Mid-July 2023 to reach our budget number for this submittal. These factors were calculated using the four-year average of inflation from the RSMeans Data, Building Cost Index.

**I. SUSTAINABILITY:**

This Capital Renewal project is exempt from the High-Performance Certification Program (HPCP) requirements as it is a controlled maintenance project in excess of \$2,000,000. Appropriate strategies of the HPCP will be included in the project where applicable and cost effective.

**J. OPERATING BUDGET IMPACT:**

Replacement of the existing electrical infrastructure will result in reduced service calls and materials needed for repairs as well as savings from staff overtime and service calls to third party vendors.

**K. PROJECT SCHEDULE:**

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

Phase 1 of 1	Start Date	Completion Date
Pre-Design	July 2021	October 2021
Design	November 2021	April 2022
Bid / Award	May 2022	August 2022
Construction	September 2022	June 2024
FF&E /Other	June 2024	
Occupancy	July 2024	October 2024

**L. ADDITIONAL INFORMATION:**

**Single Phase**

It is strongly recommended that this project not be phased as this typically creates inconsistencies in the final product throughout the complex. By bidding this work as a single-phase project to a single contractor, the Department will receive a completely integrated and standardized system complex wide. Maintaining a consistent and standardized product throughout the complex will improve operations and maintenance of the Complex. Splitting this project into phases will result in the same kind of mis-matched systems the Department currently has. Completing the various improvements detailed in this request as a single project rather than multiple controlled maintenance requests will reduce the disruption of services and systems serving the offenders and staff at the facilities on ECCPC. These disruptions impact the entire complex.

In addition, completing this project request as a single project will provide savings made possible through an accelerated construction schedule resulting in limited cost escalation and a reduction in overhead costs. The State will likely avoid future emergency controlled maintenance costs for repairs of these systems.

This project will have an immediate noticeable positive impact on the FCI. This request has the potential to reduce damage to building finishes and equipment, inclusive of recently updated electrical system, with the elimination of water leaks. The project reduces the likelihood of a facility closure and loss of use should emergency repair/replacement of the electrical lines be required.

**External Capacity**

This project will not require the correctional housing unit cells to be vacated during construction, and therefore will not impact external capacity funding.

**M. CASH FUND PROJECTIONS:**

Cash Fund name and number:		<u>Not Applicable</u>	
Statutory reference to Cash Fund:			
Describe how revenue accrues to the fund:			
Describe any changes in revenue collections that will be necessary to fund this project:			
If this project is being financed, describe the terms of the bond, including the length of the bond, the expected interest rate, when the agency/institution plans to go to market, and the expected average annual payment (As applicable):			
<b>Prior Year Actual Ending Fund Balance</b>	<b>Current Year Projected Ending Fund Balance</b>	<b>Year 2 Projected Ending Fund Balance with Project Approval</b>	<b>Year 3 Projected Ending Fund Balance with Project Approval</b>
\$	\$	\$	\$



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**FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)\***

(A)	(1) Funding Type:	<b>General Funded</b>	(2) Project Title:	East Canon City Prison Complex (ECCPC) Electrical Distribution Infrastructure Replacement
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase ( ___ of ___ ):	Phase 1 of 1
(C)	(1) OSA Delegate Name:	James C. Ramsey	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2021-2022	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	26 June 2020	(2) Revision Date:	

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land /Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic Services	\$ 1,103,843	\$ -	\$ 1,103,843	\$ -	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 45,993	\$ -	\$ 45,993	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ 551,921	\$ -	\$ 551,921	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ 45,993	\$ -	\$ 45,993	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 355,792	\$ -	\$ 355,792	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		compounded annually	5.8, 4.5%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 2,103,542	\$ -	\$ 2,103,542	\$ -	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ 983,407	\$ -	\$ 983,407	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ 66,535	\$ -	\$ 66,535	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ ___ X							
(20)	Cost for Renovation (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ ___ X							
(22)	Cost for Capital Renewal (GSF):	\$ 4,896,628	\$ -	\$ 4,896,628	\$ -	\$ -	\$ -	\$ -
(23)	Renewal at \$ ___ X GSF							
(24)	Other - Site Location Factor	\$ 445,993	\$ -	\$ 445,993	\$ -	\$ -	\$ -	\$ -
	Other - Secure Environment Factor	\$ 148,664	\$ -	\$ 148,664	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages	\$ 207,736	\$ -	\$ 207,736	\$ -	\$ -	\$ -	\$ -
	Other - Contractor's general conditions	\$ 654,123	\$ -	\$ 654,123	\$ -	\$ -	\$ -	\$ -
	Other - Contracto's overhead and profit	\$ 1,079,302	\$ -	\$ 1,079,302	\$ -	\$ -	\$ -	\$ -
(27)	Inflation for Construction	\$ 1,232,916	\$ -	\$ 1,232,916	\$ -	\$ -	\$ -	\$ -
(28)	Inflation Percentage Applied		compounded annually	5.8, 4.5%	0.00%	0.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 9,715,304	\$ -	\$ 9,715,304	\$ -	\$ -	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(39)	Inflation for Miscellaneous Costs	\$ 473,929	\$ -	\$ 473,929	\$ -	\$ -	\$ -	\$ -
(40)	Inflation Percentage Applied		compounded annually	5.8, 4.5%	0.00%	0.00%	0.00%	0.00%
(41)	<b>Total Misc. Costs</b>	\$ 473,929	\$ -	\$ 473,929	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>								
(42)	<b>Total Project Costs</b>	\$ 12,292,775	\$ -	\$ 12,292,775	\$ -	\$ -	\$ -	\$ -
<b>Project Contingency</b>								
(43)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(44)	10% for Renovation	\$ 1,229,278	\$ -	\$ 1,229,278	\$ -	\$ -	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 1,229,278	\$ -	\$ 1,229,278	\$ -	\$ -	\$ -	\$ -
<b>Total Budget Request</b>								
(46)	<b>Total Budget Request</b>	\$ 13,522,053	\$ -	\$ 13,522,053	\$ -	\$ -	\$ -	\$ -
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(48)	Cash Funds (CF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



STATE OF COLORADO  
DEPARTMENT OF PERSONNEL & ADMINISTRATION  
OFFICE OF THE STATE ARCHITECT

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*			
A	(1) Project Title:	Grant-Humphreys Mansion Exterior Repairs	
B	(1) Agency:	History Colorado	(2) OSA Delegate Signature: _____ Date _____
C	(1) Funding Type:	General Fund	(2) DPA's Risk Management ID#: HEHS4085
D	(1) Project Phase (Phase _of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation): _____
E	(1) Project Type:	<input type="checkbox"/> Capital Construction (CC) <input checked="" type="checkbox"/> Capital Renewal (CR)	(2) Principal Representative Signature: _____ Date _____
F	(1) First Year Requested:	FY 2019-20	(2) OSA Review Signature _____ Date _____
G	(1) Priority Number:	1 of 1	(2) Revision Date: _____ Date _____
H	(1) Total Project Cost:	\$4,002,522	(2) Current Phase Cost: \$3,930,232

**A. FACILITY PLANNING DOCUMENTATION:**

- 1) OSA approved Facility Program Plan/Capital Construction? Yes \_\_\_\_\_ No X Date Approved: \_\_\_\_\_
- 2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes X No \_\_\_\_\_ Date Approved: \_\_\_\_\_
- 3) Enter Reported Facility Condition Audit Index Number (FCI) and Projected FCI Reported FCI: 81% Projected FCI: 86.6%

**B. PROJECT SUMMARY/STATUS:**

*This capital construction budget request is for \$3,930,232 in Capital Construction Funds to rehabilitate the exterior of the Grant-Humphreys Mansion's terra cotta work, stone walkways, doors, windows, and gutter work. The funds requested will repair terra cotta and masonry work that have been included in the agency's Historic Structural Assessments (HSAs) since the 1970s when History Colorado received the property. Over the last couple of years, a few pieces of terra cotta decorations have been falling off the Mansion, creating the life, health, and safety issue that the agency must address. Addressing the life, health, and safety issues is even more critical when the fact that the property is used primarily as a rental facility for weddings where guests are mingling both inside and outside of the Mansion is taken into account. The Mansion is a revenue driver for History Colorado and, if a guest were to be injured on the property due to a damaged piece of the building falling off, it would likely cause the venue to suffer harm to its reputation and lose revenue as a result. This request will enable History Colorado to ensure one of the State's historic jewels in Denver will continue to shine for many generations to enjoy.*

**C. SUMMARY OF PROJECT FUNDING REQUEST:**

(a) Funding Source	(b) Total Project Cost	(c) Total Prior Appropriation(s)	(d) Current Budget Year Request	(e) Year Two Request	(f) Year Three Request	(g) Year Four Request	(h) Year Five Request
(47) Capital Constr Funds (CCF)	\$3,930,232	\$0	\$3,930,232	\$0	\$0	\$0	\$0
(48) Cash Funds (CF)	\$72,290	\$72,290	\$0	\$0	\$0	\$0	\$0
(49) Reappropriated Funds (RF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(50) Federal Funds (FF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(51) Highway Users Tax Fund (HUTF)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(52) Total Funds (TF)	\$4,002,522	\$72,290	\$3,930,232	\$0	\$0	\$0	\$0

**D. PROGRAM INFORMATION:**

*The Grant-Humphreys Mansion was built in 1902 and was home to former Colorado Governor James Benton Grant's family until it was sold to Albert E. Humphreys in 1917. When Albert Humphreys, Jr. died suddenly in 1968, his brother Ira took possession of the Mansion until Ira bequeathed the Mansion to the State Historical Society in 1976. Currently, the Mansion is part of the Community Museum division of History Colorado and has two employees, the Mansion Director and a Groundskeeper.*

*The Mansion currently serves as a rental facility for weddings, corporate & non-profit meetings/conferences, holiday parties, and special events. Third-party vendors cater most of the events at the Mansion. The events occur on the lower level, ground level, second level, and in the gardens.*

and terraces surrounding the property. The exterior gardens and terraces of the building are often used for wedding ceremonies and as backdrop to wedding pictures. The third level of the building is in need of restoration and is not open to the public. History Colorado makes the property available for half day, full day, and evening rentals seven days a week. The Mansion is closed to the public on Thanksgiving Day, Christmas Eve, Christmas Day, and New Year's Day. In FY17-18, over 16,500 people visited the Mansion as a rental guest, resulting in about \$475,000 in revenue. The Mansion's events are a major source of revenue for the Community Museum and History Colorado, which are cash funded.

#### **E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:**

As part of History Colorado's long-term capital and facilities planning process over the last year, the agency has been reviewing its past facility documents including Historic Structural Assessment reports (HSA), Master Plans, and Statement of Findings for its historic buildings to assist the agency in outlining and prioritizing its deferred and controlled maintenance needs. Using these documents, the agency has focused its FY21-22 request on addressing the agency's most pressing controlled maintenance and deferred maintenance projects.

History Colorado has conducted multiple Historic Structural Assessment reports (HAS) on the Grant-Humphreys Mansion since History Colorado took possession of it in 1976. Included in the first HAS the agency procured in 1986, and every HSA conducted since that time, is a recommendation to repair the terra cotta and masonry work adorning the exterior of the Mansion. According to the most recent statement of findings report by Durrant Architects in October 1999:

*"Numerous elements of the terra cotta components are deteriorated, loose, cracked or otherwise failed. In some cases, the loose elements present a clear public hazard. There are considerable signs of water staining and discoloration at the bottom and inside face of the terra cotta assemblies at the balconies, the top surface of the projecting uppermost place of the terra cotta assembly exhibits stress cracks and chips in a number of pieces. In some cases, the joint cover between adjacent top pieces has developed cracks. At other places, old cracks and chips have been patched with grout. **Approximately 30% of the pieces of the projecting uppermost pieces of cornice exhibited some problems.**"*

Based off this assessment, the agency moved forward with a more detailed field investigation of the exterior of the Mansion to determine the current state of the damage. History Colorado contracted with Clyde Schroeder, an architect with a specialization in historic preservation, to conduct a field investigation, recommendations for correcting found deficiencies, estimate of costs for the recommended corrections, and a detailed written report with corresponding pictures of the found deficiencies. He provided his report to History Colorado on January 30, 2018. The scope of work and cost estimates that are included in this request are a result of Mr. Schroeder's findings.

#### **Methodology**

To complete his assessment, Mr. Schroeder used a variety of tools, including resources from the History Colorado Library, a field inspection, and digital photos taken during the inspection. The resources from the History Colorado Library provided historical reference and documentation of the past repairs to the mansion, as well as recommendations from previously conducted reports. In reviewing past documentation, Mr. Schroeder determined that:

*"stating percentages of repair or statements such as poor condition would not accurately define the extent of the work which needed to be done. Furthermore, it would prove difficult to even define and give an estimate as to the costs to restore and preserve the mansion [under this methodology]."*

Instead, Mr. Schroeder deconstructed many of the numerous and specialty pieces of the mansion, starting from the grounds and working from the base of the structure to the top of the roof, to arrive at recommendations for restoration, proper restoration methods, and costing of the recommendations. Mr. Schroeder conducted multiple field investigations of the Mansion on October 20, October 21, and December 25, 2017. Digital photographs were taken of the entire structure, with a specific focus on items of concern or interest in relation to items in need of repair. The team also used a lift to get an aerial view of the roof condition. The report includes both material and labor recommendations for how to renovate each of the separate architectural elements of the Mansion. Separating the components of the building into definite parts allowed the entirety of the renovation process to become clear and enabled Mr. Schroeder to create more precisely defined costing estimates. Mr. Schroeder completed an assessment on only the exterior of the house. The assessment does not include recommendations for the interior of the Mansion, the original barn, automotive infill and Loggia, and portico.

#### **Ground Level Findings**

There is mostly strong positive surface drainage around the perimeter of the mansion, except on the southeast section, which has settled and currently drains towards the Mansion. The agency will use cash regional preservation capital funds to remove and replace the irrigation system, and re-grade the area to create positive drainage away from the structure.

Several areas of concrete walkways surrounding the Mansion are in poor condition, and are settling and sloping into the structure, creating negative surface water drainage to the Mansion. The agency would remove, re-grade, and re-pour the walkways on the South, West, and Northwest sides of the Mansion as part of this request.

In addition, the hillside stone steps and landings that start at the garage level and wind up the hill to the Fountain Terrace are in need of repair. The stairs are made of rectangular smooth cut stone leveled and installed one slightly bearing on the edge of the stone below. About 50% of the stone steps are in need of replacement with new stone and the short pilaster stones need to be removed and reinstalled, as the current configuration is a tripping hazard.

The flagstone of the Fountain Terrace also needs to be removed, the site leveled, and reinstalled after a subsurface drainage system and waterproof membrane is installed to remove any moisture which penetrates the flagstone and mortar joint surface. Broken pieces of flagstone will be replaced in-kind.

Both the Fountain Terrace overlook wall and its base have deteriorated and become unstable. The base of the Terrace has sunk due to erosion and will be stabilized through site re-grading and re-setting of the flagstone. The Fountain Terrace overlook wall has settled by as much as three (3) inches from the original installation of the wall. The analysis suggests that the Terrace may have been constructed on fill dirt, leading to settling over time. The wall, guardrail balustrade and pedestal system will be removed, cleaned, and the wall re-mortared. In addition, the old fountain water circulatory system will be replaced with a new one. Finally, the Fountain Terrace wall cornice cap will be reinstalled with proper sole and any defective or broken cap pieces replaced. A structural engineer will be used to advise during the construction stabilization process.

#### Terra Cotta

A great deal of the terra cotta detail on the exterior of the Mansion is in need of repair. As mentioned previously, in 1999, approximately 30% of the terra cotta elements were cracked. The existing terra cotta elements were manufactured in 1900, which means it is very likely that they differ in substrate, hardness, fabrication technique, glaze thickness and color. Any replacement terra cotta must be of substantial quality and it is imperative that the product be compatible and durable. All elements that are to be replaced will be removed, cleaned, and tested using established criteria. The agency will then produce samples that will meet the criteria of the existing terra cotta product and test them with the same rigor as the original product. Mass production will begin only when the product sample meets the criteria and the project's architect or engineer approves it.

All of the details concerning the terra cotta replacement areas are included in the report (Attachment A) as division four (4) and described in the title of the line item as "Terra Cotta". This request narrative will highlight a few of the most deteriorated areas that need replacement.

- **Terra Cotta Fountain Overlook Wall Cornice Cap and Guardrail (Division 4.11)**  
As the terra cotta fountain wall has settled about three (3) inches, the wall's cornice cap has settled three (3) inches as well. During a previous repair, the cornice cap was removed and installed with thicker and wider mortar to compensate for movement. The cap will be installed in its original configuration and the balustrade guardrail will be removed and replaced. The terra cotta plinth base, Tuscan balusters, guardrail, and pedestals are in various stages of deterioration. Some of these will be cleaned while others will be re-fabricated and replaced.
- **Terra Cotta Tuscan Entablature and Guardrail Balustrade (Divisions 4.27-4.33)**  
Some of the entablatures and guardrails in the Tuscan style are very deteriorated and damaged. Those entablatures and guardrails at the library, kitchen, porte cochere, and west balcony are all in poor condition and will be replaced as part of this project. All of the entablatures and guardrails in the Tuscan style will have the mortar removed and replaced throughout.
- **Terra Cotta Corinthian Entablature and Decorative Balustrade (Divisions 4.34-4.37)**  
The entablatures on the second floor are in the Corinthian style and included on the North, East, South, and West elevations. The detail with the cornice are highly decorative and detailed, requiring special attention during the cleaning and repair process. All of the Corinthian entablatures are in poor condition with the cornice sustaining the greatest amounts of damage. The modillions are also heavily damaged and stained. The frieze and architrave portions have some defective sections. The damaged pieces will be replaced, the mortar removed and replaced throughout.
- **Terra Cotta Chimneys (Divisions 4.38-4.41)**  
There are four (4) terra cotta brick chimneys that extend about eight (8) feet above the roof line of the Mansion. They have the same basic architectural features and design, while varying in width and depth. They are all in need of some level of repair, including replacing the cap pieces on all the chimneys. In addition, the metal flue additions are rusting and causing damage to the brick. The terra cotta flues and cap pieces will be removed, re-fabricated, and reinstalled on all of the chimneys after the top damaged brick in the chimneys are replaced.
- **Terra Cotta Brick Replacement (Division 4.2)**  
It is estimated that there are approximately 7,000 full bricks and 7,000 half-bricks that need to be removed and replaced. The bricks are laid in the Flemish pattern on the entire exterior of the structure. The existing mortar will be replaced in areas where the brick is in good condition. The agency will also patch small spalls that exist on portions of existing brick, where the spalls are small enough not to justify replacing the entire brick.

#### Masonry

The vast majority of the masonry work that will be completed is on the steps to the Mansion. The curved stone front steps on the west side of the building are in good condition, but the mortar is damaged and will be removed and replaced as part of this project. The straight stone stairs leading to the porte cochere, kitchen, basement, library, and west porch have varying levels of damage. For example, two (2) of the stones are broken and will be replaced, while damage to the sides of the steps is causing the brick surfaces to spall. To prevent brick spall in the future, a drip edge will be installed on the underside of the stone step ends.

Additional masonry work includes repair to the stone plinth that runs the entire perimeter of the Mason. The stones are about eight (8) inches by eight (8) inches by thirty-six (36) inches and most of the stones are in good condition. The agency is requesting funds as part of this request to

*remove and replace about twenty-one (21) linear feet of stone plinth and remove and replace most of the mortar joints.*

#### Metal

*Damaged copper gutters and lack of correct drip edge is the cause of much of the damage to the terra cotta and masonry. Improperly installed wall brackets resulted in gutter leaking and poorly fabricated repairs and patches have lead to more gutter deterioration. This project will replace the gutters with newly fabricated conductor heads, leaders, elbows and brackets. The fasteners and methods of fastening will be approved prior to installation to ensure the method does not result in damage to the terra cotta or masonry.*

*The cornice and wall caps at the Mansion all lack correct and proper drip edges, which, according to the structural report, is the single reason why there is so much damage on the Mansion. Some caps have no drip edges while others were installed improperly. The bottom of the current caps have half round edging that allows water to continue flowing back to the vertical wall surface instead of dripping off the extreme outer protruded edge. This results in water migrating back into the brick and mortar joints, causing the visible damage to the surface (and interior) of the Mansion that has resulted in this request. The report recommends installing an effective drip edge to all of the cornice and wall caps of the Mansion. The drip edge will need to be as effective as possible while having minimal visual impact to the historic fabric of the existing mansion and its architecture, to comply with Federal Section 106 standards. The best way to do this is to re-install the caps an inch further from the wall face than the original installation and include a drip edge to keep the water away from the terra cotta and brick.*

#### Doors and Windows

*The doors and wood frames at the Mansion are in good condition, requiring minor repairs, paint and sealant. One stone sill requires replacement, while the others are in good condition. The impost jambs and achivolts have the greatest amount of damage and require removal and replacement.*

*The windows are generally in good structural condition. The terra cotta impost frame pieces have severe staining and many portions of the terra cotta windowsills will be replaced. The wood windows will have minor repairs, painted and sealed. The most visually objectionable damage is on the impost jambs and archivolts and some will be replaced.*

*The Mansard roof section of the Mansion has eight (8) barrel windows and one (1) walkout door dormer that provides light and access to the third floor. The dormers have square wooden columns on the outside corners that appear to be original with numerous coats of paint. They will be repaired and/or replaced as part of this project. The door, sidelights, dormer window frames, sashes, sills and mullions are in poor condition, with cracking caulking and a poor paint job. The whole wood window section will be replaced as part of this request.*

#### Ceilings and Roofs

*The ceilings of the porches are all in good condition, except for a portion of the porte corchere ceiling where the copper gutter has been leaking and causing damage. The agency will complete minor repairs, clean, paint and seal all of the porch ceilings. Much of the terra cotta soffits on the perimeter of the porches have cracks, staining and mortar failure, and will be replaced as part of this request. The drip edging described in this request will be utilized on the soffits to mitigate future water damage to the terra cotta.*

*All of the roofs were recently replaced and have solid coverage with good seaming. None of the roofs have counter flashing where they connect to the outside edges, which would add to water damage mitigation. This request will add counter flashing to the roofs.*

*The center pyramid skylight is generally in good condition. However, the internal film to the skylight has deteriorated and is cracking and peeling. The film will be removed as part of this project and replaced with a more permanent product.*

#### Other

*This project will increase the FCI for the Grant Humphreys Mansion from 81 to 86.6, through improvements to the Exterior Walls and Foundation Categories of the FCI calculation methodology.*

*History Colorado will use a design/bid/build method to complete this project. Since this project requires technical knowledge, a historic preservation background and is detail oriented, the agency is requesting funds equal to ten percent (10%) of total construction costs for Construction Management/Owner's Representative. The estimate is based off industry standard costs for an owner's representative, using salary data found online. This project will require close attention to detail and will need constant observation and management, due to the highly technical nature of replacing and fixing the building's terra cotta and masonry. The agency believes this request will help ensure the project is completed on time, to Federal Section 106 standards, and within budget.*

History of Appropriated Projects funded with controlled maintenance, capital renewal, capital construction, emergency CM repairs, cash, or operational funds completed within the last fifteen (15) years or ongoing projects that can be associated with either this CC/CR building or infrastructure request.

Project No.	Project Title	Project Cost \$	Completion date or status

**F. CONSEQUENCES IF NOT FUNDED:**

*As discussed in the Summary section of this request, the Grant-Humphreys Mansion is used as a rentable event venue and is a significant source revenue for History Colorado’s community museums. The Mansion is primarily used weddings and the damage to the Mansion has resulted in couples not booking their special day at Grant-Humphreys specifically because they did not want the damage in their pictures. As the damage continues and become more visible over time, the agency will continue to miss out on revenue opportunities. The agency has recently stabilized its financial position and any reduction in revenue could put its finances out of balance, causing cash flow and fund balance issues.*

*Even more significant is the fact that pieces of the terra cotta have already begun falling of the Mansion, which is a life, health, safety issue. If this request is not funded, water will continue to damage the building and more pieces of the terra cotta will begin falling off. Once this happens, the agency will need to put up netting to ensure the pieces do not fall on people, causing injury. Netting will result in a reduction of rentals and revenue, as the historic architecture of the mansion is what makes it appealing as a rental venue.*

**G. LIFE CYCLE COST (LCC)/COST BENEFIT COMPARATIVE ANALYSIS:**

*Based on cost estimates from previous structural reports, the cost to repair this damage will only continue to increase over time. With most State buildings, after the cost of repairs exceeds the cost of replacing the building, the State builds a new building. History Colorado is responsible for caring for the State’s historic monuments and buildings for future generations, which means it must keep its historic sites and properties repaired and in good condition as part of its core mission. This holds true even if the cost of repairs exceeds the cost of building replacement, as the State has decided these buildings and sites are worth repairing for future Coloradans to learn about the history of their state.*

*The only real alternative for History Colorado to doing these repairs is to do nothing. If the agency does nothing, water will continue to damage the exterior of the building, resulting in the need for more repairs. In 1999, when the agency completed its last Historic Structural Assessment (HSA) of the Grant-Humphreys Mansion, the cost of the repairs included in this request was \$875,000. By the time of this FY 2021-22 request, the cost of the repairs will have increased more than fourfold to over \$3.9 million. Based on this increase, the cost of doing nothing is about \$145,000 per year in added restoration expenses.*

**H. ASSUMPTIONS FOR CALCULATIONS:**

*All project costs for this request are from the “Construction Cost Estimates” included in the Clyde Schroeder Grant-Humphreys Mansion Exterior Assessment and Report, Section G. Please note, Division 2.1 of the attachment has been cash funded through a previous appropriation of agency Historic Preservation Capital Cash funds (FY 2018-19) for \$40,949.*

*As the Report was completed in January 2018 and the mid-way construction point for the project is March 15, 2023, about five and one third (5.29) years of inflation was added to this report.*

**I. SUSTAINABILITY:**

*As this is a capital renewal request for a historic building, this building is exempt from the High Performance Certification Program.*

**J. OPERATING BUDGET IMPACT:**

*Completing the repairs to the exterior of the Grant-Humphreys Mansion will have minimal impact to the program’s operating budget. There will likely be some savings to energy costs as a result of repairing the windows and doors associated with this request. These energy savings are difficult to quantify, since the repairs must meet Section 106 standards.*

**K. PROJECT SCHEDULE:**

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

Phase 1 of 1	Start Date	Completion Date
Pre-Design	July 2021	December 2021
Design	December 2021	August 2022
Construction	August 2022	October 2023
Occupancy	October 2023	November 2023



**L. ADDITIONAL INFORMATION:**

N/A

FY 2021-22 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*			
(A)	(1) Funding Type:	Multiple Funding Sources	(2) Project Title: Grant Humphreys Exterior Restoration
(B)	(1) Agency/Institution:	History Colorado	(2) Project Phase ( 1 of 1):
(C)	(1) OSA Delegate Name:	Natalie Tsantes	(2) Project Type: Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2019-20	(2) State Controller Project #:
(E)	(1) Narrative Signature Date:		(2) Revision Date:

(1)	(a) Project Budget Cost Components and Funding Sources	(b) Total Project Costs	(c) Total Prior Year Appropriation(s)	(d) Current Request FY 2021-22	(e) Year Two Request FY 2022-23	(f) Year Three Request FY 2023-24	(g) Year Four Request FY 2024-25	(h) Year Five Request FY 2025-26
<b>Land /Building - Acquisition / Disposition</b>								
(2)	Land Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(3)	Building Acquisition / Disposition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(4)	<b>Total Acquisition/Disposition Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>								
(5)	Planning Documentation	\$ 26,000	\$ 26,000	\$ -	\$ -	\$ -	\$ -	\$ -
(6)	Site Surveys, Investigations, Reports	\$ 17,200	\$ -	\$ 17,200	\$ -	\$ -	\$ -	\$ -
(7)	Architectural/Engineering/ Basic	\$ 423,578	\$ 5,341	\$ 418,237	\$ -	\$ -	\$ -	\$ -
(8)	Code Review/Inspection	\$ 8,742	\$ -	\$ 8,742	\$ -	\$ -	\$ -	\$ -
(9)	Construction Management	\$ 278,825	\$ -	\$ 278,825	\$ -	\$ -	\$ -	\$ -
(10)	Advertisements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(11)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(12)	Inflation Cost for Professional Services	\$ 61,687	\$ -	\$ 61,687	\$ -	\$ -	\$ -	\$ -
(13)	Inflation Percentage Applied		0.00%	4.91%	0.00%	0.00%	0.00%	0.00%
(14)	<b>Total Professional Services</b>	\$ 816,032	\$ 31,341	\$ 784,691	\$ -	\$ -	\$ -	\$ -
<b>Construction or Improvement (attached detailed cost estimate)</b>								
(15)	Infrastructure Service/Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(16)	Infrastructure Site Improvements	\$ 30,608	\$ 30,608	\$ -	\$ -	\$ -	\$ -	\$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(19)	New at \$ X							
(20)	Cost for Renovation (GSF):	\$ 2,173,996	\$ 10,341	\$ 2,163,655	\$ -	\$ -	\$ -	\$ -
(21)	Renovation at \$ X							
(22)	Cost for Capital Renewal (GSF):	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(23)	Renewal at \$ X							
(24)	Other (Specify)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(25)	High Performance Certification	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(26)	Prevailing Wages	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(27)	Inflation for Construction	\$ 624,592	\$ -	\$ 624,592	\$ -	\$ -	\$ -	\$ -
(28)	Inflation Percentage Applied		0.00%	4.91%	0.00%	0.00%	0.00%	0.00%
(29)	<b>Total Construction Costs</b>	\$ 2,829,196	\$ 40,949	\$ 2,788,247	\$ -	\$ -	\$ -	\$ -
<b>Equipment and Furnishings</b>								
(30)	Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(31)	Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(32)	Communications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(33)	Inflation for Equipment & Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(34)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(35)	<b>Total Equipment &amp; Furnishings Cost</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Miscellaneous</b>								
(36)	Art in Public Places	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(37)	Relocation Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(38)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(39)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(40)	Other Costs [specify]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(41)	<b>Total Misc. Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>								
(42)	<b>Total Project Costs</b>	\$ 3,645,228	\$ 72,290	\$ 3,572,938	\$ -	\$ -	\$ -	\$ -
<b>Project Contingency</b>								
(43)	5% for New	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(44)	10% for Renovation	\$ 357,294	\$ -	\$ 357,294	\$ -	\$ -	\$ -	\$ -
(45)	<b>Total Contingency</b>	\$ 357,294	\$ -	\$ 357,294	\$ -	\$ -	\$ -	\$ -
<b>Total Budget Request</b>								
(46)	<b>Total Budget Request</b>	\$ 4,002,522	\$ 72,290	\$ 3,930,232	\$ -	\$ -	\$ -	\$ -
<b>Funding Source</b>								
(47)	Capital Construction Fund (CCF)	\$ 3,930,232	\$ -	\$ 3,930,232	\$ -	\$ -	\$ -	\$ -
(48)	Cash Funds (CF)	\$ 72,290	\$ 72,290	\$ -	\$ -	\$ -	\$ -	\$ -
(49)	Reappropriated Funds (RF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(50)	Federal Funds (FF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(51)	Highway Users Tax Fund (HUTF)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(52)	<b>Total Funds (TF)</b>	\$ 4,002,522	\$ 72,290	\$ 3,930,232	\$ -	\$ -	\$ -	\$ -