COLORADO
Office of State Planning & Budgeting

111 State Capitol
Denver, Colorado 80203

October 1, 2019

The Honorable Dylan Roberts
Chair, Capital Development Committee
029 State Capitol Building
Denver, CO 80203

RE: OSPB Submission of FY 2020-21 Non-Prioritized Capital Construction Requests

Dear Representative Roberts:

As required by § 24-37-304 (1) (c.3) (I), C.R.S., please find attached the FY 2020-21 Executive Branch capital construction requests for all state departments other than the Department of Higher Education and the Department of Transportation. Please note that these requests have not yet been prioritized and have not yet been recommended for funding. Prioritization and funding recommendations will be presented to the Committee by November 1, 2019.

Please feel free to contact me by phone at (303) 866-4205, or direct questions and concerns via email to me at benjamin.s.henderson@state.co.us. At the Committee's request, Lauren Larson and I will also make ourselves available to present any necessary information at a future meeting.

Thank you for your consideration of these requests.

Sincerely,

Ben Henderson
Deputy Director

cc: Senator Rhonda Fields, Vice Chair, CDC
Senator Jerry Sonnenberg, CDC
Senator Tammy Story, CDC
Representative Alex Valdez, CDC
Representative Susan Beckman, CDC
Ms. Kori Donaldson, CDC Staff
Ms. Carolyn Kampman, JBC Staff Director
Mr. Alfredo Kemm, JBC Staff
Ms. Kara Veitch, Executive Director, Department of Personnel and Administration
Ms. Tana Lane, Office of the State Architect

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Funding Type:	General Fund		
B	(1) Agency/Institution:	Dept. of Agriculture – State Fair	(2) OSA Delegate Signature:	Joe Reen 6/27/19 Date
C	(1) Project Title	REPAIR/REPLACE WATER, SANITARY AND STORMWATER INFRASTRUCTURE ON FAIRGROUNDS	(2) OSA Delegate Email:	Joe.reen@state.co.us
D	(1) Project Phase (Phase _of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):	
E	(1) Project Type:	[ ] Capital Construction (CC) [xx] Capital Renewal (CR)	(2) Agency/Institution Signature Approval	Jennifer R. Lucero 6/07/19 Date
F	(1) First Year Requested:	FY20	(2) OSA Review Signature	[illegible] 10.1.19 Date
G	(1) Priority Number:	_1__ OF _1__	(2) Revision Date:	Date

* Attach CC/CR-CS Form

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_____

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: *(from CC CR-CS form, Rows 47 through 52)*

(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)	$3,299,747	$0	**$0**	$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)	$3,299,747	$0	**$0**	$0	$0	$0	$0

D. PROGRAM INFORMATION:

Provide a description of the programs within the agency that will be 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. Continuation

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/REPLACE WATER, SANITARY AND STORMWATER INFRASTRUCTURE ON FAIRGROUNDS, Phase 1	$992,235	Complete
2015-100M14	REPAIR/REPLACE WATER, SANITARY AND STORMWATER INFRASTRUCTURE ON FAIRGROUNDS, Phase 2 & 3	$2,209,919	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. Cost estimates are dated 06/03/2019

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 _1__ of__1_	**Start Date**	**Completion Date**
Pre-Design	**1/2019**	**6/2019**
Design	**7/2020**	**12/2020**
Construction	**1/2021**	**10/2021**

FF&E /Other	n/a	n/a
Occupancy	n/a	n/a

Phase ___ of___	Start Date	Completion Date
Pre-Design		
Design		
Construction		
FF&E /Other		
Occupancy		

Phase ___ of___	Start Date	Completion Date
Pre-Design		
Design		
Construction		
FF&E /Other		
Occupancy		

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~~

~~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):~~			
~~Prior Year Actual Ending Fund Balance~~	~~Current Year Projected Ending Fund Balance~~	~~Year 2 Projected Ending Fund Balance with Project Approval~~	~~Year 3 Projected Ending Fund Balance with Project Approval~~
~~$~~	~~$~~	~~$~~	~~$~~

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

6/26/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*

(A)	(1) Funding Type:	General Funded	(2) Project Title:	REPAIR/REPLACE WATER, SANITARY AND STORMWATER INFRASTRUCTURE ON FAIRGROUNDS
(B)	(1) Agency/Institution:	Dept. of Agriculture - State Fair	(2) Project Phase (_1_ of _1_):	
(C)	(1) OSA Delegate Email:	joe.reen@state.co.us	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY__20_____	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	6/27/19	(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 2020-21	(e) Year Two Request FY 2021-22	(f) Year Three Request FY 2022-23	(g) Year Four Request FY 2023-24	(h) Year Five Request FY 2024-25
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	*Total Acquisition/Disposition Costs*	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic Services	$ 277,262	$ -	$ 277,262	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	$ 7,861	$ -	$ 7,861	$ -	$ -	$ -	$ -
(9)	Construction Management	$ 194,083	$ -	$ 194,083	$ -	$ -	$ -	$ -
(10)	Advertisements	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(11)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 479,206	$ -	$ 479,206	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(15)	Infrastructure Service/Utilities	$ 2,291,422	$ -	$ 2,291,422	$ -	$ -	$ -	$ -
(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 _____ GSF							
(22)	Cost for Capital Renewal (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(23)	Renewal at $_____ X _____ GSF							
(24)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(25)	High Performance Certification	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	$ 120,601	$ -	$ 120,601	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied		5.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 2,412,023	$ -	$ 2,412,023	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(37)	Other Costs [specify]	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	Other Costs [specify]	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(39)	Other Costs [specify]	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(40)	Other Costs [specify]	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	$ 2,891,229	$ -	$ 2,891,229	$ -	$ -	$ -	$ -
	Project Contingency							
(43)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 289,123	$ -	$ 289,123	$ -	$ -	$ -	$ -
(45)	***Total Contingency***	$ 289,123	$ -	$ 289,123	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	$ 3,180,352	$ -	$ 3,180,352	$ -	$ -	$ -	$ -
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 3,299,747	$ -	$ 3,299,747	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	$ 3,299,747	$ -	$ 3,299,747	$ -	$ -	$ -	$ -

* Accompanies CC/CR-N Form

COLORADO STATE FAIRGROUNDS - PHASE 2 & 3 SD ENGINEER'S ESTIMATE OF PROBABLE COST - 06/03/19

Note: Cost estimate is for construction costs only. Costs represent today's (2019) dollars. Escalation has not been incorporated into this estimate

COLORADO STATE FAIRGROUNDS - SWINE CORRIDOR AREA - SCHEDULE III					
ITEM NO.	CONTRACT ITEM	UNIT	PLAN	UNIT COST	TOTAL COST
1	Mobilization	LS	1	$ 20,500.00	$ 20,500.00
2	Erosion Control	LS	1	$ 1,300.00	$ 1,300.00
3	Trench Cut Pavement Removal	SY	330	$ 16.00	$ 5,280.00
4	Type 1B Manhole	EA	1	$ 7,300.00	$ 7,300.00
5	Type 13 Inlet	EA	3	$ 5,200.00	$ 15,600.00
6	18" PVC Storm Drain Pipe	LF	50	$ 120.00	$ 6,000.00
7	24" PVC Storm Drain Pipe	LF	676	$ 170.00	$ 114,920.00
8	Aggregate Base Course, Class 6	CY	65	$ 60.00	$ 3,900.00
9	HMA Pavement, Grading C	TON	56	$ 130.00	$ 7,280.00
10	HMA Pavement, Grading CX	TON	47	$ 180.00	$ 8,460.00
				Sub Total	**$ 190,540.00**
				Total	**$ 190,540.00**

COLORADO STATE FAIRGROUNDS - CARNIVAL AREA - OPTION 1 - UTILITIES ONLY					
ITEM NO.	CONTRACT ITEM	UNIT	PLAN	UNIT COST	TOTAL COST
1	Mobilization	LS	1	$ 164,000.00	$ 164,000.00
2	Erosion Control	LS	1	$ 5,200.00	$ 5,200.00
3	Pavement Removal	SY	6360	$ 4.50	$ 28,620.00
4	Type 1B Manhole	EA	2	$ 7,300.00	$ 14,600.00
5	Type 13 Inlet	EA	8	$ 5,200.00	$ 41,600.00
6	18" PVC Storm Drain Pipe	LF	1451	$ 120.00	$ 174,120.00
7	24" PVC Storm Drain Pipe	LF	53	$ 170.00	$ 9,010.00
8	Underground Detention	LS	1	$ 630,000.00	$ 630,000.00
9	Gutter Pan - 3' width	LF	1956	$ 45.00	$ 88,020.00
10	Aggregate Base Course, Class 6	CY	1240	$ 60.00	$ 74,400.00
11	HMA Pavement, Grading C	TON	1075	$ 130.00	$ 139,750.00
12	HMA Pavement, Grading CX	TON	895	$ 180.00	$ 161,100.00
				Sub Total	**$ 1,530,420.00**
				Total	**$ 1,530,420.00**

COLORADO STATE FAIRGROUNDS - 4-H BUILDINGS AREA					
ITEM NO.	CONTRACT ITEM	UNIT	PLAN	UNIT COST	TOTAL COST
1	Mobilization	LS	1	$ 37,900.00	$ 37,900.00
2	Erosion Control	LS	1	$ 5,200.00	$ 5,200.00
3	Pavement Removal	SY	1025	$ 16.00	$ 16,400.00
4	Type 1A Manhole	EA	2	$ 5,200.00	$ 10,400.00
5	Type 1B Manhole	EA	2	$ 7,300.00	$ 14,600.00
6	6" PVC Storm Drain Pipe	LF	640	$ 95.00	$ 60,800.00
7	18" PVC Storm Drain Pipe	LF	195	$ 120.00	$ 23,400.00
8	Type 13 Inlet	EA	1	$ 5,200.00	$ 5,200.00
9	6" PVC C900 Water Line	LF	237	$ 210.00	$ 49,770.00
10	2" Copper Water Line	LF	297	$ 155.00	$ 46,035.00
11	6" Water Valve	EA	2	$ 1,600.00	$ 3,200.00
12	2" Water Valve	EA	3	$ 1,100.00	$ 3,300.00
13	8"x8"x6" Tee	EA	1	$ 2,600.00	$ 2,600.00
14	6"x6"x2" Tee	EA	1	$ 1,600.00	$ 1,600.00
15	6"x2"x2" Tee	EA	1	$ 1,600.00	$ 1,600.00
16	4" Concrete Sidewalk	SY	15	$ 65.00	$ 975.00
17	Concrete Sidewalk and Courtyard Area	SY	506	$ 78.00	$ 39,468.00
18	Aggregate Base Course, Class 6	CY	105	$ 60.00	$ 6,300.00
19	HMA Pavement, Grading C	TON	88	$ 130.00	$ 11,440.00
20	HMA Pavement, Grading CX	TON	73	$ 180.00	$ 13,140.00
				Sub Total	**$ 353,328.00**

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*					
A	(1) Funding Type:	General Fund/Capital Construction Fund			
B	(1) Agency/Institution:	Department of Human Services	(2) OSA Delegate Signature:		07.09.19
C	(1) Project Title	Campus Utility Infrastructure Upgrade, Colorado Mental Health Institute at Fort Logan	(2) OSA Delegate Email:	gargi.duttgupta@state.co.us	
D	(1) Project Phase (Phase _of_):	Phase 2 of 3	(2) State Controller Project # (if a continuation):	2002-108P01	
E	(1) Project Type:	Capital Construction (CC)	(2) Agency/Institution Signature Approval		7/10/2019 Date
		X Capital Renewal (CR)			
F	(1) First Year Requested:	FY 2019-20	(2) OSA Review Signature	10·1·19	Date
G	(1) Priority Number:	5 OF 11	(2) Revision Date:		Date

* Attach CC/CR-CS Form

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 _____

B. PROJECT SUMMARY/STATUS:

The Colorado Department of Human Services requests $11,344,289 Capital Construction funds/General Fund in FY 2020-21 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. 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. Construction 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 savings, as well as time savings. Funding as a Capital Renewal project would address the needs of this request within two years instead of the five 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)	$27,140,442	$8,935,147	**$11,344,289**	$6,861,006	$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)	$27,140,442	$8,935,147	**$11,344,289**	$6,861,006	$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, has 74 buildings and 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 provides 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 859 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 which 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.

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 ECM projects related to the infrastructure replacement included in this funding request. Eleven of these 15 ECM projects have occurred within the last eight 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 so 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 stormwater and runoff on the campus. Current codes mandate water quality management. A planned storm sewer 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.

Since the first phase of the project has 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 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 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 six-year CM project, will save approximately $2.3 million (based on the Consumer Price Index) through a compacted schedule of two years instead of five 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-TBD	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 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.
- 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)/COMPARATIVE ANALYSIS:

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, taking into account best practices and current needs in the realm of patient care. Escalation costs for Phase 2 were included in the 2017 update. The funding request includes a campus survey in the second and third phases of work.

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 credentials 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.

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.

Phase 2 of 3	Start Date	Completion Date
Pre-Design*	July 2020	October 2020
Design	October 2020	April 2021
Construction	April 2021	April 2022
FF&E /Other	N/A	N/A
Occupancy	N/A	N/A

Phase 3 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

*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.

L. DETAILED COST ESTIMATE:

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 nature 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, 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.

Table 3: Cost Estimates: Phase 2

1) Approved By	Dennis Buck, District Manager, North Central District	2) Phase	2 of 3
3) Method and Date of Estimate	April 2017 – Cost estimate by Stanley consultants in June 2015, adjusted to FY 2018-19 after consultations with Stanley Consultants. Escalation was added to FY 2020-21.		

4) Professional Services

Site Surveys, Investigations, and Reports:	$0
Arch/Eng/Basic Services:	$684,941
Code Review/Inspection:	$20,548
Other (Explain):	$0
Inflation Percentage/dollar amount: (required for each out year phase) (+4%) from 2015)	$56,440
Total of Professional Services:	**$761,929**

5) Construction Improvements (by Construction Specification Institute (CSI) Division format)

WORK ITEM (Labor/Material/Equipment)	UNIT SY, SF, LF, etc	UNIT COST[1]	EXTENDED COST[2]
Site Improvements:			
Division 33: Utilities			
Water System: 8,275 LF + misc.	Lump Sum	$538,994	$538,994
Sanitary System: 2,970 LF + misc.	Lump Sum	$67,416	$67,416
Fire Protection Water System: 10,550 LF + misc.	Lump Sum	$872,181	$872,181
Storm System: 6,635 LF + misc.	Lump Sum	$537,008	$537,008
Communication: 8,600 LF + misc.	Lump Sum	$872,080	$872,080
Excavation: 37,030 LF + misc.	Lump Sum	$1,090,776	$1,090,776
Division 32: Exterior Improvement			
Asphalt Paving	24,247 SY	$68.60	$1,663,408
Concrete Curbs	11,160 LF	$24.97	$278,665
Sidewalks	5,580 LF	$33.38	$186,288

Division 01: General Requirements			
Mobilization	5%		$305,341
Contractor's General Conditions:	12%		$732,818
Contractor's Overhead & Profit:	15%		$916,022
Inflation Percentage/dollar amount: (required for each out year phase)	4%		$1,490,064
Total of Construction Improvement Costs:			**$9,551,061**

[1] Unit Cost column represents extended cost divided by the number of units. In some cases, units cannot be easily calculated or represented, so the units are called out as "Lump Sum" and extended cost is shown in Unit Cost column.
[2]Extended costs included construction inflation (4%) to start of construction as calculated in 2015.

5a) Total square feet/lineal feet of Construction Improvement area:	N/A
5b) Overall cost per square foot/lineal foot of construction Improvement:	N/A

6) Miscellaneous (explain)

Total of Miscellaneous Costs:	$0

7) Project Contingency

Contingency (10% CM) (Percentage of total of professional services, construction improvements, and miscellaneous costs.)	**$1,031,299**

8) Total for this specific Phase of all professional services (4), construction improvements(5), miscellaneous costs(6), and project contingency(7)	**$11,344,289**

Table 4: Cost Estimates: Phase 3

1) Approved By	Dennis Buck, District Manager, North Central District	2) Phase	3 of 3
3) Method and Date of Estimate	April 2017 – Cost estimate by Stanley consultants in June 2015, adjusted to FY 2018-19 after consultations with Stanley Consultants. Escalation was added to FY 2020-21.		

4) Professional Services

Site Surveys, Investigations, and Reports:	$0
Arch/Eng/Basic Services:	$447,451
Code Review/Inspection:	$13,423
Other (Explain):	$0
Inflation Percentage/dollar amount: (required for each out year phase) (4%)	$18,435
Total of Professional Services:	**$479,309**

5) Construction Improvement (by Construction Specification Institute (CSI) Division format)

WORK ITEM (Labor/Material/Equipment)	UNIT SY, SF, LF, etc	UNIT COST[1]	EXTENDED COST[2]
Site Improvements:			
Division 33 Utilities			
Water System: 2,230 LF + misc.	Lump Sum	$129,884	$129,884
Sanitary System: 6,605 LF + misc.	Lump Sum	$69,453	$69,453
Fire Protection Water System: 3,845 LF + misc.	Lump Sum	$352,201	$352,201
Storm System: 6,590 LF + misc.	Lump Sum	$438,818	$438,818
Communication: 7,820 LF + misc.	Lump Sum	$713,750	$713,750
Excavation: 27,090 LF + misc.	Lump Sum	$693,530	$693,530
Division 32 Exterior Improvement			
Asphalt Paving	21,398 SY	$66.56	$1,424,345
Concrete Curbs	1,550 LF	$22.70	$35,185
Sidewalks	775 LF	$30.35	$23,521
Division 01 General Requirements			
Mobilization	5%		$193,534
Contractor's General Conditions:	12%		$464,482
Contractor's Overhead & Profit:	15%		$580,603
Inflation Percentage/dollar amount: (required for each out year phase)	4%		$638,663
Total of Construction Improvement Costs:			**$5,757,969**

[1]Unit Cost column represents extended cost divided by the number of units. In some cases, units cannot be easily calculated or represented, so the units are called out as "Lump Sum" and extended cost is shown in Unit Cost column.
[2]Extended costs included construction inflation (4%) to start of construction as calculated in 2015

5a) Total square feet/lineal feet of Construction Improvement area:	N/A
5b) Overall cost per square foot/lineal foot of construction Improvement:	N/A

6) Miscellaneous

Total of Miscellaneous Costs:	$0

7) Project Contingency

Contingency (10% CM) (Percentage of total of professional services, construction improvements, and miscellaneous costs.)	**$623,728**

8) Total for this specific Phase of all professional services (4), construction improvements(5), miscellaneous costs(6), and project contingency(7)	**$6,861,006**

M. PROPOSED PHASING:

Proj. M#	Fiscal Year	Phase of Work	Dollar Amount (Per Detailed Budget)
N/A	FY 2018-19	Phase One	**$8,935,147**

Current Phase[2] Requested

Proj. M#	Fiscal Year	Phase of Work	Dollar Amount (Per Detailed Budget)
N/A	FY 2019-20	Phase Two	**$10,493,712**

Future Phasing[2]

Proj. M#	Fiscal Year	Phase or Phases of Work	Dollar Amount (Per Detailed Budget)
	FY 2020-21	Phase Three	**$6,861,006**
		(Subtotal)	$26,289,365

TOTAL PROJECT DOLLAR AMOUNT (All Future Phases subtotals and Current Dollar amount)	$26,289,865

N. ADDITIONAL INFORMATION:

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

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	**General Funded**	(2) Project Title:	CR-05 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 Email:	gargi.duttgupta@state.co.us	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2019-20	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	10-Jul-19	(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ 668,742	$ 668,742	**$ -**	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic	$ 1,674,968	$ 542,576	**$ 684,941**	$ 447,451	$ -	$ -	$ -
(8)	Code Review/Inspection	$ 50,248	$ 16,277	**$ 20,548**	$ 13,423	$ -	$ -	$ -
(9)	Construction Management	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(10)	Advertisements	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(11)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional	$ 123,979	$ 49,104	**$ 56,440**	$ 18,435	$ -	$ -	$ -
(13)	Inflation Percentage Applied		4.00%	**8.00%**	4.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 2,517,937	$ 1,276,699	**$ 761,929**	$ 479,309	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(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):	$ 20,665,128	$ 6,846,162	**$ 8,060,997**	$ 5,757,969	$ -	$ -	$ -
(23)	Renewal at $_____ X							
(24)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(25)	High Performance Certification	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	$ 1,490,064	$ -	**$ 1,490,064**	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied		0.00%	**8.00%**	0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 22,155,192	$ 6,846,162	**$ 9,551,061**	$ 5,757,969	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings***	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(37)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(38)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(39)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(40)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	**$ 24,673,129**	**$ 8,122,861**	**$ 10,312,990**	**$ 6,237,278**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(43)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 2,467,313	$ 812,286	**$ 1,031,299**	$ 623,728	$ -	$ -	$ -
(45)	***Total Contingency***	$ 2,467,313	$ 812,286	**$ 1,031,299**	$ 623,728	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	**$ 27,140,442**	**$ 8,935,147**	**$ 11,344,289**	**$ 6,861,006**	**$ -**	**$ -**	**$ -**
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 27,140,442	$ 8,935,147	**$ 11,344,289**	$ 6,861,006	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	**$ 27,140,442**	**$ 8,935,147**	**$ 11,344,289**	**$ 6,861,006**	**$ -**	**$ -**	**$ -**

* Accompanies CC/CR-N Form

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Funding Type:	General Fund/Capital Construction Funds		
B	(1) Agency/Institution:	Department of Human Services	(2) OSA Delegate Signature:	07.09.19
C	(1) Project Title	Campus Utility Infrastructure Upgrade, Colorado Mental Health Institute at Pueblo	(2) OSA Delegate Email:	gargi.duttgupta@state.co.us
D	(1) Project Phase (Phase _of_):	Phase 1 of 3	(2) State Controller Project # (if a continuation):	
E	(1) Project Type:	[ ] Capital Construction (CC) [X] Capital Renewal (CR)	(2) Agency/Institution Signature Approval	7/10/2019 Date
F	(1) First Year Requested:	FY 2013-14	(2) OSA Review Signature	10.1.19 Date
G	(1) Priority Number:	7 OF 11	(2) Revision Date:	Date

* Attach CC/CR-CS Form

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 2000

B. PROJECT SUMMARY/STATUS:

The Colorado Department of Human Services requests $9,603,528 for FY 2019-20 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)	$36,468,150	$0	**$9,603,528**	$12,595,526	$14,269,096	$0	$0
(48) Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(49) Re-appropriated 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)	$36,468,150	$0	**$9,603,528**	$12,595,526	$14,269,096	$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 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 all the 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 system operates 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 impeding operability. The cast-iron piping is of high concern, as ingesting iron from drinking water may have negative health effects. Also 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

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 Heating 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 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 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 will 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 7.5 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 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, 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
2017-084M19	SB267 – Replace Boiler Economizer, Central Plant	$1,024,467	A/E design in progress
2016-070M19	SB267 – Emergency & Secondary Electrical System, 3 Phases	$3,678,275	A/E design contract executed
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)/ COMPARATIVE ANALYSIS:

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 were last updated May 2019.

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 credentials will be used such as ease of pedestrian travel. LEED site criteria will be incorporated into the planning for the project.

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 2020	October 2020
Design	October 2020	April 2021
Construction	April 2021	April 2022
FF&E /Other	N/A	N/A
Occupancy	N/A	N/A

Phase 2 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 3 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

*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 nature 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 in to 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.

Cost Estimate:

1) Approved By	Brian Caruso, District Manager, Southern District	2) Phase	1 of 3
3) Method and Date of Estimate	Engineering consultant, Contractor estimates, and recent projects		

4) Professional Services

Site Surveys, Investigations, and Reports:	$121,979
Arch/Eng/Basic Services:	$1,463,745
Code Review/Inspection:	$18,297
Other (Explain): Testing Services (i.e., soil, sewer manhole, asbestos/hazardous, groundwater, etc.)	$243,957
Inflation Percentage/dollar amount: (required for each out-year phase) (4% FY 18-19, 4% for FY 19-20, 4% for FY 20-21)	$221,757
Total of Professional Services:	**$2,069,735**

5) Construction Improvement (by Construction Specification Institute (CSI) Division format)

WORK ITEM (Labor/Material/Equipment)	UNIT SY, SF, LF, etc.	UNIT COST	EXTENDED COST*
Site Improvements: **Division 32 : Exterior Improvements**			
Roads & Concrete Items			
Asphalt Paving	17,430 SY	$77.60	$1,352,568
Asphalt Pavement-Parking Lots	9,005 SY	$70.66	$636,293
Concrete Paving	2,743 SF	$21.81	$59,825
Roadway/Paving Striping	107 Stalls	$30.93	$3,310
Sidewalks	6,499 SF	$12.15	$78,963
Concrete Curbs	9,936 LF	$24.24	$240,849
Water System			
Water Line Replacement	6,475 LF	$147.87	$957,458
Backflow Preventer	2 Each	$10,140	$20,280
Tunnel Crossings	4 Each	$5,954	$23,816
Fire Hydrant Assembly	20 Each	$4,056	$81,120
Water Line Site Restoration	80,791 SF	$0.99	$79,983
Sanitary System			
Sanitary Replacement – Open Cut	10,375 LF	$97.14	$1,007,827
Sanitary Replacement – Slip Line	0 LF	$194.69	$0
Sanitary Site Restoration	217,560 SF	$0.99	$215,384
Subtotal			$ 4,757,676
Contractor's General Conditions:	10%		$475,767
Contractor's Overhead & Profit:	15%		$713,651
Inflation Percentage/dollar amount: (required for each out year phase)(4% FY 18-19 & 4% for FY 19-20)	12%		$713,651
Total of Construction Improvement Costs:			**$6,660,745**
*Extended costs included construction inflation (4%) to start of construction as calculated in 2015			
5a) Total square feet/lineal feet of Construction Improvement area:			N/A
5b) Overall cost per square foot/lineal foot of construction Improvement:			N/A

6) Miscellaneous

Total of Miscellaneous Costs:	$0

7) Project Contingency

Contingency (10% CM) (Percentage of total of professional services, construction improvements, and miscellaneous costs.)	$873,048

8) Total for this specific Phase of all professional services (4), construction improvements(5), miscellaneous costs(6), and project contingency(7)	**$9,603,528**

1) Approved By	Brian Caruso, District Manager, Southern District	2) Phase	**2 of 3**
3) Method and Date of Estimate	Engineering consultant, Contractor estimates, and recent projects		

4) Professional Services

Site Surveys, Investigations, and Reports:	$46,079
Arch/Eng/Basic Services:	$552,943
Code Review/Inspection:	$6,912
Other (Explain): Testing Services	$92,157
Inflation Percentage/dollar amount: (required for each out-year phase) (4% for FY 18-19, 4% for FY 19-20)	$55,847
Total of Professional Services:	**$753,938**

5) Construction Improvement (by Construction Specification Institute (CSI) Division format)

WORK ITEM (Labor/Material/Equipment)	UNIT SY, SF, LF, etc.	UNIT COST	EXTENDED COST*
Site Improvements: **Division 32 : Exterior Improvements**			
Roads & Concrete Items			
Asphalt Paving	11,818 SY	$77.60	$917,077
Asphalt Pavement-Parking Lots	11,097 SY	$70.66	$784,114
Concrete Paving	8,200 SF	$21.81	$178,842
Roadway/Paving Striping	234 Stalls	$30.93	$7,238
Sidewalks	21,120 SF	$12.15	$256,608
Concrete Curbs	9,567 LF	$24.24	$231,904
Water System			

Water Line Replacement	4,230 LF	$147.87	$625,490
Backflow Preventer	1 Each	$10,140	$10,140
Tunnel Crossings	2 Each	$5,954	$11,908
Fire Hydrant Assembly	8 Each	$4,056	$32,448
Water Line Site Restoration	24,751 SF	$0.99	$24,503
Sanitary System			
Sanitary Replacement – Open Cut	1,757 LF	$97.14	$170,675
Sanitary Replacement – Slip Line	0 LF	$194.69	$0
Sanitary Site Restoration	32,680 SF	$0.99	$32,353
South Tunnel System			
Piping Systems, Structural, Life Safety	2,342 LF	$1,585.78	$3,713,892
Asbestos Abatement	2,342 LF	$206.09	$482,663
Storm System			
Allowance	Lump Sum	$432,812	$432,812
South Tunnel System			
Piping Systems, Structural, Life Safety	0 LF	$1,585.78	$0
Asbestos Abatement	0 LF	$206.09	$0
Storm System			
Allowance	Lump Sum	$129,844	$129,844
Subtotal			$ 8,042,511
Contractor's General Conditions:	10%		$804,251
Contractor's Overhead & Profit:	15%		1,206,377
Inflation Percentage/dollar amount: (required for each out year phase)(4% for FY 18-19 & 4% for FY 19-20)	8%		643,401
Total of Construction Improvement Costs:			**$10,696,540**
*Extended costs included construction inflation (4%) to start of construction as calculated in 2015			
5a) Total square feet/lineal feet of Construction Improvement area:			N/A
5b) Overall cost per square foot/lineal foot of construction Improvement:			N/A

6) Miscellaneous

Total of Miscellaneous Costs:	$0

7) Project Contingency

Contingency (10% CM) (Percentage of total of professional services, construction improvements, and miscellaneous costs.)	$1,145,048

8) Total for this specific Phase of all professional services (4), construction improvements(5), miscellaneous costs(6), and project contingency(7)	**$12,595,526**

1) Approved By	Brian Caruso, District Manager, Southern District	2) Phase	**3 of 3**
3) Method and Date of Estimate	Engineering consultant, Contractor estimates, and recent projects		

4) Professional Services

Site Surveys, Investigations, and Reports:	$78,480
Arch/Eng/Basic Services:	$941,758
Code Review/Inspection:	$11,772
Other (Explain): Testing Services	$156,960
Inflation Percentage/dollar amount: (required for each out-year phase) (4% for FY 18-19 and 4% for FY19-20)	$95,118
Total of Professional Services:	**$1,284,088**

5) Construction Improvement (by Construction Specification Institute (CSI) Division format)

WORK ITEM (Labor/Material/Equipment)	UNIT SY, SF, LF, etc	UNIT COST	EXTENDED COST*
Site Improvements: **Division 32 : Exterior Improvements**			
Roads & Concrete Items			
Asphalt Paving	22,419 SY	$77.60	$1,739,714
Asphalt Pavement-Parking Lots	10,368 SY	$70.66	$732,603
Concrete Paving	5,400 SF	$21.81	$117,774
Roadway/Paving Striping	225 Stalls	$30.93	$6,959
Sidewalks	25,354 SF	$12.15	$308,051
Concrete Curbs	18,906 LF	$24.24	$458,281
Water System			
Water Line Replacement	6,502 LF	$147.87	$961,451

Backflow Preventer	1 Each	$10,140	$10,140
Tunnel Crossings	5 Each	$5,954	$29,770
Fire Hydrant Assembly	7 Each	$4,056	$28,392
Water Line Site Restoration	70,570 SF	$0.99	$69,864
Sanitary System			
Sanitary Replacement – Open Cut	4,157 LF	$97.14	$1,739,714
Sanitary Replacement – Slip Line	1,855 LF	$194.69	$732,603
Sanitary Site Restoration	75,560 SF	$0.99	$117,774
South Tunnel System			$6,959
Piping Systems, Structural, Life Safety	0 LF	$1,585.78	$308,051
Asbestos Abatement	0 LF	$206.09	$458,281
Storm System			
Allowance	Lump Sum	$302,968	$961,451
Subtotal			$ 8,787,832
Contractor's General Conditions:	10%		$878,783
Contractor's Overhead & Profit:	15%		$1,318,175
Inflation Percentage/dollar amount: (required for each out year phase)(4% FY 18-19 & 4% for FY 19-20)	8%		$703,027
Total of Construction Improvement Costs:			**$11,687,817**

*Extended costs included construction inflation (4%) to start of construction as calculated in 2015

5a) Total square feet/lineal feet of Construction Improvement area:	N/A
5b) Overall cost per square foot/lineal foot of construction Improvement:	N/A

6) Miscellaneous

Total of Miscellaneous Costs:	$0

7) Project Contingency

Contingency (10% CM) (Percentage of total of professional services, construction improvements, and miscellaneous costs.)	$1,297,190

8) Total for this specific Phase of all professional services (4), construction improvements(5), miscellaneous costs(6), and project contingency(7)	**$14,269,096**

Proj. M#	Fiscal Year	Phase of Work	Dollar Amount (Per Detailed Budget)
N/A	FY 2020-21	Phase One	$9,603,528

FUTURE PHASING[2]

Proj. M#	Fiscal Year	Phase or Phases of Work	Dollar Amount (Per Detailed Budget)
	FY 2021-22	Phase Two	$12,595,526
	FY 2022-23	Phase Three	$14,269,096
		(Subtotal)	$26,864,622

TOTAL PROJECT DOLLAR AMOUNT (All Future Phases subtotals and Current Dollar amount)	$ 36,468,150

S[illegible] COLORADO
DE[illegible]MENT OF PERSONNEL & ADMINISTRATION
O[illegible]F THE STATE ARCHITECT

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	**General Funded**	(2) Project Title:	CR-07 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 Email:	gargi.duttgupta@state.co.us	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2013-14	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	10-Jul-19	(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Professional Services							
(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	$ 372,722	$ -	**$ 221,757**	$ 55,847	$ 95,118	$ -	$ -
(13)	Inflation Percentage Applied		0.00%	**12.00%**	4.00%	4.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 4,107,761	$ -	**$ 2,069,735**	$ 753,938	$ 1,284,088	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(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	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	$ 2,060,079	$ -	**$ 713,651**	$ 643,401	$ 703,027	$ -	$ -
(27)	Inflation Percentage Applied		0.00%	**12.00%**	8.00%	8.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 29,045,102	$ -	**$ 6,660,745**	$ 10,696,540	$ 11,687,817	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings***	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(37)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(38)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(39)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(40)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	**$ 33,152,863**	**$ -**	**$ 8,730,480**	**$ 11,450,478**	**$ 12,971,905**	**$ -**	**$ -**
	Project Contingency							
(43)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 3,315,287	$ -	**$ 873,048**	$ 1,145,048	$ 1,297,191	$ -	$ -
(45)	***Total Contingency***	$ 3,315,287	$ -	**$ 873,048**	$ 1,145,048	$ 1,297,191	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	**$ 36,468,150**	**$ -**	**$ 9,603,528**	**$ 12,595,526**	**$ 14,269,096**	**$ -**	**$ -**
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 36,468,150	$ -	**$ 9,603,528**	$ 12,595,526	$ 14,269,096	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	**$ 36,468,150**	**$ -**	**$ 9,603,528**	**$ 12,595,526**	**$ 14,269,096**	**$ -**	**$ -**

* Accompanies CC/CR-N Form

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*					
A	(1) Funding Type:	General Fund/Capital Construction Funds			
B	(1) Agency/Institution:	Department of Human Services	(2) OSA Delegate Signature:		07.09.19
C	(1) Project Title	CMHIP HVAC Replacements in Four MHI Buildings	(2) OSA Delegate Email:	gargi.duttgupta@state.co.us	
D	(1) Project Phase (Phase _of_):	Phase 1 of 3	(2) State Controller Project # (if a continuation):		
E	(1) Project Type:	[ ] Capital Construction (CC) / [X] Capital Renewal (CR)	(2) Agency/Institution Signature Approval		7/10/2019 Date
F	(1) First Year Requested:	FY 2020-21	(2) OSA Review Signature		10.1.19 Date
G	(1) Priority Number:	6 OF 11	(2) Revision Date:		Date

* Attach CC/CR-CS Form

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 _____

B. PROJECT SUMMARY/STATUS:

The Colorado Department of Human Services requests $3,896,460 total funds/ General Fund in FY 2020-21 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)	$44,252,081	$0	**$3,896,460**	$20,242,904	$20,112,717	$0	$0
(48) Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(49) Re-appropriated 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)	$44,252,081	$0	**$3,896,460**	$20,242,904	$20,112,717	$0	$0

*New construction cost estimates for Phases 2 and 3 will be prepared following Architectural/Engineering design in Phase 1.

D. PROGRAM INFORMATION:

The Colorado Mental Health Institute at Pueblo (CMHIP) operates 455 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 27 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 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. 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 ($423,894), Building 116 ($434,002), Building 121 ($1,321,327), and Building 125 ($1,717,238) – Professional services including estimates ($3,896,460)
- Phase 2: Building 115 ($4,878,661) and Building 116 ($5,005,443) – Abatement and construction; Building 121 ($10,358,800) – Construction, no abatement
- Phase 3: Building 125 – Abatement and construction ($20,122,717)

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)/ COMPARATIVE ANALYSIS:

LCCA will be given further consideration and analysis during the design phase.

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 Cost for Building 115 HVAC	**Amounts**
Professional Services	$385,358
Professional Services Contingency (10%)	$38,536
Construction & Abatement	$4,435,146
Construction Contingency (10%)	$443,515
Total	**$5,302,555**

Table 2: Estimated Cost for Building 116 HVAC	**Amounts**
Professional Services	$394,547
Professional Services Contingency (10%)	$39,455
Construction & Abatement	$4,550,403
Construction Contingency (10%)	$455,040
Total	**$5,439,445**

Table 3: Estimated Cost for Building 121 HVAC	**Amounts**
Professional Services	$1,201,206
Professional Services Contingency (10%)	$120,121
Construction	$9,417,091
Construction Contingency (10%)	$941,709

Total	**$11,680,127**

Table 4: Estimated Cost for Building 125 HVAC	**Amounts**
Professional Services	$1,561,125
Professional Services Contingency (10%)	$156,113
Construction & Abatement	$18,284,288
Construction Contingency (10%)	$1,828,429
Total	**$21,829,955**

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 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.

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 known 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 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:

Phase 1 of 3	**Start Date**	**Completion Date**
Pre-Design	**July 2020**	**October 2020**
Design	**October 2020**	**April 2021**
Construction	**N/A**	**N/A**
FF&E /Other	**N/A**	**N/A**
Occupancy	**N/A**	**N/A**

Phase 2 of 3 – Buildings 115, 116, and 121	**Start Date**	**Completion Date**
Pre-Construction	**July 2021**	**October 2021**
Design	**N/A**	**N/A**
Construction	**October 2021**	**October 2022**
FF&E /Other	**N/A**	**N/A**
Occupancy	**October 2022**	

Phase 3 of 3 – Building 125	**Start Date**	**Completion Date**
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**	

*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:

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):			
Prior Year Actual Ending Fund Balance	**Current Year Projected Ending Fund Balance**	**Year 2 Projected Ending Fund Balance with Project Approval**	**Year 3 Projected Ending Fund Balance with Project Approval**
$	**$**	**$**	**$**

STATE OF COLORADO
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OFFICE OF THE STATE ARCHITECT

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	**General Funded**	(2) Project Title:	CR-06 - HVAC Replacements 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 Email:	gargi.duttgupta@state.co.us	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2020-21	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	10-Jul-19	(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Professional Services							
(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 (Testing Services)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional	$ 136,278	$ -	**$ 136,278**	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied		0.00%	**4.00%**	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 3,542,236	$ -	**$ 3,542,236**	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(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	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	$ 1,411,036	$ -	**$ -**	$ 707,794	$ 703,242	$ -	$ -
(27)	Inflation Percentage Applied		0.00%	**0.00%**	4.00%	4.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 36,686,928	$ -	**$ -**	$ 18,402,640	$ 18,284,288	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings***	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(37)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(38)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(39)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(40)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	**$ 40,229,164**	**$ -**	**$ 3,542,236**	**$ 18,402,640**	**$ 18,284,288**	**$ -**	**$ -**
	Project Contingency							
(43)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 4,022,917	$ -	**$ 354,224**	$ 1,840,264	$ 1,828,429	$ -	$ -
(45)	***Total Contingency***	$ 4,022,917	$ -	**$ 354,224**	$ 1,840,264	$ 1,828,429	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	**$ 44,252,081**	**$ -**	**$ 3,896,460**	**$ 20,242,904**	**$ 20,112,717**	**$ -**	**$ -**
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 44,252,081	$ -	**$ 3,896,460**	$ 20,242,904	$ 20,112,717	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	**$ 44,252,081**	**$ -**	**$ 3,896,460**	**$ 20,242,904**	**$ 20,112,717**	**$ -**	**$ -**

* Accompanies CC/CR-N Form

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Funding Type:	General Fund/Capital Construction Funds		
B	(1) Agency/Institution:	Department of Human Services	(2) OSA Delegate Signature:	6.26.19 Date
C	(1) Project Title	Institute Suicide Risk Mitigation – Ongoing Year/Phase 1 of 3 (FY20-21)	(2) OSA Delegate Email:	paul.wisniewski@state.co.us
D	(1) Project Phase (Phase _of_):	Year 1 of 3	(2) State Controller Project # (if a continuation):	NA
E	(1) Project Type:	X Capital Construction (CC) Capital Renewal (CR)	(2) Agency/Institution Signature Approval	7/10/2019 Date
F	(1) First Year Requested:	FY 2019-20	(2) OSA Review Signature	10.1.19 Date
G	(1) Priority Number:	3 OF 11	(2) Revision Date:	Date

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 ____

B. PROJECT SUMMARY/STATUS:

The Colorado Department of Human Services requests $1,446,879 in General Fund/capital construction funds in FY 2020-21 for phase 1 of the Institute Suicide Risk Mitigation – Ongoing Year 1/ Phase 1 of 3 (FY 2020-21) project. Phase 1 monies will address items cited by the Joint Commission (JC) during a regulatory survey at the Colorado Mental Health Institute at Pueblo (CMHIP) in a couple of buildings and similar-in-style-and-location issues (but not specifically cited by the JC) in those buildings. Due to budgetary constraints, funding for the first phase is limited to approximately $1.4M. Therefore, the first year request includes funding for professional services, construction, and contingency/scope for only 2 of the 5 buildings cited by the JC. The JC conducts scheduled surveys every 3 years and a various amount of unscheduled surveys. With self-harm mitigation being an ongoing concern in the arena of behavioral health, the Department anticipates a constant/ ongoing need to fix and ameliorate suicide risks in the MHIs and thus this request is proposed as a 3 year request: Year 1 will address cited and similar-in-nature items in building 106, and 129 from the Joint Commission; and Year 2 will address the remaining cited and similar-in-nature items in building 116, 121, and 140. Year 3 will be similar-in-nature items and window replacement at Fort Logan Mental Institute. This request was put forth in FY 2019-20 due to the JC survey findings / citations dated from 2017 and 2018; since it was not approved but the need remains, the Department is submitting this request for FY 2020-21.

Colorado operates two Mental Health Institutes (MHIs) licensed by the Colorado Department of Public Health and Environment; certified for Medicaid and Medicare participation by the federal Centers for Medicare and Medicaid Services (CMS); and accredited by the Joint Commission (JC). Additionally, the Colorado Department of Public Safety and Division of Fire Prevention and Control provides oversight. Suicide risk mitigation is a requirement from the JC and a critical element of behavioral health institutes. This is an ongoing process as the Department identifies new risks or new regulations from CMS and the JC are enforced upon the Department.

As noted above, the $1.4 million dollars included in this request for phase 1 will address the items specifically cited and similar in nature items identified during the JC survey in building 106 and 129. Though the anticipated costs for phases 2 and 3 have been computed based on current survey findings and needs, the Department anticipates that additional funds may be needed in the future if the JC identifies more areas and issues of concern for suicide risk in the mental health institutes. With no other funding source available, the Department must rely on the General Fund granted by the General Assembly and thus proposes this request as an ongoing 3 year project to address future findings. JC findings impact accreditation and thus operations directly. Future requests may include additional scope based on new survey findings

and deficiency citations by the JC. Due to the State process and timelines for budget requests, funding will be requested for the year after the JC citations are known. Therefore, the first year request (FY 2020-21) will address findings from FY 2019-20 and before, second year (FY 2021-22) will address findings from FY 2020-21 and so forth. Outlying year costs have been noted but may change due to future surveys noting more deficiencies. Once survey findings have been reported and identified, costs can be associated with identified items and cost estimates will be updated. Once this three year project has been completed, an additional three year project may need to be requested due to the ever evolving and never ending process of suicide risk mitigation.

Understanding the importance of suicide mitigation, the Office of Behavioral Health has recently addressed the physical environment ligature points through the ongoing 3-phased Suicide Risk Mitigation project / 2009-007P14. This project was appropriated for the following areas:

- Phase I-- FY 2014-15: $4,478,533
  - Design and construction of the CMHIP, STAR (Strategies to Accomplish Recovery) and SLP (Social Learning Program), Building 106, second floor.
  - Design and construction of the CMHIFL Team One, E building (First floor east wing)
  - Design of the CMHIP, CRU (Community Reintegration Unit), Building 106, first floor
  - Design of the CMHIFL Team Three, E building (First floor west wing)

- Phase II-- FY 2015-16: $4,556,369
  - Construction of the CMHIP, CRU (Community Reintegration Unit) Building 106, first floor
  - Construction of the CMHIFL Team Three (First floor west wing)
  - Design of the Treatment / Admissions / Clinic areas CMHIP Building 125
  - Design of the CMHIFL Team Five (E building second floor east)
  - Design of the CMHIFL Treatment/ Admission/Clinic areas H building

- Phase III—FY 2016-17: $1,867,583
  - Construction of the Treatment / Admissions / Clinic areas CMHIP Building 125
  - Construction of unit 79N and 79 S (Building 106)
  - Construction of the CMHIFL Team Five (E building second floor east)
  - Construction of the CMHIFL Treatment/ Admission/Clinic areas (H Building)
  - Construction of the CMHIP Patient Safety and Security Supplemental

The above projects addressed a variety of Suicide Risk items including, but not limited to: removal of drop ceilings, installing anti-ligature door knobs, removal of pinch points above the doors, increasing sight-lines from staff, and installing anti-ligature furniture. Many of these items were identified in the early 2000s but the State's economic climate precluded addressing them then. In the interim, the evolution and understanding of ligature risk has expanded significantly thus bringing many more items to the forefront even before this project is complete.

C. SUMMARY OF PROJECT FUNDING REQUEST: *(from CC CR-CS form, Rows 47 through 52)*

Costs for phases 2 and 3 have been added for similar findings but may be revised if future surveys note more deficiencies.

(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)	**$11,998,862**	$0	**$1,446,879**	**$8,425,378**	**$2,126,605**	$	$

(48) Cash Funds (CF)	$0	$0	**$0**	$0	$0	$0	$0
(49) Re-appropriated 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)	**$11,998,862**	$0	**$1,446,879**	**$8,425,378**	**$2,126,605**	$TBD	$TBD

D. PROGRAM INFORMATION:

The Office of Behavioral Health (OBH) is the State's behavioral health authority. OBH is responsible for policy development, service provision and coordination, program monitoring and evaluation, and administrative oversight for the public behavioral health system. The OBH administers and oversees the State's Mental Health Institute Division which is comprised of two state-operated psychiatric hospitals: the Colorado Mental Health Institute at Pueblo (CMHIP) and the Colorado Mental Health Institute at Fort Logan (CMHIFL), with a combined 549 beds, providing comprehensive inpatient psychiatric, psychological, rehabilitation and therapeutic care to individuals with serious mental illness. Both Institutes are licensed by the Colorado Department of Public Health and Environment; certified for Medicaid and Medicare participation by the federal Centers for Medicare and Medicaid Services.

CMHIFL operates 94 inpatient psychiatric beds for adults with a serious mental illness. Most of the patients treated at CMHIFL are referred by community mental health centers and are on civil commitments. CMHIP operates 455 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:

The need for systematic, suicide risk mitigation efforts is well known and has been documented as far back as 1995. In addition to the physical plant, other factors such as supervision, assessment, surveillance, and treatment are involved in successfully preventing clients from inflicting self-harm. As a result, the Department has taken several actions over the last several years to reduce suicide risk ranging from planning/assessments, programmatic/operational, and physical environment improvements. These actions include risk assessment as part of the pre-referral assessment and intake process; ongoing patient assessment to identify and evaluate risk; suicide risk training for clinical and direct care staff on an annual basis and more frequently in higher risk units; increased physical observation of patients; removal of ligature points; and installation of suicide-resistant hardware.

Numerous taskforce activities have been convened, accomplished work, and contributed to the Suicide Risk Assessment and Prevention efforts since 1994. In July 1998, the Department hired Criminal and Juvenile Justice International to conduct a detailed analysis of physical factors that could affect suicide attempts and to provide recommendations regarding architectural and programmatic safety and security for the maximum-security unit within the Institute for Forensic Psychiatry (IFP) at CMHIP.

The Department also hired Superior Consultant Company (SCC) to conduct a suicide risk assessment of its inpatient and residential team unit facilities. SCC's observations and findings provided the clinical/architectural expertise for the Fort Logan Suicide Risk Assessment Program (SRAP). The assessment report included, among other very valuable information and recommendations, a listing of the "top ten" physical suicide risks occurring on the CMHIFL campus. Integrated Construction Technologies (ICT) was also hired to provide support services for the SRAP. ICT worked with State personnel and direct care staff to create a database documenting the suicide risks identified in the Superior Consultant Company report. The database, completed in 1999, details an item-by-item, room-by-room, listing of physical suicide risks. No new items have been added since 1999, as it is now a closed database.

The Department began implementing recommendations from the SCC for CMHIFL in FY 1999-2000 and completed several suicide risk mitigation projects including: replacing shower curtain rods with break-away hooks; changing the type of shower curtain material; replacing shower heads in common areas with security push button controls; replacing/modifying some toilet partitions in common bathrooms; removing scissor door closures; replacing towel hooks with breakaway hooks; and replacing closets on the locked adolescent unit with modular fixtures. However, a number of the identified risks were not addressed in 1999-2000 due to budgetary constraints, though some of them will and have been addressed by the ongoing 3-phased appropriated project as noted above.

In lieu of replacing major facilities, the patient care units require systematic modifications to safely meet patient population needs. The patient units at CMHIFL were originally constructed in the early 1960s; the F1 Cottage was remodeled in 2012. The patient/residential units at CMHIP vary in age, but the majority were built between 1939 and 1982 with the High Security Forensics Institute (HSFI) completed in 2009. The average age of the buildings included in this project is approximately 46 years. The Department has adopted a proactive approach to suicide risk mitigation. In light of past patient suicides (two at CMHIP since 2009) the Department has undertaken a detailed effort to systematically and continuously analyze its direct care facilities for physical suicide risks. In addition, JC surveys continue to identify evolving risks which will need to be addressed by the Department to maintain accreditation.

In May of 2018, the JC visited CMHIP to investigate practices based on their standards of performances. During this investigation, several issues were cited as non-compliant. To maintain its accreditation status, the Department must address the following citations:

- Ligature fixtures at handwashing sinks
- Toilet partitions that are non-ligature resistant
- Sinks, toilets and breakers with exposed piping, partitions doors and grab bars
- Pinch points in doors
- Ligature door knobs
- 3-point hinges
- Door closures on the corridor side
- Wall-mounted telephone cords longer than 14"
- Drinking fountains with non-ligature resistant spouts
- Ligature shower/tub hardware
- Drop ceilings posing a ligature risk
- Ligature handrails

These issues were cited in buildings 106 116, 121 (GW 1 & 7), 129 and 140. In total, approximately 380 citations were given by the JC relating to the physical facility. In order to address the cited issues, the following steps will need to be taken:

- Install ligature resistant fixtures at handwashing sinks (this will require the sinks to be replaced as well)
- Install ligature-resistant toilet partitions
- Install ligature-resistant sinks, toilets and breakers, including partitions doors and grab bars.
- Installing door alarms to mitigate pinch points
- Installing ligature-resistant door knobs
- Installing continuous hinges in place of 3-point hinges
- Corridor door closures will be mitigated
- Install shorter cords to wall-mounted phones
- Install wall-mounted bottle filling station
- Install ligature-resistant shower and tub hardware
- Installing hard ceilings

During the construction work of this project, some patients will be moved to other facilities as available on a temporary basis. Some construction can be done in areas while still occupied requiring locating patients elsewhere in the facility for a few hours each day. However, the latter approach will strictly limit the time available for contractors to do productive work, thus impacting the overall schedule.

During a July 27, 2017 investigation by the JC, the drop ceiling in the Geriatric Ward 1 (GW1, building 121) at CMHIP was identified as a ligature risk. CMS had originally accepted a solution (gluing the drop ceiling tiles in place), but subsequently rejected it. The risk remains and needs to be addressed in order to maintain the Institute's current certification with CMS. The solution involves replacing the drop ceilings within the Geriatric Ward 1 with a hardened ceiling, which is an acceptable solution to the CMS. The ceilings to be replaced are either hard ceilings with acoustic ceiling tiles glued to them, or are suspended ceiling grids outside of a direct line-of-sight of a continually-occupied nurse station. Neither of these conditions involves asbestos abatement.

Following their investigations, the JC cited issues such as ligature plumbing fixtures. Although they did not look at every bathroom at CMHIP, it can be reasonably inferred that similar ligature fixtures in similar bathrooms in the same buildings will be cited in the future. Therefore, fixtures similar in style and location of those that were cited have been incorporated into all phases of this request / project, so that risks in each building are addressed holistically. The similar-in-style-and-location issues (but not specifically cited by the JC) include:

- Ligature- risk fixtures at handwashing sinks
- Toilet partitions that are non-ligature resistant
- Sinks, toilets and breakers with exposed piping, partitions doors and grab bars
- Pinch points in doors
- Ligature-risk door knobs
- 3-point hinges
- Door closures on the corridor side
- Wall-mounted telephone cords longer than 14"
- Drinking fountains with non-ligature resistant spouts
- Ligature shower/tub hardware
- Drop ceilings posing a ligature risk (including DW7)
- Ligature-risk handrails

These issues are located within the same buildings where citations were made: Buildings 106, 116, 121, 129 and 140. The total non-cited items include approximately 670 items.

At CMHIFL, all citations by the JC during the February 2018 survey have been addressed, but in order to stay proactive, the Department contends that items cited at CMHIP could also be cited at CMHIFL in the future. Patients permanently reside in Bldg. E and the F1 Cottage at CMHIFL. In those two locations, the following items were identified by staff as possible citations from the JC. They include:

- Non-ligature resistant paper towel, toilet paper, and soap dispensers
- Drop Ceiling in lounge/dining

The windows at CMHIFL on the Patient Care Units in Building E (Teams 1, 3 and 5) also represent a suicide risk. This phase of the funding request would allow the Department to replace those old windows with new windows that have built-in mini-blinds. Existing patient room single-pane windows that are original to the building are over 50 years old, and have cloth curtains for privacy. Sleeping rooms have been modified since they were originally built and there are many instances where a room wall abuts an existing window, thus hampering the availability of the entire window opening. This project would involve infilling exterior walls as needed to ensure that the windows fit within the sleeping rooms. Team 2 in Cottage F1 installed new windows with integral blinds as part of an American Recovery and Reinvestment Act renovation completed in 2012. At CMHIFL there are 4 PCUs Teams 1,2, 3 and 5; there is no team 4.

The existing curtains for these windows pose a self-harm risk as they can be used to aid in suicide attempts. Currently, curtains can be pulled off, torn, and could potentially be used to aid in suicide attempts. The cloth curtains also pose challenges in providing a sanitary environment with the potential of patient behavior causing unhygienic conditions not conducive to infection control. Curtains are also conducive environments for bed bugs. CMHIFL had four bed bug episodes in FY 2015-16, and three in FY 2016-17. Additionally, curtains do not provide adequate privacy and are difficult for staff to manage. Many windows face public streets or hospital courtyard areas. Often patient behavior (such as exposure) requires staff to quickly address privacy. Finally, single-paned windows are less energy-efficient, and can be a cause of discomfort in inclement weather to the patients housed in these sleeping rooms.

Phase 1:
Phase 1 will include addressing all cited and similar in nature items in Building 106 (2nd floor only, since the 1st floor issues will be addressed through the current /ongoing 42-bed expansion project) and 129 at CMHIP. This will allow for all items to be completed at one time minimizing the impact to the clients and staff within those facilities.

Phase 2:
Phase 2 will include addressing all cited and similar in nature items in Building 116, 121, and 140 at CMHIP. This will allow for all items to be completed at one time minimizing the impact to the clients and staff within those facilities.

Phase 3:
Phase 3 will address items at Fort Logan including similar-in-nature items and window replacement. Should this phase move forward, during construction for this phase, some patients will be moved to other facilities as available on a temporary basis. Some work could be done in areas while still occupied, thus only requiring locating patients elsewhere in the facility for a few hours each day. However, the latter approach will strictly limit the time available for contractors to do productive work, and impact the schedule.

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
P0605	Forensics Replacement Facility FY 05-06	30,652,141	2009
P0605	Forensics Replacement Facility	29,042,858	2010
2009-007P08	Suicide Risk Mitigation Ph. 1	2,908,158	2017
2015-030P14	Electronic Health Records & Pharmacy System Replace Ph. 1	66,919	2017
2015-030P14	Electronic Health Records & Pharmacy System Replace Ph. 1	36,488	2017
2015-030P14	Electronic Health Records & Pharmacy System Replace Ph. 1	84,579	2017
2015-030P14	Electronic Health Records & Pharmacy System Replace Ph. 1	20,179	2017
2015-030P14	Electronic Health Records & Pharmacy System Replace Ph. 1	188,556	2017
2015-032P14	OBH Program and Master Plans - CMHIFL and CMHIP - Ph. 1	456,400	2017
2009-007P14	Suicide Risk Mitigation Ph2	1,964,689	2017
2017-031P17	Hawkins Building L2 Unit	5,420,468	Bidding
M05030	Repair Automatic Transfer Switches and Elec Panels	160,000	2008
M06077	R/R Campus Tunnel and Utility Infra, Ph. 1 of 5	1,695,276	2009
M06077	R/R Campus Tunnel and Utility Infra, Ph. 2 of 5	1,826,480	2010
M06077	R/R Campus Tunnel and Utility Infra, Ph. 3 of 5	758,167	2012
M06077	R/R Campus Tunnel and Utility Infra, Ph. 4 of 5	1,090,519	2015
M06077	R/R Campus Tunnel and Utility Infra, Ph. 5 of 5	2,000,000	2016
M13052	Upgrade Bldg. Automation Systems, Phase 1 of 3	11,644	2017
2015-147M19	R/R Roofs, CMHIP Ph. 1, 2,& 3	540,497	Design
2015-147M19	R/R Roofs, CMHIP Ph. 1, 2,& 3	393,368	Design
2016-070M19	R/R Emergency & Secondary Elec System Ph. 1, 2,& 3	3,678,275	Design
2016-081M19	R/R Elevators, CMHIP Phase 3	939,678	Design
2016-081M19	R/R Elevators, CMHIP Phase 2	1,180,507	Design
2017-084M19	Replace Boiler Economizer, Central Plant CMHIP	1,024,467	Bidding
EM-704	Replace Variable Frequency Drives CMHIP	9,051	2011

EM-712	Hood Avenue Water Main Failure	20,468	2011
EM-734	Repair Broken Water Main Building 121	22,456	2011
EM-820	Evaluate Boiler Feed System	96,676	2012
EM-116	Coal Boiler #2 - Economizer Tube Rupture	28,857	2014-15
EM121	Coal Boiler 1&2 Economizer Tube Ruptures	88,087	2014-15
Total		$86,405,908	

F. CONSEQUENCES IF NOT FUNDED:

Should this request not be funded, the self-harm mitigation plan of action as proposed to address the JC survey findings would not be undertaken/ completed. The Institutes will continue to provide inpatient mental health treatment services in buildings and program areas ill-equipped to meet the complex needs of the patient population. Over the years the acuity of the patients at the CDHS MHIs has increased; and as the acuity of mental illness increases, the likelihood a patient would attempt suicide increases.

The Institutes could also lose their certification status with the Centers for Medicaid and Medicare and their accreditation status with the JC if citations are not resolved. In addition, funding from the CMS may be affected thus impacting operations; potential additional citations from both regulatory agencies could also be anticipated.

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

The entire project scope constitutes renovation and upgrades to existing buildings. Like for like replacement of components will take place therefore, there is no true Life Cycle Cost Analysis (LCCA) associated with this request.

There is no alternative to accomplishing these types of needed ongoing facility improvements and upgrades as alternative resources and funding sources do not exist.

H. ASSUMPTIONS FOR CALCULATIONS:

Cost estimates were provided by a professional estimator for specific suicide-risk mitigation items at both CMHIP and CMHIFL. The Department obtained the cost estimate for the window replacements at CMHIFL in 2017 from a vendor. The vendor estimated a cost of $1,789,064 to replace 123 windows. This estimate had an escalation of 8 percent built in, and includes 84 patient room windows and 39 living area and day hall windows in building E on the CMHIFL campus. This request includes all JC findings including ceiling replacements, and similar in nature items.

I. SUSTAINABILITY:

The project scope pertains to safety upgrades in both MHIs. With the exception of the windows replacement portion of this project, these upgrades, although classified as capital construction, do not lend themselves to any High Performance Certification Program (HPCP) and sustainability measures which are primarily energy, materials and site oriented to help conserve resources. The windows replacement work will not comply with the HPCP since that metric (LEED gold) cannot be met on a window replacement project. Though double-pane windows with mini-blinds and airlocks will improve the energy efficiency of the building, resulting in lower utility costs, the buildings on the CMHIFL campus are not sub-metered and thus there is no way to quantify and track this information. Based on glazing data provided by the Department of Energy, single-pane glazing has twice the heat loss as double-pane glazing, which should translate to energy efficiency. Double-paned windows will also help with meeting the State energy goals and the Governor's directives. The new psychiatric windows at CMHIFL will use laminated glass and will not require additional security features such as screens, bars, etc. This project does not plan to pursue HPCP and other sustainability goals.

J. OPERATING BUDGET IMPACT:

This request will not materially impact operating expenses or FTE. To date, CDHS has not realized increased operating expenses associated with Suicide Risk Mitigation. It is anticipated that, as the current suicide mitigation fixtures age (5-10 years), a decision item will be requested for ongoing replacement and repair.

K. PROJECT SCHEDULE:

Phase: Continuous	Start Date	Completion Date
Pre-Design	July 2020	November 2020

Design	**November 2020**	**May 2021**
Construction	**June 2021**	**December 2022**
Occupancy	**December 2020**	

L. ADDITIONAL INFORMATION:
NA

M. CASH FUND PROJECTIONS:

Cash Fund name and number:		**NA**	
Statutory reference to Cash Fund:		**NA**	
Describe how revenue accrues to the fund:		**NA**	
Describe any changes in revenue collections that will be necessary to fund this project:		**NA**	
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):		**NA**	
Prior Year Actual Ending Fund Balance	**Current Year Projected Ending Fund Balance**	**Year 2 Projected Ending Fund Balance with Project Approval**	**Year 3 Projected Ending Fund Balance with Project Approval**
NA	**NA**	**NA**	**NA**

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

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	**General Funded**	(2) Project Title:	Institute Suicide Risk Mitigation – Ongoing Year/Phase 1 of 3 (FY20-21)
(B)	(1) Agency/Institution:	Dept. of Human Services	(2) Project Phase (__ of __):	Year 1 of 3
(C)	(1) OSA Delegate Email:	paul.wisniewski@state.co.us	(2) Project Type:	Capital Construction (CC)
(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic	$ 1,242,118	$ -	**$ 151,829**	$ 884,121	$ 206,168	$ -	$ -
(8)	Code Review/Inspection	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(9)	Construction Management	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(10)	Advertisements	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(11)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional	$ 161,476	$ -	**$ 19,738**	$ 114,936	$ 26,802	$ -	$ -
(13)	Inflation Percentage Applied		0.00%	**13.00%**	13.00%	13.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 1,403,594	$ -	**$ 171,567**	$ 999,057	$ 232,970	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(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):	$ 8,411,029	$ -	**$ 1,012,192**	$ 5,894,140	$ 1,504,697	$ -	$ -
(21)	Renovation at $_____ X							
(22)	Cost for Capital Renewal (GSF):	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(23)	Renewal at $_____ X							
(24)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(25)	High Performance Certification	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	$ 1,093,433	$ -	**$ 131,585**	$ 766,238	$ 195,610	$ -	$ -
(27)	Inflation Percentage Applied		0.00%	**13.00%**	13.00%	13.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 9,504,462	$ -	**$ 1,143,777**	$ 6,660,378	$ 1,700,307	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings***	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(37)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(38)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(39)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(40)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	**$ 10,908,056**	**$ -**	**$ 1,315,344**	**$ 7,659,435**	**$ 1,933,277**	**$ -**	**$ -**
	Project Contingency							
(43)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 1,090,806	$ -	**$ 131,535**	$ 765,943	$ 193,328	$ -	$ -
(45)	***Total Contingency***	$ 1,090,806	$ -	**$ 131,535**	$ 765,943	$ 193,328	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	**$ 11,998,862**	**$ -**	**$ 1,446,879**	**$ 8,425,378**	**$ 2,126,605**	**$ -**	**$ -**
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 11,998,862	$ -	**$ 1,446,879**	$ 8,425,378	$ 2,126,605	TBD	TBD
(48)	Cash Funds (CF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	**$ 11,998,862**	**$ -**	**$ 1,446,879**	**$ 8,425,378**	**$ 2,126,605**	**$ -**	**$ -**

* Accompanies CC/CR-N Form

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*					
A	(1) Funding Type:	General Fund			
B	(1) Agency/Institution:	Department of Corrections	(2) OSA Delegate Signature:		Date
C	(1) Project Title	Skyline Correctional Center (SCC) Aging Population Living Unit	(2) OSA Delegate Email:	James.ramsey@state.co.us	
D	(1) Project Phase (Phase _of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):		
E	(1) Project Type:	X Capital Construction (CC) Capital Renewal (CR)	(2) Agency/Institution Signature Approval		Date
F	(1) First Year Requested:	FY2018-19	(2) OSA Review Signature	10·1·19	Date
G	(1) Priority Number:	8 OF 9	(2) Revision Date:		Date

A. FACILITY PLANNING DOCUMENTATION:

1) OSA approved Facility Program Plan/Capital Construction? Yes X No ____ Date Approved June 2018

2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes ____ No ____ Date Approved ____

B. PROJECT SUMMARY/STATUS:

This Capital Construction Project Request is for the design and construction funding to provide an Aging Population Living Unit at the Skyline Correctional Center (SCC) located on the East Canon City Prison Complex (ECCPC). This request is for a single phase project; no prior phases have occurred.

Based on the growth in the aging offender population, this project looks at the responsibilities for addressing age-related needs in the areas of health, safety, protection, recreation, and socialization for the elderly and special medical needs offender population.

Issues related to the growth of the aging offender population with the Department of Corrections (DOC) include, but are not limited to, the following:

- Health, safety, protection, recreation, socialization
- Development of comprehensive plans for all security levels including housing, medical/mental health care, and programs for the current and projected populations of older offenders
- Space requirements of an Aging Population Living Unit
- Staffing including specialty providers and specific training requirements

Through legislative action, it is proposed that Skyline Correctional Center, currently a Level I security facility, be changed to a Level II security facility, in order to provide enhanced services to the expanding elderly and special needs offender population within the DOC. This change in the security level will necessitate upgrades to the security features currently present at SCC. In addition, modifications to the physical plant, including housing, clinical services, programs, visiting, and recreation, will need to occur in order to provide the amenities to serve this specific offender population.

The total project budget is estimated to be $13,480,567. It is anticipated that a significant portion of the project site improvements will be performed by Colorado Correctional Industries (CCi) programs, thereby providing costs savings to the overall construction budget.

The rated capacity of SCC will change from 252 beds to 122 beds for elderly and special need offenders. The change in capacity is a result of providing the accessibility requirements, i.e., no upper bunks and accessible routes and maneuvering clearances, needed to serve this specialized population.

This project is the Department's long-range operational plan for this offender demographic population. This project allows the Department to consolidate essential medical services for geriatric offenders, dementia offenders, and the special needs offenders into one facility with staffing levels matched to the required services. This creates efficiencies in staffing and operations, especially with the difficulty in hiring medical professionals in the current job market. Currently, these higher need offenders are scattered in several facilities, with additional staffing required in smaller and sometimes remote areas.

C. SUMMARY OF PROJECT FUNDING REQUEST: *(from CC CR-CS form, Rows 47 through 52)*

(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)	$13,480,567	$0	**$13,480,567**	$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)	$13,480,567	$0	**$13,480,567**	$0	$0	$0	$0

D. PROGRAM INFORMATION:

The repurposing of the Skyline Correctional Center to accommodate elderly and special need offenders will impact all programs currently at this facility. This will include, but not be limited to, offender housing, offender programs (sex offender, mental health, and substance abuse), clinical services, recreation, food service and laundry, security and administration, visiting, and support services.

In the Colorado Prison Utilization Study prepared by CNA in June 2013, it stated:
"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."

E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

The DOC, similar to other correctional departments throughout the nation, has experienced a growth in the aging offender population. Per the DOC Statistical Report FY 2013, *"The number of older inmates is now the fastest growing segment of the prison population. Between 1995 and 2010, the number of state and federal prisoners age 55 or older nearly quadrupled, increasing at almost seven times the rate of the general population. In the DOC, between 1993 and 2013, the number of inmates 50 years of age and over increased by 683%, compared to the total population that grew 127% during the same time."* DOC offenders over 50 were 9.5% in 2004, 13% in 2009, 18% in 2013, and 19.8% in June of 2017. Additionally, as of May 2019, DOC offenders over the age of 55 were 12.75% of the population, age of 60 and over were 6.73% and 65 or older were 3.13%. The aging population trend is anticipated to continue to rise.

Compared with younger offenders, older offenders have higher rates of both mild and serious health conditions, such as gross functional disabilities, impaired movement, mental illness, increased risk of major diseases, and a heightened need for assistance with daily living activities. Hearing loss, vision problems, arthritis, hyper-tension, and dementia are all more common among older offenders. Their need for medical services and devices, such as walkers, wheelchairs, hearing aids, and breathing aids is therefore greater as well.

Prison facilities were created with younger offenders in mind. Facilities can pose special hardships for those considered elderly. Walking a long distance to the dining hall, climbing up to a top bunk, standing for count, or hearing staff orders can be problematic for some older offenders. Other activities of daily living, such as bathing, eating, dressing, taking medications, or managing personal finances can be demanding for some older offenders. Older offenders often find the prison environment to be intimidating due to the prison design which may challenge an offender's mobility capabilities.

The Aging Population Living Unit at SCC will serve as a learning tool on how to deal with the growing population of elderly and special need offenders through its unique design and service delivery. This will be beneficial should additional facilities, due to further increases in this population, be needed in the future. This Project Request is a proactive means through which the needs of an aging and special needs offender population within the DOC can be identified and addressed.

Background of the Skyline Correctional Center

The Skyline Correctional Center (SCC) is a State operated Level I Security correctional institution for adult male offenders, with a current rated capacity of 252 offenders. SCC is located within the East Canon City Prison Complex (ECCPC) and is one of three facilities that make up the

Canon Minimum Centers (CMC). The SCC facility is located along Evans Boulevard, the main access road to ECCPC off of State Highway 50, approximately two miles east of Canon City, in Fremont County, Colorado.

The offender population at SCC is primarily minimum custody and is provided work opportunities through Colorado Correctional Industries (CCi) in agri-business, manufacturing, and services. Educational programs are provided in academics, career and technical, and social sciences. Medical/clinical services are provided at the Arrowhead Correctional Center (ACC), adjacent to SCC. Allowing offenders to participate in meaningful programs, training, and work assignments prepare them for a successful return into society.

The current offenders at SCC are anticipated to remain living in the Canon City facilities to enable them to continue their current Colorado Industries work assignments. Offenders in other facilities would move into private prison beds to free up housing capacity for these SCC current offenders. The Department uses private prison facilities for housing offenders once state prison beds are at capacity. Since SCC would become a facility for elderly offenders with limited mobility, dementia, and special medical needs, it is anticipated that current offenders at SCC would not fit the eligibility criteria for this facility and would be housed in other facilities. Costs for private prisons would be included in the Department's normal budget requests for payments to these providers.

Inventory of Buildings at the Skyline Correctional Center

Building	Square Footage	Year Built
SK-001 COSK-3103 Office/Inmate Dorm/Food Service (Main Building)	41,657 SF	1957
SK-002 COSK-3104 Programs (Modular)	3,600 SF	1975
SK-003 COSK-3105 Maintenance/Storage	480 SF	1975
SK-006 COSK-3108 Chapel	1,877 SF	1971
SK-008 COSK-4387 Storage – Recreation	300 SF	1989
SK-011 COSK-5065 Storage - Maintenance	300 SF	1989
SK-012 COSK-5066 Storage - Maintenance	300 SF	1990
SK-013 COSK-5067 Storage – Maintenance	300 SF	1990
SK-014 COSK-7530 Storage	180 SF	1989
SK-015 COSK-7531 Maintenance	1,637 SF	1993
SK-017 COSK-7801 Storage	80 SF	1991

The Main Building, Programs, and Chapel are the only buildings requiring work through this Project Request.

Programmatic Intent

The repurposing of the Main Building will provide the following functions:

- Administration
  - Associate Warden *(off site)*
    - Warden and Admin. Assistant *(off site at Four Mile Correctional Center)*
  - Master Control
  - Shift Commander
  - Custody Control
- Intake/Release
  - Processing
  - Property Storage
  - Canteen
- Clinical
  - Medical
  - Mental Health
  - Medline
  - Exam and Therapy *(located on Bottom Level of Food Service Wing)*
  - Dental *(located off site at Centennial Correctional Facility)*
- Food Service/Dining
- Laundry *(located on Bottom Level of Food Service Wing)*
- Property Storage *(located on Bottom Level of Food Service Wing)*
- Barber Shop
- Living Units with Dayrooms
  - General Population elderly and physical disabilities *(52 beds)*
  - Special Needs Medical Unit *(48 beds; 24 hospital style beds, 24 regular sized beds)*
  - Severe Dementia *(10 beds)*
  - Offender Care Aide Workers *(12 beds)*

The repurposing of the Programs (Modular) Building will provide the following functions:

- Visiting
  - Officer Observation Station
  - Offender visiting

- Library
  - Stacks
  - Librarian Office
  - Workroom
- Programs
  - Classroom
  - Teachers Office
- Case Management
  - 3-4 Case Manager Offices
- Offices
  - Medical and Mental Health Offices

The repurposing of the Chapel will provide the following functions:

- Faith based programs
- Classroom/Meeting/Training when not in use as a Chapel

Aging Population Living Unit Bed Type and Count

Aging Population Living Unit Bed Type and Count						
Population	**A Wing**	**B Wing**	**C Wing**	**D Wing**	**E Wing**	**TOTAL**
SNMU*	24	0	0	24	0	**48**
Elderly and Physical Disabled	0	26	26	0	0	**52**
Severe Dementia	0	0	0	0	10	**10**
Offender Care Aid	4	2	2	4	0	**12**
TOTAL	**28**	**28**	**28**	**28**	**10**	**122**

*__S__pecial __N__eeds __M__edical __U__nit

Project Overview

The physical alterations made at SCC will need to include changes in offender housing, clinical, visiting, programs, recreation, and an increase in security measures. Per C.R.S. 17-1-104.3, *"Level I facilities shall have designated boundaries, but need not have perimeter fencing. Inmates classified as minimum may be incarcerated in Level I facilities, but generally inmates of higher classifications shall not be incarcerated in Level I facilities."* In contrast, *"Level II facilities shall have designated boundaries with a single or double perimeter fencing. The perimeter of Level II facilities shall be patrolled periodically. Inmates classified as minimum restrictive and minimum may be incarcerated in Level II facilities, but generally inmates of higher classifications shall not be incarcerated in Level II facilities."*

The Skyline Correctional Center Aging Population Living Unit project will provide the physical modifications and upgrades to SCC required to provide the enhanced services and care needed to safely manage the elderly and special needs male offender. This will change the current mission at SCC which as a Level I facility provides minimum custody offender workers in a number of Colorado Correctional Industries programs.

The modifications to create aging/elderly care housing will require the following elements:

- Abatement of existing hazardous materials;
- American with Disabilities Act modifications throughout that include taking two cells to create one larger cell, toilet and shower rooms modifications;
- Demolition of existing walls, exterior windows, and finishes;
- Exterior window replacement;
- Elevator and equipment room installation;
- Office I Clinic I Treatment areas;
- Nurse's Station;
- Library renovation;
- Mechanical and electrical systems upgrades;
- Life Safety improvements to include the installation of a Fire Sprinkler System inclusive of Fire Alarm and Smoke Detectors;
- Nurse Call and Intercom system installation
- Stand-By Generator

Allowances have been provided in the project budget for equipment and furnishings that will be further defined in the schematic and design development stages of professional services.

Architect/Engineer (A/E) professional services will be procured for this project request to include the programming of required spaces, schematic design, design development, construction documentation, construction administration, and provisions of the High Performance Certification Program (HPCP).

Facility Infrastructure and Site Improvements

Site improvements for the project will include the minor site grading and construction of concrete sidewalks and ramps to improve accessibility for the offender population proposed. Site grading will be necessary for the installation of the elevator located off the Food Service Wing of the Main Building.

Improved facility access will be provided to the site at two locations where the perimeter road intersects Evans Boulevard. These improvements will include vehicle sallyports with wider access from Evans Boulevard. The perimeter road will be re-graded to follow the alignment of the new perimeter fence. A pedestrian gate will be provided through the perimeter fence at the main facility entry for facility staff, visitors, and offender intake.

Fencing: SCC currently has a partial single 10 foot perimeter fence with no detection. The existing perimeter fence will be replaced with a 12 foot, 9-gauge perimeter fence with rat barrier that will encompass the entire facility. In addition, a 12 foot, 9-gauge fence will be installed to create outdoor recreation yards for the five housing wings. Vehicle and pedestrian gates/sallyports will be installed as needed. The proposed security fencing will not have a detection system, such as a non-lethal electric fence (NLEF) or microwave system, as the facility will only have a security level of 2.

Infrastructure: During design development it will be determined if additional fire hydrants are required for coverage of the site; two additional fire hydrants have been included in the cost estimate. Power service upgrades are anticipated due to the demand of electronic medical appliances that will be required to provide proper service for this population. No other utility service upgrades to support the new work described in this project are anticipated. Utility work may be required to relocate existing utilities that interfere with the new construction.

Facility Condition Index (FCI): The FCI of the Main Building are estimated to increase from a 60 to 90 as the improvements to the existing facility are completed. These improvements include a new mechanical system, electrical systems, new restrooms, new showers, new exterior non-operable windows, a fire protection system, a new elevator, a new perimeter and ADA site improvements for recreation, as well as additional items as noted in the FPP.

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
PD14-033	CTCF Dementia Unit	$43,238.28	October 2014

F. CONSEQUENCES IF NOT FUNDED:

Not funding this project will result in continued challenges for older offenders to function within the "normal" prison environment. These hardships can include walking long distance to dining and programs, climbing to a top bunk, standing for count, or hearing staff orders. Activities of daily living, such as bathing, dressing, taking medications, or managing personal finances can also present challenges to elderly offenders.

These elderly and special need offenders will continue to occupy infirmary beds when they would be better served in an aging population living facility, thus reducing the number of occupied infirmary beds for those offenders that truly are in need of them.

A high risk for victimization of the elderly offenders will continue by other offenders, if the elderly offenders remain in general population of Department Facilities. The escalated cost for offender medical transport for those housed in rural Facility locations will remain. Creating the Aging Population Unit at SCC, and centralizing the elderly population, will reduce the distance and time required for medical transports as specialized medical services are provided in both Canon City and Pueblo.

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

The repurposing of the Skyline Correctional Center is the preferred solution in providing an aging population living unit for the elderly and special needs offenders within the DOC. Rather than new construction, this project incorporates the re-use and repurposing of existing state assets in providing facilities that will meet the requirements of this population. The project schedule is greatly reduced when compared with new construction, thus providing these special need beds in a more timely manner.

Another solution considered for this project was the construction of a new facility. Based on the area currently being used at the Skyline Correctional Center, a new building of 38,000 square feet, including 122 special use beds with toilet/shower areas, kitchen, dining, recreation, laundry, administrative offices, medical/clinical/exam, programs, visiting, and library was calculated as costing upwards of $65,711,574. This is based on a FY 2017-18 Capital Construction Request submitted by the Department of Human Services for the 40 bed Adams County Youth Services Center Replacement inflated from a base cost of $495,708 per bed. Due to the cost and schedule of construction, this solution is not being considered.

H. ASSUMPTIONS FOR CALCULATIONS:

Costs used in the project estimate are taken from RSMeans 2015 Building Cost Data and projects of similar size and scope and have been inflated to a mid-point of construction as mid- July 2022. The description and breakdown of assumptions used to calculate the project budget is as follows:

1) Professional Services of $1,801,306 calculated as follows:
   - A/E Basic Services $1,368,080; 15% of the Total Construction Costs (TCC)
   - A/E HPCP/LEED Design $ 182,411; 2% TCC
   - Code Review and Inspections $ 45,603; 0.5% TCC
   - Advertisements, Etc. $ 68,404; 0.75% TCC
   - Commissioning $ 136,808; 1.5% TCC
2) Construction of $5,649,492 calculated as follows:
   - On-Site Improvements $ 581,657
   - Renovation $ 4,767,672
   - HPCP $ 300,163; 5% premium of TCC
3) Equipment and Furnishings of $653,927 calculated as follows:
   - Equipment $ 233,129; allowance as equipment will be further defined in the schematic and design development stages of professional services
   - Furnishings (cell furnishings) $ 216,810
   - Communications $ 203,988
4) Art in Public Places $ 6,003; 0.1% TCC per C.R.S. 24-48.5-313
5) Miscellaneous expenses of $900,489 calculated as follows:
   - Secure Facility Environment Factor that accounts for contractor work inefficiencies due to working in a prison environment of 10% of labor only of the CIT.
   - Site Location Factor of 10% of base and alternates that accounts for remote location of the facility
6) Project Contingency of $1,225,506 calculated at 10% of the sum of Professional Services, Base Project Costs, and Miscellaneous expenses
7) DOC Facility Management Services escalated costs in the report by 2.7% to July 2019, then 5.8% compounded to mid-July 2022 – the anticipated mid-point of construction. The inflation factor was calculated using the four-year average of inflation from the Engineering News Record, Building Cost Index.

Refer to the Facility Program Plan for further breakdown of construction costs in Appendix B, SCC Aging Population Living Unit Preliminary Budget Worksheet

I. SUSTAINABILITY:

The SCC Aging Population Living Unit, 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. This will include the repurposing of existing state assets, buildings and infrastructure, rather than new construction. 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:

Aging Population Living Unit Staffing

The following is a staffing recommendation for Days, Swings, and Graves to include Recreation, Food Service, Laundry and Security Specialty posts. Note: The positions listed below do not take into consideration a relief factor for the recommended posts that is recommended for the operation.

Days-

Associate Warden	Existing with CMC *
Shift Commander- Captain	1*
Housing Staff	3*
Housing Lieutenant	1*
Master Control	1*
Perimeter	Existing with CMC*
Recreation	1*
Yard/Zones	2
Case Managers II	1*
Case Manger I	2*
Social Worker II	2

Health Provider II	1
HSA	1

Security Specialty Posts-

Transport	2*
Visiting	2*
Property/Intake/Canteen	1*

CSTS-

Food Service	2 Sgt's* / 1 Lieutenant *
Laundry	1 Sgt *

Medical -

RN III	1
RN I	2
CNA Client Care Aid	2
LPN HCT I	1
Mid-Level Provider	1
Medical Records Tech	1
Administrative Assist II	1

Swings-

Shift Commander- Lieutenant	1*
Housing Staff	3*
Master Control	1*
Transport	1*
Recreation	1*
Perimeter	Existing with CMC*
Zones/Yard	2*

Medical -

RN III	1
RN I	2
CNA Client Care Aid	2
LPN HCT I	1

Graves-

Shift Commander- Lieutenant	1*
Housing Staff	2*
Master Control	1*
Transport	1*
Perimeter	Existing with CMC*
Zones/Yard	2*

Medical -

RN I	2
CNA Client Care Aid	2
LPN HCT I	1

**Denotes existing SCC Staffing Positions.*

This operating funding will be requested through the normal budget process pending approval of this capital construction request.

K. PROJECT SCHEDULE:

Phase 1 of 1	**Start Date**	**Completion Date**
Pre-Design	**August 2014**	**July 2018 (submission of original CC Project Request and FPP)**
Selection	**July 2020**	**October 2020**
Design	**November 2020**	**April 2021**
Bid / Award	**May 2021**	**August 2021**
Construction	**September 2021**	**June 2023**
FF&E /Other	**June 2023**	**June 2023**
Occupancy	**July 2023**	

L. ADDITIONAL INFORMATION:

For backup documents see:

- FMS preliminary budget - DOC FY20-21 CCCR-08 SCC Aging Population DOC budget
- SCC FPP - DOC FY20-21 CCCR-08 SCC Aging Pop FPP
- SCC Site Plan - DOC FY20-21 CCCR-08 SCC siteplan
- SCC Existing Floorplan - DOC FY20-21 CCCR-08 SCC Aging Pop existing plan
- SCC Proposed Floorplan - DOC FY20-21 CCCR-08 SCC Aging Pop existing plan
- Photos Folder - DOC FY20-21 CCCR-08 SCC Aging Population Photos

M. CASH FUND PROJECTIONS:

Cash Fund name and number:		**Not Applicable**	
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):			
Prior Year Actual Ending Fund Balance	**Current Year Projected Ending Fund Balance**	**Year 2 Projected Ending Fund Balance with Project Approval**	**Year 3 Projected Ending Fund Balance with Project Approval**
$	**$**	**$**	**$**

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

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	**General Funded**	(2) Project Title:	Skyline Correctional Center (SCC) Aging Population
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase (__ of __):	Phase 1 of 1
(C)	(1) OSA Delegate Email:	james.ramsey@state.co.us	(2) Project Type:	Capital Construction (CC)
(D)	(1) Year First Requested:	FY2019-20	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	June 28, 2019	(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic Services	15% of Const. Cost	$ -	$ 1,332,113	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	.5% of Const. Cost	$ -	$ 44,404	$ -	$ -	$ -	$ -
(9)	LEED Design	2% of Const. Cost	$ -	$ 177,615	$ -	$ -	$ -	$ -
(10)	Advertisements	.75% of Const. Cost	$ -	$ 66,606	$ -	$ -	$ -	$ -
(11)	Commissioning	1.5% Const Cost	$ -	$ 133,211	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional	Included	$ -	$ 267,241	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied	2.7%, 5.8% annually	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 2,021,190	$ -	$ 2,021,190	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(15)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
(16)	Infrastructure Site Improvements	$ 499,000	$ -	$ 499,000	$ -	$ -	$ -	$ -
(17)	Base Renovation Costs	$ 4,090,158	$ -	$ 4,090,158				
(18)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
(19)		$ -	$ -	$ -				
(20)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
(21)		$ -	$ -	$ -				
(22)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
(23)		$ -	$ -	$ -				
(24)	Art in Public Places	.1%	$ -	$ 5,845	$ -	$ -	$ -	$ -
(25)	High Performance Certification	5%	$ -	$ 292,271	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	Included	$ -	$ 1,458,581	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied	2.7%, 5.8% annually	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 6,345,855	$ -	$ 6,345,855	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ 200,000	$ -	$ 200,000	$ -	$ -	$ -	$ -
(30)	Furnishings	$ 186,000	$ -	$ 186,000	$ -	$ -	$ -	$ -
(31)	Communications	$ 175,000	$ -	$ 175,000	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	Included	$ -	$ 172,751	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied	2.7%, 5.8% annually	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	$ 733,751	$ -	$ 733,751	$ -	$ -	$ -	$ -
	Miscellaneous							
(35)	Site Location Factor - 10%	$ -	$ -	$ 584,543	$ -	$ -	$ -	$ -
(36)	Secure Facility Environment Factor - Level 2 (on labor only (50% of Manufacturer/Supplier Sub-Total)) - 10%	$ 292,271	$ -	$ 292,271	$ -	$ -	$ -	$ -
(37)			$ -		$ -	$ -	$ -	$ -
(38)	Contractor's General Conditions - 10%	$ 702,036	$ -	$ 702,036	$ -	$ -	$ -	$ -
(39)	Contractor's Overhead and Profit - 15%			$ 1,158,359	$ -	$ -	$ -	$ -
	Inflation for Construction	Included		$ 417,056				
(40)	Inflation Percentage Applied	2.7%, 5.8% annually	$ -	$ -	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ 3,154,265	$ -	$ 3,154,265	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	$ 12,255,061	$ -	$ 12,255,061	$ -	$ -	$ -	$ -
	Project Contingency							
(43)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 1,225,506	$ -	$ 1,225,506	$ -	$ -	$ -	$ -
(45)	***Total Contingency***	$ 1,225,506	$ -	$ 1,225,506	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	$ 13,480,567	$ -	$ 13,480,567	$ -	$ -	$ -	$ -
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 13,480,567	$ -	$ 13,480,567	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	$ 13,480,567	$ -	$ 13,480,567	$ -	$ -	$ -	$ -

* Accompanies CC/CR-N Form

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

FY 2020-21CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST-NARRATIVE (CC/CR-N)*				
A	(1) Funding Type:	General Fund		
B	(1) Agency/Institution:	Department of Corrections	(2) OSA Delegate Signature:	6/24/19 Date
C	(1) Project Title	Arkansas Valley Correctional Facility (AVCF) Electronic Security System Replacement	(2) OSA Delegate Email:	James.ramsey@state.co.us
D	(1) Project Phase (Phase _of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):	
E	(1) Project Type:	[ ] Capital Construction (CC) / [X] Capital Renewal (CR)	(2) Agency/Institution Signature Approval	Date
F	(1) First Year Requested:	FY2019-20	(2) OSA Review Signature	10.1.19 Date
G	(1) Priority Number:	4 OF 10	(2) Revision Date:	Date

A. FACILITY PLANNINGDOCUMENTATION:

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 X No _____ Date Approved Per DoRM

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, San Carlos Correctional Facility, Colorado State Penitentiary and Limon Correctional Facility (LCF)).* This 1,056-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 32 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: *(from CC CR-CS form, Rows 47 through 52)*

(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 ConstrFunds (CCF)	**$3,176,955**	$0	**$3,176,955**	$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)	**$3,176,955**	$0	**$3,176,955**	$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 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.

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 repair.

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 Aiphone 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.

H. ASSUMPTIONS FOR CALCULATIONS:

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

1. Professional Services of $387,137 calculated as follows:
   - A/E Basic Services $337,061 – 16.86% of the TCC
   - Code Review/Inspections $ 9,996 - 0.5% of the TCC
   - Advertising, Printing and Administration $ 19,992 - 1.0% of the TCC
2. Base Project Costs of $1,418,611 calculated as follows:
   - Costs for the Project Request are taken directly from the Arkansas Valley Correctional Facility (AVCF), Electronic Security System Study, dated February 2018, as prepared by Maximum Security Engineering. Their Opinion of Probable Cost DOC Facility Management Services escalated costs in the report by 2.7% to July 2019, then compounded to August 2022 – the anticipated mid-point of construction. The inflation factors were calculated using the four-year average of inflation from the Engineering News Record, Building Cost Index. A complete breakdown of components and estimated costs is provided with the evaluation Study.
   - Contractor's General Conditions of $200,024 and Overhead & Profit of $280,034 calculated at 25% of the TCC
3. Miscellaneous expenses of $248,257 calculated as follows:
   - Secure Facility Environment Factor – Level 3 secure facility (on labor only) calculated at 15% of the TCC
   - Site Location Factor calculated at 10% of the TCC

Project Contingency of $249,572 calculated at 10% of the sum of Professional Services, Base Project Costs, and Miscellaneous expenses

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 2020**	**October 2020**
Design	**November 2020**	**May 2021**
Bid / Award	**June 2021**	**September 2021**
Construction	**October 2021**	**June 2023**
Occupancy	**July 2023**	

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 impact funding to private prisons. This operating funding will be requested through the normal budget process pending approval of this capital renewal request.

Backup Documentation:
FMS preliminary budget - DOC FY20-21 CCCR-04 AVCF Electronic Security DOC BUDGET
AVCF Site Plan - DOC FY20-21 CCCR-04 AVCF Site Plan
Engineering Study - DOC FY20-21 CCCR-04 AVCF Electronic Security System STUDY_MSE REPORT
Photo Document - DOC FY20-21 CCCR-04 AVCF Electronic Security Improve Photos
Photos folder - DOC FY20-21 CCCR-04 AVCF ES Photos

M. CASH FUND PROJECTIONS:

Cash Fund name and number:		**Not Applicable**	
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):			
Prior Year Actual Ending Fund Balance	**Current Year Projected Ending Fund Balance**	**Year 2 Projected Ending Fund Balance with Project Approval**	**Year 3 Projected Ending Fund Balance with Project Approval**
$	**$**	**$**	**$**

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

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*

(A)	(1) Funding Type:	**General Funded**	(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 Email:	james.ramsey@state.co.us	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2019-20	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	June 28, 2019	(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(3)	None	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(7)	Architectural/Engineering/ Basic Services	16.86% of construction	-	**$ 337,061**	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	.5% of construction	-	**$ 9,996**	$ -	$ -	$ -	$ -
(10)	Advertisements	1% of construction	-	**$ 19,992**	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional	Included	-	**$ 80,959**	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied	Varies		**5.8% annually**	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 448,008	$ -	**$ 448,008**	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(15)	Infrastructure Service/Utilities	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(16)	Infrastructure Site Improvements	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(17)	Structure/Systems/ Components	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Base Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Door Control System	$ 668,000	$ -	**$ 668,000**	$ -	$ -	$ -	$ -
	Intercom System	$ 489,000	$ -	**$ 489,000**	$ -	$ -	$ -	$ -
	UPS System	$ 46,000	$ -	**$ 46,000**	$ -	$ -	$ -	$ -
(18)	Locks and Motors	$ 142,000	$ -	**$ 142,000**	$ -	$ -	$ -	$ -
(19)	New at $_____ X _____GSF			**$ 1,345,000**				
(20)	Cost for Renovation (GSF):	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(21)	Renovation at $_____ X _____GSF							
(22)	Cost for Capital Renewal (GSF):	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(23)	Renewal at $_____ X GSF							
(24)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(25)	High Performance Certification	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	Included	$ -	**$ 296,667**	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied	5.8% annually	0.00%		0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 1,641,667	$ -	**$ 1,641,667**	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Included Above	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(37)	Site Location Factor	7.5% of construction cost	$ -	**$ 134,500**	$ -	$ -	$ -	$ -
(38)	Security Facility Environment Factor	10% of construction cost on labor only	$ -	**$ 100,875**	$ -	$ -	$ -	$ -
	Other Costs: General Contractor General Conditions	10% of construction cost		**$ 158,038**				
	Other Costs: General Contractor Overhead and Profit	15% of construction cost		**$ 260,762**				
(39)	Inflation for Construction	Included	$ -	**$ 144,291**	$ -	$ -	$ -	$ -
(40)	Inflation Percentage Applied	5.8% annually	$ -	**$ -**	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ 798,466	$ -	**$ 798,466**	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	**$ 2,888,141**	**$ -**	**$ 2,888,141**	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(43)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 288,814	$ -	**$ 288,814**	$ -	$ -	$ -	$ -
(45)	***Total Contingency***	$ 288,814	$ -	**$ 288,814**	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	**$ 3,176,955**	**$ -**	**$ 3,176,955**	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 3,176,955	$ -	**$ 3,176,955**	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	**$ 3,176,955**	**$ -**	**$ 3,176,955**	**$ -**	**$ -**	**$ -**	**$ -**

* Accompanies CC/CR-N Form

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

FY 2020-21CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST-NARRATIVE (CC/CR-N)*					
A	(1) Funding Type:	General Fund			
B	(1) Agency/Institution:	Department of Corrections	(2) OSA Delegate Signature:		Date
C	(1) Project Title	Colorado State Penitentiary (CSP) Electronic Security System Replacement	(2) OSA Delegate Email:	James.Ramsey@state.co.us	
D	(1) Project Phase (Phase _of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):	N/A	
E	(1) Project Type:	Capital Construction (CC)	(2) Agency/Institution Signature Approval		Date
		X Capital Renewal (CR)			
F	(1) First Year Requested:	FY 2020-21	(2) OSA Review Signature	10·1·19	Date
G	(1) Priority Number:	5 OF 9	(2) Revision Date:		Date

A. FACILITY PLANNINGDOCUMENTATION:

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 X No _____ Date Approved Per DoRM

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 is 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 included256 additional cells and opened in 1998. The population is currently all 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 andmonitoring systems for CSP are in need of replacement. Operation, function andmaintenance of these systems are becoming more and more challenging. A majority of thereplacement parts for these systems are no longer available. Replacing these systemsbefore they completely fail will save funds that would have to be spent repairing andreplacing 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) boardsandCentral 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 thedata 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 andreplacement 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 hasbeen a significant increase in direct offender and staff contact. This increased contact hasraised safety and security concerns in managing Colorado's most dangerous, most violentand most disruptive offenders.

C. SUMMARY OF PROJECT FUNDING REQUEST: *(from CC CR-CS form, Rows 47 through 52)*

(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 ConstrFunds (CCF)	$4,168,693	$0	**$4,168,693**	$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)	$4,168,693	$0	**$4,168,693**	$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 revisedHuman 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 workin 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, oroperational 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
2015-052P15	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, observeand 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 FirstResponders 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.

H. ASSUMPTIONS FOR CALCULATIONS:

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

1. Professional Services of $501,699 calculated from Construction Improvement Total (CIT) as follows:
   - A/E Basic Services $460,683 – 16.86% of the CIT
   - Code Review/Inspections $ 13,662 - 0.5% of the CIT
   - Advertising, Printing and Administration $ 27,324 - 1.0% of the CIT
2. Base Project Costs of $2,160,000 calculated as follows:
   - Costs for the Project Request are taken directly from the Colorado State Penitentiary (CSP), Door Control and Man Down Security Study, dated May 2019, as prepared by Maximum Security Engineering. Their Opinion of Probable Cost DOC Facility Management Services used costs in the report from May 2019, then compounded to September 2022 – the anticipated mid-point of construction. The inflation factors were calculated using the four-year average of inflation from the Engineering News Record, Building Cost Index. A complete breakdown of components and estimated costs is provided within the evaluation Study.
   - Contractor’s General Conditions of $216,000calculated at 10% and Overhead & Profit of $356,400 calculated at 15% of the CIT
3. Miscellaneous expenses of $360,000 calculated as follows:
   - Secure Facility Environment Factor – Level 5 secure facility (on labor only) calculated at 20% of the CIT
   - Site Location Factor calculated at 10% of the CIT

- In the Opinion of Probable Cost,DOC Facility Management Services used costs in the Maximum Security Engineering report from May 2019, then compounded to September 2022 – (the anticipated mid-point of construction. The inflation factors are calculated using the four-year average of inflation from the Engineering News Record, Building Cost Index).
- Project Contingency of $387,972 is calculated at 10% of the sum of Professional Services, Base Project Costs, and Miscellaneous expenses.

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:

Phase _1_ of_1_	Start Date	Completion Date
Pre-Design	July 2020	October 2020
Design	November 2020	May 2021
Bid/ Award	June 2021	September 2021
Construction	October 2021	June 2023
FF&E /Other	N/A	N/A
Occupancy	July 2023	

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 housing unit cells in the affected dayhalls to be vacated during construction, and impact funding to private prisons. This operating funding will be requested through the normal budget process pending approval of this capital renewal request.

Backup Documentation:

FMS preliminary budget - DOC FY20-21 CCCR-05 CSP Electronic Security Replacement DOC BUDGET
CSP Site Plan - DOC FY20-21 CCCR-05 CSP Site Plan
Engineering Study - DOC FY20-21 CCCR-05 CSP Door Control and Man Down Security STUDY_MSE REPORT
Photo document - DOC FY20-21 CCCR-05 CSP Electronic Security Replace Photos
Photos folder - DOC FY20-21 CCCR-05 CSP ES Photos

M. CASH FUND PROJECTIONS:

Cash Fund name and number:		**N/A**	
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):			
Prior Year Actual Ending Fund Balance	**Current Year Projected Ending Fund Balance**	**Year 2 Projected Ending Fund Balance with Project Approval**	**Year 3 Projected Ending Fund Balance with Project Approval**
$	**$**	**$**	**$**

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

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	**General Funded**	(2) Project Title:	Colorado State Penitentiary (CSP) Electronic Security System Replacement
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase (__ of __):	Phase 1 of 1
(C)	(1) OSA Delegate Email:	James.Ramsey@state.co.us	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2020-21	(2) State Controller Project #:	N/A
(E)	(1) Narrative Signature Date:	June 28, 2019	(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic Services	$ 460,683	$ -	**$ 460,683**	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	$ 13,662	$ -	**$ 13,662**	$ -	$ -	$ -	$ -
(9)	Construction Management	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(10)	Advertisements	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(11)	Other (Specify)	$ 27,324	$ -	**$ 27,324**	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional	included	$ -	**$ 86,192**	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied		2.70%, 5.8%		0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 587,861	$ -	**$ 587,861**	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(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 _____GSF							
(22)	Cost for Capital Renewal (GSF):	$ 1,800,000	$ -	**$ 1,800,000**	$ -	$ -	$ -	$ -
(23)								
(24)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(25)	High Performance Certification	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	included	$ -	**$ 309,262**	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied		2.70%, 5.8%		0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 2,109,262	$ -	**$ 2,109,262**	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(37)	Other Costs, Site Factor - 10%	$ 180,000	$ -	**$ 180,000**	$ -	$ -	$ -	$ -
(38)	Other Costs, Security Labor Factor - 50% of Manufacturer/Supplier	$ 180,000	$ -	**$ 180,000**	$ -	$ -	$ -	$ -
(39)	Other Costs, General Contractor's General Conditions	$ 216,000	$ -	**$ 216,000**	$ -	$ -	$ -	$ -
(40)	Other Costs, General Contractor's Overhead & Profit	$ 356,400	$ -	**$ 356,400**	$ -	$ -	$ -	$ -
(41)	Inflation for Other Costs	included	$ -	**$ 160,198**	$ -	$ -	$ -	$ -
(42)	Inflation Percentage Applied		2.70%, 5.8%		0.00%	0.00%	0.00%	0.00%
(43)	***Total Misc. Costs***	$ 1,092,598	$ -	**$ 1,092,598**	$ -	$ -	$ -	$ -
	Total Project Costs							
(44)	***Total Project Costs***	**$ 3,789,721**	**$ -**	$ 3,789,721	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(45)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(46)	10% for Renovation	$ 378,972	$ -	**$ 378,972**	$ -	$ -	$ -	$ -
(47)	***Total Contingency***	$ 378,972	$ -	**$ 378,972**	$ -	$ -	$ -	$ -
	Total Budget Request							
(48)	***Total Budget Request***	**$ 4,168,693**	**$ -**	$ 4,168,693	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(49)	Capital Construction Fund (CCF)	$ 4,168,693	$ -	**$ 4,168,693**	$ -	$ -	$ -	$ -
(50)	Cash Funds (CF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(51)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(52)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(53)	Highway Users Tax Fund (HUTF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(54)	***Total Funds (TF)***	**$ 4,168,693**	**$ -**	**$ 4,168,693**	**$ -**	**$ -**	**$ -**	**$ -**

* Accompanies CC/CR-N Form

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

FY 2020-21CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST-NARRATIVE (CC/CR-N)*					
A	(1) Funding Type:	General Fund			
B	(1) Agency/Institution:	Department of Corrections	(2) OSA Delegate Signature:		Date
C	(1) Project Title	Arkansas Valley Correctional Facility (AVCF) Utility Water Lines Replacement	(2) OSA Delegate Email:	James.ramsey@state.co.us	
D	(1) Project Phase (Phase _of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):		
E	(1) Project Type:	[ ] Capital Construction (CC) / [X] Capital Renewal (CR)	(2) Agency/Institution Signature Approval		Date
F	(1) First Year Requested:	FY2019-20	(2) OSA Review Signature	10.1.19	Date
G	(1) Priority Number:	2 OF 9	(2) Revision Date:		Date

A. FACILITY PLANNINGDOCUMENTATION:

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 X No _____ Date Approved Per DoRM

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 1,056 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 facilities. 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 for repairs down 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: *(from CC CR-CS form, Rows 47 through 52)*

(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 ConstrFunds (CCF)	$7,789,547	$0	**$7,789,547**	$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	$0	$0	**$0**	$0	$0	$0	$0

Tax Fund (HUTF)							
(52)Total Funds (TF)	$7,789,547	$0	**$7,789,547**	$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 1,056 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		Complete 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	Complete June 2015
PD15-047	Laundry Hot Water Storage	$15,000	March 2015
M07006	LCF/AVCF Kitchen Drain Line Replacement (Phase 2)		Complete 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 1,056 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.

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 $864,222; 16.86% of CIT
   - Code Review/Inspections $ 25,629; 0.5% of CIT
   - Advertisements, Printing, Cellphones, Admin. $ 51,259; 1.0% of CIT
2. Infrastructure Services/Utilities Costs of $5,125,872 were taken directly from the Study as prepared by Schendt Engineering.
3. Miscellaneous expenses of $712,306 calculated as follows:
   - Site Location Factor of $337,673 was calculated at 10% of the Project Base Costs
   - Secure Facility environment Factor of $337,673 was calculated at 20% of the Project Base Costs on Labor only (50% of Project Base Costs)
4. Contractor's Costs of $396,765 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 $654,663 was calculated at 15% of the Project Base Costs, Miscellaneous expenses, and the Contractor's Costs
6. Project Contingency of $501,908 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 account for anticipated mid-point of construction occurring in August 2022 to reach our budget number for this submittal. These factors were calculated using the four-year average of inflation from the Engineering News Record, 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:

Phase1 of 1	Start Date	Completion Date
Pre-Design	**July 2020**	**October 2020**
Design / Bid / Award	**November 2020**	**September 2021**
Construction	**October 2021**	**June 2023**
FF&E /Other	**N/A**	**N/A**
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 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.

Backup Documentation:

FMS preliminary budget - DOC FY20-21 CCCR-02 AVCF Water Utility Lines DOC budget
AVCF Site Plan - DOC FY20-21 CCCR-02 AVCF siteplan
Schendt Engineering Study - DOC FY20-21 CCCR-02 SEC AVCF Utility Piping F&R Report
Photo Document - DOC FY20-21 CCCR-02 AVCF Water Utility Lines Replacement Photos
Photos folder - DOC FY20-21 CCCR-02 AVCF Water Utility Lines Photos

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

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*

(A)	(1) Funding Type:	**General Funded**	(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 Email:	james.ramsey@state.co.us	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY2019-20	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	June 28, 2019	(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic Services	16.86% of Const.	$ -	**$ 864,222**	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	.5% of Const.	$ -	**$ 25,629**	$ -	$ -	$ -	$ -
(9)	Construction Management	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(10)	Advertisements	1% of Constr.	$ -	**$ 51,259**	$ -	$ -	$ -	$ -
(11)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional	Included	$ -	**$ 180,729**	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied	2.7%, 5.8% Annually	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 1,121,839	$ -	**$ 1,121,839**	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(15)	Service/Utilities Priority #1	$ 1,032,969	$ -	**$ 1,032,969**	$ -	$ -	$ -	$ -
(16)	Service/Utilities Priority #2	$ 442,078	$ -	**$ 442,078**	$ -	$ -	$ -	$ -
(17)	Service/Utilities Priority #3			**$ 1,168,581**				
(18)	Service/Utilities Priority #4	$ 476,665	$ -	**$ 476,665**	$ -	$ -	$ -	$ -
(19)	Service/Utilities Priority #5			**$ 256,434**				
(20)		$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(21)	Miscellaneous Costs:							
(22)	Site Location Factor	10% of const.	$ -	**$ 337,673**	$ -	$ -	$ -	$ -
(23)	Secure Environment Factor	15% of const - labor		**$ 253,255**				
(24)	Contractor Overhead & Profit	15% of const.	$ -	**$ 654,663**	$ -	$ -	$ -	$ -
(25)	Contractor General Conditions	10 of Const.	$ -	**$ 396,765**	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	Included	$ -	**$ 940,484**	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied	2.7%, 5.8% Annually	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 5,959,567	$ -	**$ 5,959,567**	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	**$ 7,081,406**	**$ -**	**$ 7,081,406**	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(43)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 501,908	$ -	**$ 501,908**	$ -	$ -	$ -	$ -
	Inflation for Construction	Included		**$ 206,233**				
	Inflation Percentage Applied	2.7%, 5.8% Annually						
(45)	***Total Contingency***	$ 708,141	$ -	**$ 708,141**	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	**$ 7,789,547**	**$ -**	**$ 7,789,547**	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 7,789,547	$ -	**$ 7,789,547**	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	**$ 7,789,547**	**$ -**	**$ 7,789,547**	**$ -**	**$ -**	**$ -**	**$ -**

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

FY 2020-21CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST-NARRATIVE (CC/CR-N)*					
A	(1) Funding Type:	General Funded			
B	(1) Agency/Institution:	Department of Corrections	(2) OSA Delegate Signature:		Date
C	(1) Project Title	Sterling Correctional Facility (SCF) Kitchen Renovation	(2) OSA Delegate Email:	James.ramsey@state.co.us	
D	(1) Project Phase (Phase _of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):		
E	(1) Project Type:	[ ] Capital Construction (CC) / [X] Capital Renewal (CR)	(2) Agency/Institution Signature Approval		Date
F	(1) First Year Requested:	FY2019-20	(2) OSA Review Signature	10.1.19	Date
G	(1) Priority Number:	3 OF 9	(2) Revision Date:		Date

* Attach CC/CR-CS Form

A. FACILITY PLANNINGDOCUMENTATION:

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 X No_____ Date Approved Per DoRM

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. 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 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 21 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: *(from CC CR-CS form, Rows 47 through 52)*

(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 ConstrFunds (CCF)	$36,300,641	$0	**$36,300,641**	$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)	$36,300,641	$0	**$36,300,641**	$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.

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 in order 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, of the few windows in the area, the 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.

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 is to 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 be 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
2020-085M19	SCF Deaeration Tank	$1,457,417	Awaiting Appropriation
2019-038M18	SCF Replace Fire Alarm, 2 Phases	$1,717,223	In Design
2015-087M14	SCR Replace Roof, Phase 2 of 2 (included in SB17-267)	$763,748	In Design
2018-069M19	CDOC Warehouses Freezer/Cooler Equipment Repair and Replacement (Included in SB17-267)	$1,261,563	In Design
PD18-029	New Laundry Washers	$525,000	Under Construction
EM	Kitchen Drain Failure	$75,320.00	Fall 2018
MC18-022	Make-up Air Unit and Support	$31,000	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		Sept 2013
SNA	SCF FEMA Floor		Sept 2013
IND	SCF Floor / PS & Grounds Balance		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 and a 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 57.5 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 this request. The inflation factors were calculated using the four-year average of inflation from the Engineering News Record, 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:

Phase1 of 1	**Start Date**	**Completion Date**
Pre-Design	**July 2020**	**October 2020**
Design / Bid / Award	**November 2020**	**September 2021**
Construction	**October 2021**	**June 2023**
FF&E /Other	**May 2023**	**June 2023**
Occupancy	**July 2023**	

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.

Backup Documentation
- FMS preliminary budget - DOC FY20-21 CCCR-03 SCF Kitchen Renovation DOC budget
- SCF Kitchen Study - DOC FY20-21 CCCR-03 SCF Kitchen Renovation Study Final CSNA 061518
- SCF Space Programming chart - DOC FY20-21 CCCR-03 SCF Kitchen Renovation Space Program
- SCF Site Plan - DOC FY20-21 CCCR-03 SCF Site Plan
- SCF Existing Floorplan - DOC FY20-21 CCCR-03 SCF Kitchen Renovation EXISTING PLAN
- SCF Proposed Floorplan - DOC FY20-21 CCCR-03 SCF Kitchen Renovation PROPOSED PLAN
- Photo Document - DOC FY20-21 CCCR-03 SCF Kitchen Renovation Photos
- Photos Folder - DOC FY20-21 CCCR-03 SCF Kitchen Renovation Photos

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

10/1/2019

FY 2020-21 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 (__ of __):	Phase 1 of 1
(C)	(1) OSA Delegate Email:	james.ramsey@state.co.us	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2019-20	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	June 28, 2019	(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Architectural/Engineering/ Basic Services	12% of Const.	$ -	**$ 2,596,760**	$ -	$ -	$ -	$ -
(6)	Code Review/Inspection	.5% of Const.	$ -	**$ 108,198**	$ -	$ -	$ -	$ -
(7)	Advertisements	1% of Const	$ -	**$ 216,397**	$ -	$ -	$ -	$ -
(8)	Other 3rd Party Construction Admin/Post. Const.	3.2% of Const.	$ -	**$ 692,469**	$ -	$ -	$ -	$ -
(9)	Other A/E HPCP/LEED Design	1.9% of Const	$ -	**$ 411,154**	$ -	$ -	$ -	$ -
(10)	Other Commissioning	1.6% of Const	$ -	**$ 346,235**	$ -	$ -	$ -	$ -
(11)	LEED Registration & Review	allowance	$ -	**$ 5,000**	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional	Included	$ -	**$ 865,372**	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied	2.7%, 5.8% annually	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 5,241,585	$ -	**$ 5,241,585**	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(15)	Demolition	$ 366,983	$ -	**$ 366,983**	$ -	$ -	$ -	$ -
(16)	Concrete	$ 185,861	$ -	**$ 185,861**	$ -	$ -	$ -	$ -
(17)	Masonry			**$ 548,703**				
(18)	Metals	$ 254,477	$ -	**$ 254,477**	$ -	$ -	$ -	$ -
(19)	Wood & Plastics			**$ 36,210**				
(20)	Thermal & Moisture	$ 1,052,419	$ -	**$ 1,052,419**	$ -	$ -	$ -	$ -
(21)	Doors & Windows			**$ 395,696**				
	Finishes			**$ 1,381,725**				
(22)	Equipment	$ 4,953,619	$ -	**$ 4,953,619**	$ -	$ -	$ -	$ -
(23)	Mechanical			**$ 2,867,098**				
(24)	Electrical	$ 1,578,082	$ -	**$ 1,578,082**	$ -	$ -	$ -	$ -
(25)	High Performance Certification	3.09% of Const.	$ -	**$ 420,885**	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	Included	$ -	**$ 2,776,683**	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied	2.7%, 5.8% annually	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 16,818,441	$ -	**$ 16,818,441**	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Temporary Kitchen	Allowance	$ -	**$ 1,690,030**	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	Included	$ -	**$ 334,195**	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied	2.7%, 5.8% annually	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	**$ 2,024,225**	**$ -**	**$ 2,024,225**	**$ -**	**$ -**	**$ -**	**$ -**
	Miscellaneous							
(37)	Site Location Factor - 20%	$ 2,724,174	$ -	**$ 2,724,174**	$ -	$ -	$ -	$ -
(38)	Secure Facility Environement - 5% labor	$ 340,522	$ -	**$ 340,522**	$ -	$ -	$ -	$ -
(39)	Contractors General Conditions - 10%	$ 1,710,645	$ -	**$ 1,710,645**	$ -	$ -	$ -	$ -
(40)	Contractors Overhead & Profit - 15%	$ 2,822,565	$ -	**$ 2,822,565**	$ -	$ -	$ -	$ -
	Inflation for Equipment & Furnishings	Included		**$ 1,502,446**				
	Inflation Percentage Applied	2.7%, 5.8% annually						
(41)	***Total Misc. Costs***	$ 9,100,352	$ -	**$ 9,100,352**	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	**$ 33,184,603**	**$ -**	$ 33,184,603	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(43)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 3,116,038	$ -	**$ 3,116,038**	$ -	$ -	$ -	$ -
(45)	***Total Contingency***	$ 3,116,038	$ -	**$ 3,116,038**	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	**$ 36,300,641**	**$ -**	$ 36,300,641	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 36,300,641	$ -	**$ 36,300,641**	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	**$ 36,300,641**	**$ -**	$ 36,300,641	**$ -**	**$ -**	**$ -**	**$ -**

* Accompanies CC/CR-N Form

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*					
A	(1) Funding Type:	General Fund		(2) OSA Delegate Signature:	Date
B	(1) Agency/Institution:	Department of Corrections		(2) OSA Delegate Email:	James.ramsey@state.com
C	(1) Project Title	Delta Correctional Center (DCC) Perimeter Security Improvements			
D	(1) Project Phase (Phase _of_):	Phase 1 of 1		(2) State Controller Project # (if a continuation):	
E	(1) Project Type:	X	Capital Construction (CC)	(2) Agency/Institution Signature Approval	Date
			Capital Renewal (CR)		
F	(1) First Year Requested:	FY 19-20		(2) OSA Review Signature	Date
G	(1) Priority Number:	9 of 9		(2) Revision Date:	Date

A. FACILITY PLANNING DOCUMENTATION:

1) OSA approved Facility Program Plan/Capital Construction? Yes X No ____ Date Approved June 2018

2) Facility Condition Audit or other approved Facility Management Plans/Capital Renewal Yes ____ No ____ Date Approved ____

B. PROJECT SUMMARY/STATUS:

The Project Request is for the upgrade and improvements to the perimeter security at the Delta Correctional Center (DCC) due to a proposed change in Security Level from Level I to Level II. Historically the Department of Corrections (DOC) has experienced a surplus of Level I beds as Level I facilities can only house minimum custody offenders. The Department also has a significant amount of offenders waiting for a Level II Minimum-Restricted placement that are currently housed in higher Level facilities. Categorizing the DCC as a Level II facility allows the housing of both Minimum and Minimum-Restricted offenders, thus allowing Level II offenders housed in higher security facilities the opportunity to be housed in Level II facilities and having access to programs aligned to their needs. This frees medium custody beds for the housing and programs to medium custody offenders currently housed in higher custody facilities. Overall, this gives the DOC the ability to proactively manage its population and ensure that the right offender is in the right bed and housed in the right facility for the right reason.

This project will include the services of an Architect/Engineer (A/E) for the programming, design, and construction administration of the perimeter road, security fence/detection system, perimeter lighting, gatehouse, and electrical generator upgrade for the new anticipated electrical demand. The estimated cost of the DCC Perimeter Security Improvements is $7,719,602 with project completion estimated as 19 months upon appropriation of funds.

C. SUMMARY OF PROJECT FUNDING REQUEST: *(from CC CR-CS form, Rows 47 through 52)*

(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)	$7,719,602	$0	**$7,719,602**	$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)	$7,719,602	$0	**$7,719,602**	$0	$0	$0	$0

D. PROGRAM INFORMATION:

All programs at DCC will be impacted with this Project Request as the facility Security Level will be raised from Level I to Level II: Minimum custody to Minimum-Restricted custody. Re-entry programs will continue at the facility and provide for release to the western slope region of Colorado. This project's scope of work will require site security modifications including installation of a 12 foot security fence, perimeter lighting, and electrical generator upgrades.

E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

PROJECT JUSTIFICATION

In the FY 2012-13 legislative session, the Colorado Legislature enacted House Bill 12-1336, "Authorization of a Prison Utilization Analysis." The Colorado Prison Utilization Study, June 2013, as prepared by CNA analysis of the Colorado prison system, addressed the amount of capacity required and the types of beds needed. This Delta Correctional Center Perimeter and Security Improvements proposal relies on statements and recommendations from that Study. The following are excerpts from the Colorado Prison Utilization Study:

"At the most basic level, offenders have different housing requirements based upon their custody levels, as determined by the CDOC's offender classification system. The classification system uses objective criteria such as offense, past history of violence, criminal record, and other factors to establish the level of risk posed by a given offender. The CDOC has used this system to create four different custody levels: minimum, minimum-restricted, medium, and maximum/close."

"Because these custody levels all require different levels of security, the CDOC has categorized its facilities and capacity by the level of security and supervision available. Department policy establishes the following categories of facilities and rules for offender placement:

- *Level II – Minimum-restricted and minimum custody. An offender is eligible for assignment to a Level II facility if their current custody level is minimum-restricted, or below, has not been identified as a sex offender, and meets the CDOC's clinical needs placement matrix. Offenders must be within 60 months of parole eligibility and have no restriction on their mandatory release date.*
- *Level I – Minimum custody. An offender is eligible to be considered for assignment to a Level I facility if their current custody level is minimum, has not been identified as a sex offender, and meets the CDOC's clinical needs matrix. Offenders at Rifle Correctional Center, Colorado Correctional Center, and Delta Correctional Center must be within 36 months of parole eligibility, or within seven years of a mandatory release date."*

"Ideally, the custody profile of the population should closely align with the security classification of available bed capacity. If, for example, the correctional system does not have enough offenders classified as minimum to fill its Level I facilities, those facilities will have empty beds that will not be available for other types of offenders."

"The CDOC categorizes its facilities by the custody level of the offenders that may be housed there, on a continuum Level I-V, with Level I providing the least level of security and Level V providing the most. Nearly 80 percent of the CDOC's bed capacity is in Level III and Level V facilities. While there are only 1,075 Level I beds, this category of facility has by far the highest proportion of vacant beds. This relates to the number of minimum custody inmates available in the population, restrictions on placements in these facilities, and the fact that these facilities can house only minimum-security inmates, while the other facilities can and do house multiple categories of inmates."

"In terms of the custody level of the resident population, each category of facility houses a range of classification levels, with the exception of the Level I category, which houses only minimum custody offenders."

"Based on the National Institute of Corrections (NIC) evaluation and a detailed pilot study completed by the CDOC, the CDOC developed recommended changes to the current male classification system that were implemented in January 2013."

"The changes separate over-ride factors into discretionary and non-discretionary categories. The latter restricts prisoners from placement in minimum-security beds due to offense and time-to-serve parameters. It was the modification of the non-discretionary factors that produced a notable change in classification system results-fewer inmates assigned to minimum-security facilities."

The Colorado Department of Corrections is looking at having legislation introduced that will change the security Level of the Delta Correctional Center from a Level I (minimum) to a Level II (minimum-restricted) facility. This change enables the Department to place both minimum and minimum-restricted offenders within DCC. The change makes available beds at DCC to offenders currently classified as minimum and minimum-restricted but currently placed in Level III-Level V facilities; thus freeing those beds for offenders of a higher custody level.

Changing DCC to a Level II facility will provide a facility setting where Level II and Level I offenders can continue re-entry programming and be afforded opportunities to work on community based offender labor crews and other community based programming. DCC will continue to be a transport hub and support center for the Rifle Correctional Center and local community corrections centers by housing Level I offenders awaiting transfer.

C.R.S. 17-1-104.3, characterizes Level I and Level II facilities as follows: *"Level I facilities shall have designated boundaries, but need not have perimeter fencing. Inmates classified as minimum may be incarcerated in Level I facilities, but generally inmates of higher classifications shall not be incarcerated in level I facilities." "Level II facilities shall have designated boundaries with a single or double perimeter fencing. The perimeter of level II facilities shall be patrolled periodically. Inmates classified as minimum restrictive and minimum may be incarcerated in level II facilities, but generally inmates of higher classifications shall not be incarcerated in level II facilities."*

Per DOC standards a Level II facility incorporates the following: a single security perimeter fence 12 foot high with 9 gauge chain link fabric, concrete rat barrier, and perimeter fence light fixtures. DCC currently has a sporadic barbed wire fence with no detection or perimeter lighting.

This Project Request looks to replace the existing three-strand barbed wire fence at DCC with a single 12 foot security fence with fence detection and perimeter lighting. LED light fixtures will be placed to provide a minimum of 3 footcandles around the perimeter. The existing perimeter road will be graded and extended with road base in order to afford a clear line-of-sight down the perimeter fence.

existing perimeter road will be graded and extended with road base in order to afford a clear line-of-sight down the perimeter fence. Gatehouse will be provided to control all entry in and out of the facility. This building will be staffed and provided with cameras, toilet, and secured storage for weapons. The gatehouse design will be based on successful gatehouses built at Arrowhead Correctional Center, Colorado State Penitentiary and Centennial South.

This project will enable the DOC to proactively manage its population and ensure that the right offender is in the right bed and housed in the right facility for the right reasons. There are a significant number of offenders waiting for a Level II Minimum-Restricted facility assignment that are currently housed in higher level facilities. These assignments will provide critical services and programs essential for their successful release into our communities.

PROJECT DESCRIPTION/SCOPE OF WORK

This project will include the participation of an Architect/Engineer (A/E) for the programming, design, and construction administration of the perimeter road, security fence/detection system and rat barrier, perimeter lighting, gatehouse, and electrical generator upgrade required for the anticipated new electrical demand.

The new perimeter security fence will be approximately 4,800 linear feet. The DOC fencing standards for a Security Level II facility include the following:

- Fence System
  - Chain link – 2" 9 ga. Standard
- Fence Framing System
  - ASTMF-1083 Std. Weight – schedule 40
  - End/Corner/Pull Posts: 4" o.d.
  - Line post (@ 10' o.c.): 2.875" o.d.
  - Top/Bottom/Intermediate Rails: 1.66" o.d.
- Barbed-wire Support and Coils:
  - Support arms-cast iron or steel
  - Double strand barbed-wire
  - Double razor coil (concertina style)
    - Maze 30/24 (31 loops extended 20.0')
- Concrete Horizontal Rat Barrier
- Shaker Wire Fence Detection
- LED Perimeter Fence Light Fixtures
  - Dimmable LED fixtures with cut-off fixtures to minimize dark sky light pollution
  - Light poles
    - 30' high poles 50' o.c. spacing
    - Steel or aluminum (durable finish)
    - Internal raceway with access panels

The Gatehouse will be comprised of the following:

- Approximately 200 gross square feet
  - Checkpoint-87 sf
  - Toilet- 31 sf
  - Equipment Room (Mechanical/Electrical/Storage)-50 sf
- Concrete masonry unit construction
- Steel roof
- Lexan observation windows
- Security door
- Weapons storage locker
- Plumbing lift-station if required
- The existing perimeter road will be straightened and re-graded to follow the routing of the new perimeter security fence.
- Stand-by generator with transfer switch upgrade to accommodate existing and anticipated new electrical load demand.

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
PD19-033	Library Sidewalk	$3,882	Dec 2018
Utility Contingency FY2018-19	RTU		
Utility Contingency FY2018-19	Natural Gas Regulator		
Utility Contingency FY2018-19	Plumbing Supplies		
Utility Contingency FY2018-19	LED Lights		
Utility Contingency FY2018-19	Waste Water Baffle Curtain		

PD18-012	Mental Health Upgrades	$3,509	Dec 2018
MC-18K	Electrical Transfer Switchgear	$9,725	
MC18-07	Control Center Window	$12,600	Jan 2018
Utility Contingency FY2017-18	Roof Top Unit's	$61,971	June 2018
Utility Contingency FY2016-17	Waste Water Liner Replacement	$3,800	June 2017
PD16-059	GED Testing Lab	$7,730	May 2016
PD16-010	Strip Search Replacement Floor	$4,305	Aug 2015
PL19-054	Generator Study		

F. CONSEQUENCES IF NOT FUNDED:

The DOC historically experiences a surplus of Level I beds; this surplus will continue if this proposal is denied and will impinge upon the DOC's ability to proactively manage its population and ensure that the right offender is in the right bed and housed in the right facility for the right reason. As previously stated, the DOC has a significant number of offenders waiting for a Level II Minimum-Restricted facility assignment. If this proposal is denied, it will significantly limit the ability to provide critical services and programs essential for their successful release into our communities.

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

There is no known alternative to this project request other than leaving DCC as a Level I, Minimum Custody facility. This will result in the possibility of having excess Minimum Custody beds in the Level I facilities. This will result in a significant number of Level II offenders being housed in Medium Custody facilities thus limiting opportunities for critical services and programs.

H. ASSUMPTIONS FOR CALCULATIONS:

The following table summarizes the cost estimate for the DCC Perimeter Security Improvements:

Item	**Budget Estimate**
Professional Services	$1,008,430
On-Site Improvements	$1,935,192
Gatehouse	$104,908
Generator Upgrade	$1,340,492
Site Location Factor	$510,586
Secure Facility	$170,195
Art in Public Places	$3,404
GC OHP & Bonds	$1,083,344
Contingency	$617,986
Total	**$6,797,849**

Notes:

1. Professional services are based on a percentage of the Cost Improvement Total (CIT) as follows:
   - Site Surveys, Investigations, and Tests 3% of the CIT
   - A/E Basic Services 15% of the CIT
   - Code Review and Inspections 0.5% of the CIT
   - Advertisements, etc. 1% of the CIT
2. Costs for materials for the fencing system are based on costs taken from RSMeans Building Construction Cost Date and historical cost data from similar projects performed by the DOC.
3. Costs for the Gatehouse are taken from projects of similar scope and size.
4. Due to its size, the Gatehouse (200 square feet) will not be required to meet the requirements of the High Performance Certification Program (HPCP). Aspects of the HPCP will be incorporated into the design where deemed appropriate and feasible
5. The perimeter road layout, re-grade, road base, perimeter fencing system, vehicle sallyport, and concrete rat barrier will be performed by Colorado Correctional Industries minimizing the fiscal impact upon state funding sources.
6. Art in Public Places $ 6,003; 0.1% TCC per C.R.S. 24-48.5-313
7. Miscellaneous expenses of $662,883 calculated as follows:
   - Secure Facility Environment Factor that accounts for contractor work inefficiencies due to working in a prison environment of 10% of labor only of the CIT.
   - Site Location Factor of 15% of base and alternates that accounts for remote location of the facility
8. DOC Facility Management Services escalated costs in the report by 2.7% to July 2019, then 5.8% compounded to September 2022 – the anticipated mid-point of construction. The inflation factor was calculated using the four-year average of inflation from the Engineering News Record, Building Cost Index.

There are no extraordinary cost impacts anticipated at this time.

I. SUSTAINABILITY:

The only new building included in this project request is the 200 square foot Gatehouse. Due to its size, the Gatehouse will not be required to meet the requirements of the High Performance Certification Program (HPCP). Aspects of the HPCP will be incorporated into the design where deemed appropriate and feasible.

J. OPERATING BUDGET IMPACT:

Staffing assignments added due to this project request include:

- 3.4 CO I for Kitchen Security (two shifts)
- 3.4 CO I for Gatehouse Security (two shifts)

Assuming 10 months construction before staff would be needed:

Salary and benefits Year 1:	$205,919 (Dec. 2020-May 2021)
Startup Year 1:	$ 11,655
Staff Operating Year 1:	$ 8,400
Maintenance Operating:	$ 15,500
Utilities Operating:	$ 18,300
Salary and benefits Year 2:	$413,419
Operating Year 2:	$ 8,400
Maintenance Operating:	$ 15,500
Utilities Operating:	$ 18,300

Operating request will occur separately in the normal budget request cycle.

K. PROJECT SCHEDULE:

Phase 1 of 1	Start Date	Completion Date
DOC Review and Approval of Facility Program Plan (FPP) including Third Party Review	**March 2018**	**May 2018**
Submittal of FPP to OSA< OSPB, and CDC for Review and Approval	**July 2018**	**Fall 2018**
FPP Addenda Complete	**Fall 2018**	**Fall 2018**
Capital Construction Project Request Submittal to OSA	**July 2019**	**August 2019**
Legislative Bill Authorizing Change in DCC from Level I to Level II Facility	**January 2020**	**May 2020**
Appropriation Available for CC Project Request	**July 2020**	
Professional Services Contract and Selection	**July 2020**	**October 2020**
A/E Design	**November 2020**	**July 2021**
Contractor Bidding and Award	**August 2021**	**November 2021**
Construction	**January 2022**	**June 2023**
Project Close-Out and Occupancy	**July 2023**	**October 2023**

L. ADDITIONAL INFORMATION:

For backup documents see:

- FMS preliminary budget - DOC FY20-21 CCCR-09 DCC Perimeter-DOC budget
- DCC FPP - DOC FY20-21 CCCR-09 DCC Perimeter FPP
- DCC Site Plan -
- Photos Folder - DOC FY20-21 CCCR-09 DCC Perimeter Photos

M. CASH FUND PROJECTIONS:

Cash Fund name and number:		**Not Applicable**	
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):			
Prior Year Actual Ending Fund Balance	**Current Year Projected Ending Fund Balance**	**Year 2 Projected Ending Fund Balance with Project Approval**	**Year 3 Projected Ending Fund Balance with Project Approval**
$	**$**	**$**	**$**

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

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*

(A)	(1) Funding Type:	**General Funded**	(2) Project Title:	Delta Correctional Center (DCC) Perimeter
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase (__ of __):	Phase 1 of 1
(C)	(1) OSA Delegate Email:	james.ramsey@state.co.us	(2) Project Type:	Capital Construction (CC)
(D)	(1) Year First Requested:	FY2019-20	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	June 28, 2019	(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	3% of Const. Cost	$ -	$ 151,064	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic Services	15% of Const. Cost	$ -	$ 755,321	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	.5% of Const. Cost	$ -	$ 25,177	$ -	$ -	$ -	$ -
(9)	Advertisements	.75% of Const. Cost	$ -	$ 50,355	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional	Included	$ -	$ 163,250	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied	2.7%, 5.8% annually	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 1,145,167	$ -	$ 1,145,167	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(15)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
(16)	Infrastructure Site Improvements	$ -	$ -		$ -	$ -	$ -	$ -
(17)	Base Renovation Costs	$ 2,920,190	$ -	$ 2,920,190				
(18)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
(19)		$ -	$ -	$ -				
(20)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
(21)		$ -	$ -	$ -				
(22)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
(23)		$ -	$ -	$ -				
(24)	Art in Public Places	.1%	$ -	$ 3,314	$ -	$ -	$ -	$ -
(25)					$ -	$ -	$ -	$ -
(26)	Inflation for Construction	Included	$ -	$ 945,818	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied	2.7%, 5.8% annually	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 3,869,322	$ -	$ 3,869,322	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -		$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -		$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -		$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	Included	$ -		$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Miscellaneous							
(35)	Site Location Factor - 15%	$ -	$ -	$ 497,162	$ -	$ -	$ -	$ -
(36)	Secure Facility Environment Factor - Level 2 (on labor only (50% of Manufacturer/Supplier Sub-Total)) - 10%	$ 165,721	$ -	$ 165,721	$ -	$ -	$ -	$ -
(37)			$ -		$ -	$ -	$ -	$ -
(38)	Contractor's General Conditions - 10%	$ 398,061	$ -	$ 398,061	$ -	$ -	$ -	$ -
(39)	Contractor's Overhead and Profit - 15%			$ 656,801	$ -	$ -	$ -	$ -
	Inflation for Construction	Included		$ 285,586				
(40)	Inflation Percentage Applied	2.7%, 5.8% annually	$ -	$ -	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ 2,003,331	$ -	$ 2,003,331	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	$ 7,017,820	$ -	$ 7,017,820	$ -	$ -	$ -	$ -
	Project Contingency							
(43)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 701,782	$ -	$ 701,782	$ -	$ -	$ -	$ -
(45)	***Total Contingency***	$ 701,782	$ -	$ 701,782	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	$ 7,719,602	$ -	$ 7,719,602	$ -	$ -	$ -	$ -
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 7,719,602	$ -	$ 7,719,602	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	$ 7,719,602	$ -	$ 7,719,602	$ -	$ -	$ -	$ -

* Accompanies CC/CR-N Form

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Funding Type:	General Fund		
B	(1) Agency/Institution:	Department of Corrections	(2) OSA Delegate Signature:	9/24/19 Date
C	(1) Project Title	Arkansas Valley Correctional Facility (AVCF) Critical Living Unit Shower Drain Replacement	(2) OSA Delegate Email:	James.ramsey@state.co.us
D	(1) Project Phase (Phase _of_):	Phase 1 of 1	(2) State Controller Project # (if a continuation):	
E	(1) Project Type:	[ ] Capital Construction (CC) [X] Capital Renewal (CR)	(2) Agency/Institution Signature Approval	Date
F	(1) First Year Requested:	FY2020-21	(2) OSA Review Signature	10.1.19 Date
G	(1) Priority Number:	6 OF 9	(2) Revision Date:	Date

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 X No _____ Date Approved Per DoRM

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 will be 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. A major investment is needed for the upgrading of the facilities in order to maintain American Correctional Association accreditation, pass State of Colorado health inspections, State of Colorado building code requirements and meet Americans with Disabilities Act guidelines. Arkansas Valley Correctional Facility is a 1,056 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 use community sinks, toilets and bathing 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 shower/toilet areas have not been renovated since the facility opened over 32 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: *(from CC CR-CS form, Rows 47 through 52)*

(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)	$10,831,749	$0	**$10,831,749**	$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)	$10,831,749	$0	**$10,831,749**	$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 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) and CSNA Architects (CSNA) 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 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^2 and occupy 126 ft^2 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. Refer to Appendix A for a compendium of photographs exhibiting this piping system condition.
- 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 it's 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.^{2}) and adjacent cells (approximately 90 ft.^{2}) 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.

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 $1,191,368; 16.86% of CIT
   - Code Review/Inspections $ 35,331; 0.5% of CIT
   - Advertisements, Printing, Cellphones, Admin. $ 70,662; 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 $844,946 calculated as follows:
   - Site Location Factor of $474,101 was calculated at 10% of the Project Base Costs
   - Secure Facility environment Factor of $370,856 was calculated at 15% of the Project Base Costs on Labor only (50% of Project Base Costs)
4. Contractor's Costs of $558,596 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 $921,684 was calculated at 15% of the Project Base Costs, Miscellaneous expenses, and the Contractor's Costs
6. Project Contingency of $984,784 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 and an additional 5.8% for each year compounded to account for anticipated mid-point of construction occurring in September 2022 to reach our budget number for this submittal. These factors were calculated using the four-year average of inflation from the Engineering News Record, 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 electrical equipment replacement due to water damage.

K. PROJECT SCHEDULE:

Phase _1_ of_1_	Start Date	Completion Date
Pre-Design	**July 2020**	**October 2020**
Design	**November 2020**	**May 2021**
Bid / Award	**June 2021**	**September 2021**
Construction	**October 2021**	**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 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 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 private prisons. 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.

Backup Documentation:
FMS preliminary budget - DOC FY20-21 CCCR-06 AVCF Shower Drain Replace DOC BUDGET
AVCF Site Plan - DOC FY20-21 CCCR-06 AVCF Critical LU Site Plan
AVCF LU 1-5 existing floor plan - DOC FY20-21 CCCR-06 AVCF LU 1-5 first floor exg Plan
AVCF LU 1-5 proposed new plan - DOC FY20-21 CCCR-06 AVCF LU 1-5 first floor new Plan
AVCF LU 6 existing floor plan - DOC FY20-21 CCCR-06 AVCF LU 6 first floor exg Plan
AVCF LU 6 proposed plan - DOC FY20-21 CCCR-06 AVCF LU 6 first floor new Plan
Engineering Study - DOC FY20-21 CCCR-06 AVCF Shower Drain Replace Study
Photos document - DOC FY20-21 CCCR-06 AVCF Shower Drain Replace Photos
Photos folder - DOC FY20-21 CCCR-06 AVCF Shower Drain Replace Photos

M. CASH FUND PROJECTIONS:

Cash Fund name and number:		**Not Applicable**	
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):			
Prior Year Actual Ending Fund Balance	**Current Year Projected Ending Fund Balance**	**Year 2 Projected Ending Fund Balance with Project Approval**	**Year 3 Projected Ending Fund Balance with Project Approval**
$	**$**	**$**	**$**

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

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	**General Funded**	(2) Project Title:	Arkansas Valley Correctional Facility (AVCF) Critical Living Unit Shower Drain Replacement
(B)	(1) Agency/Institution:	Dept. of Corrections	(2) Project Phase (__ of __):	Phase 1 of 1
(C)	(1) OSA Delegate Email:	james.ramsey@state.co.us	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY2020-21	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	June 28, 2019	(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic Services	16.86% of Const.	$ -	**$ 1,191,368**	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	.5% of Const.	$ -	**$ 35,331**	$ -	$ -	$ -	$ -
(9)	Construction Management	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(10)	Advertisements	1% of Constr.	$ -	**$ 70,662**	$ -	$ -	$ -	$ -
(11)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional	Included	$ -	**$ 230,112**	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied	2.7%, 5.8% Annually	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 1,527,473	$ -	**$ 1,527,473**	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(15)	Living Unit 1	$ 774,287	$ -	**$ 774,287**	$ -	$ -	$ -	$ -
(16)	Living Unit 2	$ 774,287	$ -	**$ 774,287**	$ -	$ -	$ -	$ -
(17)	Living Unit 3			**$ 774,287**				
(18)	Living Unit 4	$ 774,287	$ -	**$ 774,287**	$ -	$ -	$ -	$ -
(19)	Living Unit 5			**$ 774,287**				
(20)	Living Unit 6	$ 869,572	$ -	**$ 869,572**	$ -	$ -	$ -	$ -
(21)	Miscellaneous Costs:							
(22)	Site Location Factor	10% of const.	$ -	**$ 474,101**	$ -	$ -	$ -	$ -
(23)	Secure Environment Factor	15% of const - labor		**$ 370,856**				
(24)	Contractor Overhead & Profit	15% of const.	$ -	**$ 921,684**	$ -	$ -	$ -	$ -
(25)	Contractor General Conditions	10 of Const.	$ -	**$ 558,596**	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	Included	$ -	**$ 1,253,328**	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied	2.7%, 5.8% Annually	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 8,319,572	$ -	**$ 8,319,572**	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	**$ 9,847,045**	**$ -**	**$ 9,847,045**	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(43)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 836,360	$ -	**$ 836,360**	$ -	$ -	$ -	$ -
	Inflation for Construction	Included		**$ 148,344**				
	Inflation Percentage Applied	2.7%, 5.8% Annually						
(45)	***Total Contingency***	$ 984,704	$ -	**$ 984,704**	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	**$ 10,831,749**	**$ -**	**$ 10,831,749**	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 10,831,749	$ -	**$ 10,831,749**	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	**$ 10,831,749**	**$ -**	**$ 10,831,749**	**$ -**	**$ -**	**$ -**	**$ -**

* Accompanies CC/CR-N Form

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

FY 2020-21CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST-NARRATIVE (CC/CR-N)*					
A	(1) Funding Type:	General Funded		(2) OSA Delegate Signature:	Date
B	(1) Agency/Institution:	Department of Corrections			
C	(1) Project Title	Sterling Correctional Facility (SCF) Steam Condensate Line Replacement		(2) OSA Delegate Email:	James.ramsey@state.co.us
D	(1) Project Phase (Phase _of_):	Phase 1 of 1		(2) State Controller Project # (if a continuation):	
E	(1) Project Type:		Capital Construction (CC)	(2) Agency/Institution Signature Approval	Date
		X	Capital Renewal (CR)		
F	(1) First Year Requested:	FY2019-20		(2) OSA Review Signature	10.1.19 Date
G	(1) Priority Number:	1 OF 9		(2) Revision Date:	Date

A. FACILITY PLANNINGDOCUMENTATION:

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 X No _____ Date Approved _____

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 nearing 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: *(from CC CR-CS form, Rows 47 through 52)*

(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 ConstrFunds (CCF)	$7,560,645	$0	**$7,560,645**	$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)	$7,560,645	$0	**$7,561,645**	$0	$0	$0	$0

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 impact, both financial and operating, 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, oroperational 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	Pre-Design
Utility Contingency FY2018-19	Water Tank, Blasted, & Recoated	$75,000	Under Construction
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	Complete 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.

H. ASSUMPTIONS FOR CALCULATIONS:

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

1) Professional Services of $676,116 calculated using the Construction Improvement Total (CIT)
   - A/E Basic Services $600,992 - 12% of the CIT
   - Code Review and Inspections $ 25,041 - 0.5% of CIT
   - Advertising, Printing, Cellphones & Administration $ 50,083 - 1% of CIT
2) Base Project Costs of $3,115,422 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 $730,393 calculated as follows:
   - Secure Facility Environment Factor that accounts for contractor work inefficiencies due to working in a prison environment of 15% of labor only of the CIT on approximately 1/6 of the project within the facility that is inside the offender area.
   - Secure Facility Environment Factor that accounts for contractor work inefficiencies due to working in a prison environment of 5% of labor only of the CIT on approximately 5/6 of the project within the facility that is outside the offender area.
   - Site Location Factor of 20% of base and alternates that accounts for remote location of the facility
4) Project Contingency of $568,438 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 July 2019, then 5.8% compounded to November 2022 – the anticipated mid-point of construction. The inflation factors were calculated using the four-year average of inflation from the Engineering News Record, 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:

Phase1 of 1	**Start Date**	**Completion Date**
Pre-Design	**July 2020**	**October 2020**
Design, Bid & Award	**November 2020**	**March 2022**
Construction	**April 2022**	**June 2023**
FF&E /Other	**N/A**	**N/A**
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 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.

Backup Documentation

- FMS Preliminary Budget - DOC FY20-21 CCCR-01 SCF Steam Cond Line DOC budget
- SCF Site plan - DOC FY20-21 CCCR-01 SCF Site
- Schendt Engineering Study - DOC FY20-21 CCCR-01 SCF Steam Cond Line Study
- Photo Document - DOC FY20-21 CR-01 SCF Steam Condensate Line Photos
- SCF Photo folder - DOC FY20-21 CCCR-01 SCF Steam Condensate Line Replace Photos

M. CASH FUND PROJECTIONS:

Cash Fund name and number:		**Not Applicable**	
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):			
Prior Year Actual Ending Fund Balance	**Current Year Projected Ending Fund Balance**	**Year 2 Projected Ending Fund Balance with Project Approval**	**Year 3 Projected Ending Fund Balance with Project Approval**
$	**$**	**$**	**$**

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

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	**General Funded**	(2) Project Title:	Sterling Correctinal 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 Email:	james.ramsey@state.co.us	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY2019-20	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	June 28, 2019	(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic Services	12% of Const. Cost	$ -	$ 600,992	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	.5% of Const. Cost	$ -	$ 25,041	$ -	$ -	$ -	$ -
(9)	Construction Management	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Advertisements	1% of Const. Cost	$ -	$ 50,083	$ -	$ -	$ -	$ -
(11)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional	Included	$ -	$ 141,415	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied	2.7%, 5.8% annually	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 817,531	$ -	$ 817,531	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(15)	Infrastructure Service/Utilities	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(16)	Infrastructure Site Improvements	$ 2,051,280	$ -	$ 2,051,280	$ -	$ -	$ -	$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(19)	New at $_____ X _____GSF							
(20)	Cost for Renovation (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(21)	Renovation at $_____ X _____GSF							
(22)	Cost for Capital Renewal (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(23)	Renewal at $_____ X _____GSF							
(24)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(25)	High Performance Certification	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	Included	$ -	$ 429,040	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied	2.7%, 5.8% annually	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 2,480,320	$ -	$ 2,480,320	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ 1,064,143	$ -	$ 1,064,143	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	Included	$ -	$ 222,573	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied	2.7%, 5.8% annually	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	$ 1,286,716	$ -	$ 1,286,716	$ -	$ -	$ -	$ -
	Miscellaneous							
(35)	Site Location Factor - 20%	$ -	$ -	$ 623,084	$ -	$ -	$ -	$ -
(36)	Secure Facility Environment Factor - Level 5 (on labor only (50% of Manufacturer/Supplier Sub-Total 1/6 of project) - 15%	$ 38,943	$ -	$ 38,943	$ -	$ -	$ -	$ -
(37)	Secure Facility Environment Factor - Level 5 (on labor only (50% of Manufacturer/Supplier Sub-Total 5/6 of project) - 5%	$ 68,366	$ -	$ 68,366	$ -	$ -	$ -	$ -
(38)	Contractor's General Conditions - 10%	$ 384,582	$ -	$ 384,582	$ -	$ -	$ -	$ -
(39)	Contractor's Labor Burden - on labor only - 8%	$ 124,617	$ -	$ 124,617	$ -	$ -	$ -	$ -
	Contractor's Overhead and Profit - 15%			$ 653,252				
	Inflation for Construction	Included		$ 395,903				
(40)	Inflation Percentage Applied	2.7%, 5.8% annually	$ -	$ -	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ 2,288,747	$ -	$ 2,288,747	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	$ 6,873,314	$ -	$ 6,873,314	$ -	$ -	$ -	$ -
	Project Contingency							
(43)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 687,331	$ -	$ 687,331	$ -	$ -	$ -	$ -
(45)	***Total Contingency***	$ 687,331	$ -	$ 687,331	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	$ 7,560,645	$ -	$ 7,560,645	$ -	$ -	$ -	$ -
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 7,560,645	$ -	$ 7,560,645	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	$ 7,560,645	$ -	$ 7,560,645	$ -	$ -	$ -	$ -

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*					
A	(1) Funding Type:	General Fund			
B	(1) Agency/Institution:	History Colorado	(2) OSA Delegate Signature:		6/24/2019
C	(1) Project Title	Grant-Humphreys Mansion Exterior Repairs	(2) OSA Delegate Email:	Tonya.Covarrubias@state.co.us	
D	(1) Project Phase:	Phase 1 of 1	(2) State Controller Project # (if a continuation):		
E	(1) Project Type:	[ ] Capital Construction (CC) / [X] Capital Renewal (CR)	(2) Agency/Institution Signature Approval		6/25/2019
F	(1) First Year Requested:	FY 2019-20	(2) OSA Review Signature		10.1.19 Date
G	(1) Priority Number:	2 OF 2	(2) Revision Date:		Date

* Attach CC/CR-CS Form

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 1/30/18

B. PROJECT SUMMARY/STATUS:

This capital construction budget request is for $3,711,653 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 1960s, when History Colorado received the property. Over the last year, a few pieces of the terra cotta decorations have been falling off the Mansion, creating the life, health, safety issue the agency must address. Addressing the life, health, safety issues is even more critical when the fact that this property is primarily used 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 loose revenue as a result. This request will enable History Colorado to ensure one the State's historic jewels in Denver will continue to shine for many generations to enjoy.

C. SUMMARY OF PROJECT FUNDING REQUEST: *(from CC CR-CS form, Rows 47 through 52)*

(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)	$3,711,653	$0	**$3,711,653**	$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)	$3,783,943	$72,290	**$3,711,653**	$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 it 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 FY 2017-18, 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 FY 2019-20 request on addressing the agencies most pressing controlled maintenance and deferred maintenance needs.

History Colorado has conducted multiple Historic Structural Assessment reports (HSA) on the Grant-Humphreys Mansion since History Colorado took possession of it in 1976. Included in the first HSA 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 assembly along sides of the porte cochere roof. Along the cornice of the main roof and along the cornice of the hung assemblies at the balconies, the top surface of the projecting uppermost piece of the terra cotta assembly exhibits stress cracks and chips in a number of the pieces. In some cases, the joint cover between adjacent top pieces has developed cracks. At other pieces, 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 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 really would not accurately define the extend of work which needed to be done. Furthermore, it would be 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 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 toward the Mansion. The agency will use its 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. (See photos 56, 71, 74-77, 138, and 139)

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. (See photos 64, 69, 118, and 119)

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, 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 slope and any defective or broken cap pieces replaced. A structural engineer will be used to advise during the construction stabilization process. (See photos 101, 113, and 124-137)

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 areas terra cotta replacement 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 more deteriorated areas that need replacement.

- ***Terra Cotta Fountain Overlook Wall Cornice Cap and Guardrail (Division 4.11)***
  As the terra cotta fountain wall as 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 the 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. (See photos 123-127 of Attachment A)
- ***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. (See photos 35A-55A, 49, 50, 294-295, 297-299, 314, 333, 337, and 347-349 of Attachment A)
- ***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 freeze and architrave portions have some defective sections. The damaged pieces will be replaced, the mortar removed and replaced throughout. (See photos 56A-85A, 48-51, and 312-315 of Attachment A)
- ***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 of 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. (See photos 312, 313, 315, 320-325, and 330 of Attachment A)
- ***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. (See photos 46-62, 79-89, 154, 166, 170, 175, 183, 186, 190, 191, 201, 204, 213-216, 306-308, 311, and 314 of Attachment A)

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. For additional details about the stone step repair work included in this request, see Divisions 4.4-4.10 in Attachment A. (See photos 148-151, 155, 156, 158, 160, 161, 163, 170, 183, 186-189, 191-192, 195-199, 201, 242, 376, 12A-22A, 27A-30A, 92A-94A, and 109A-110A)

Additional masonry work includes repair to the stone plinth that runs the entire perimeter of the Mansion. 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. (See photos 152-154, 166, 170, 176, 180-183, and 186)

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. See Division 5.01 in Attachment A for more details. (See photos 233, 238, 178-179, 212-213, 217, 226 ,and 284)

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. See Division 5.02 in Attachment A for additional information about the drip edges for the cornice and wall caps.

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. More information about the Mansion's doors can be found in Divisions 8.01-8.04 in Attachment A. (photos 48, 51, 228, 232-235, 238-239, 240, 246, 249, 250, 256, 257, 266, 282, and0 312)

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. See Division 8.07-8.14 for details. (Photos 229, 234-235, 241-249, 251-254, 283-284, 292, 297-299, 304-307, 312, 334)

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. See Division 7.05 of Attachment A for more information on the dormer, dormer windows, door and trim. (See photos 312-313, 316-318, 326, 350-353, and 355-358)

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. Details about the porch ceilings can be found in Division 9.01 of Attachment A. (See photos 312-316, 319, 328, 337, 349, 350-354, 367, 369, 370, and 372-373)

All of the roofs have been 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 pealing. The film will be removed as part of this project and replaced with a more permanent product. Additional details about the condition of the roofs and skylight can be found in Divisions 7.01-7.04 of Attachment A. (See photos 327, 329, 359 and 360)

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 2020-21 request, the cost of the repairs will have increased three-fold to almost $2.7 million. Based on this increase, the cost of doing nothing is about $86,000 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 of Attachment A. 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, 2022, about four and one third (4.29) years of inflation was added to this report. Inflation calculations can be found in Attachment B, Inflation Calculations.

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 2020	December 2020
Design	December 2020	August 2021
Construction	August 2021	October 2022
Occupancy	October 2022	November 2022

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

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	**Multiple Funding Sources**	(2) Project Title:	Grant-Humphreys Mansion Exterior Restoration
(B)	(1) Agency/Institution:	History Colorado	(2) Project Phase:	Phase 1 of 1
(C)	(1) OSA Delegate Email:	Tonya.Covarrubias@state.co.u	(2) Project Type:	
(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ 26,000	$ 26,000	**$ -**	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ 17,200	$ -	**$ 17,200**	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic Services	$ 407,294	$ 5,341	**$ 401,952**	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	$ 7,426	$ -	**$ 7,426**	$ -	$ -	$ -	$ -
(9)	Construction Management	$ 267,968	$ -	**$ 267,968**	$ -	$ -	$ -	$ -
(10)	Advertisements	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(11)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional Services	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 725,888	$ 31,341	**$ 694,547**	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(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 _____GSF							
(20)	Cost for Renovation (GSF):	$ 2,173,996	$ 10,341	**$ 2,163,655**	$ -	$ -	$ -	$ -
(21)	Renovation at $_____ X _____GSF							
(22)	Cost for Capital Renewal (GSF):	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(23)	Renewal at $_____ X _____GSF							
(24)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(25)	High Performance Certification	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	$ 516,028	$ -	**$ 516,028**	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied		0.00%	**5.11%**	0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 2,720,632	$ 40,949	**$ 2,679,683**	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(37)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(38)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(39)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(40)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	**$ 3,446,520**	**$ 72,290**	**$ 3,374,230**	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(43)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 337,423	$ -	**$ 337,423**	$ -	$ -	$ -	$ -
(45)	***Total Contingency***	$ 337,423	$ -	**$ 337,423**	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	**$ 3,783,943**	**$ 72,290**	**$ 3,711,653**	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 3,711,653	$ -	**$ 3,711,653**	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ 72,290	$ 72,290	**$ -**	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	**$ 3,783,943**	**$ 72,290**	**$ 3,711,653**	**$ -**	**$ -**	**$ -**	**$ -**

* Accompanies CC/CR-N Form

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*					
A	(1) Funding Type:	General Fund			
B	(1) Agency/Institution:	History Colorado	(2) OSA Delegate Signature:		6/24/2019
C	(1) Project Title	Fort Vasquez Adobe Restoration	(2) OSA Delegate Email:	Tonya.Covarrubias@state.co.us	
D	(1) Project Phase:	Phase 1 of 1	(2) State Controller Project # (if a continuation):		
E	(1) Project Type:	[ ] Capital Construction (CC) / [X] Capital Renewal (CR)	(2) Agency/Institution Signature Approval		6/25/2019
F	(1) First Year Requested:	FY 2018	(2) OSA Review Signature		10·1·19 Date
G	(1) Priority Number:	1 OF 2	(2) Revision Date:		Date

* Attach CC/CR-CS Form

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 10/2016

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.

C. SUMMARY OF PROJECT FUNDING REQUEST: *(from CC CR-CS form, Rows 47 through 52)*

(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)	**$2,317,329**	$0	**$2,317,329**	$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)	**$2,317,329**	$0	**$2,317,329**	$0	$0	$0	$0

D. PROGRAM INFORMATION:

Fort Vasquez was the site of an 1835 fur-trading fort. The site currently houses a museum and New Deal Works Progress Administration replica of the original adobe fort. The Fort is located thirty-four (34) miles north of downtown Denver on the eastern bank of the South Platte River, two miles south of Platteville. Programs offered at the Fort include living history and historic trade reenactments, as well as a nature survival program series.

Fort Vasquez was one in a series of trading forts on the South Platte River that became an American Indian trading empire that reached throughout the present-day states of Colorado, Wyoming, Nebraska and South Dakota. The Cheyenne and Arapaho traded for manufactured goods, food and alcohol at the Fort. In 1842, the Fort was abandoned and it began melting back into the earth. Locals utilized the area to picnic near the old posts and explore the grounds until the 1920s, when a historian at the Colorado Historical Society, LeRoy R. Hafen, began touring the forts as part of his research on the fur trade in the Rocky Mountain West. He was concerned about the failure to preserve the forts and their resources leading to the forts complete destruction, making it difficult for future generations to learn about the fur trade in Colorado. In 1934, the Fort was deeded to Weld County and the Platteville Community Club spearheaded an effort to reconstruct Fort Vasquez and a museum on the site. The Town of Platteville requested and received $2,389 in federal funds from the New Deal's Works Progress Administration. The Fort was moved a few yards away from the side of Highway 85 and was reconstructed mostly by local citizens. The dedication of the Fort took place in August 1937 and was attended by 2,000 people.

The Colorado Historical Society (History Colorado) accepted ownership of the fort in 1958 with the intention of excavating the site. Multiple archaeology projects were completed between 1963 and 1970, which discovered the original Fort was very near the reconstructed Fort and various specimens. The Fort was opened to the public in 1964 to interpret the American Indian cultures and fur trapping history in Colorado.[1]

Currently, the Fort is open in the Winter (October 1 – March 31) Tuesday through Saturday from 10:00 am to 4:00 pm. During the Summer (April 1 through September 30) it is open daily from 10:00 am to 4:00 pm. Upcoming programs at the Fort include "Trade Moccasins – Sew & Stitch", "Frontier Foods: Earth Oven Baking", and "Bushcraft of the Past".

E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

Fort Vasquez has experienced major- and continual structural damage (outside of normal erosion) on a regular basis, accelerating in 2010. The South Wall of the Fort has collapsed twice since 2010, leading to the Emergency Controlled Maintenance project, "EM-1626/FTVA South Wall Collapse" in April 2015. The entire property is in similar condition to the South Wall as outlined in Attachments C, D, and E. Consultations by Pat Taylor (Adobe specialist recommended by the Office of Archaeology and Historic Preservation) and Andrew Phillips/Natural Dwelling, LLC (History Colorado's contracted Adobe Preservation Specialist) in 2014 and extensive forensics into past processes point to many factors for the major- and continual-damage to the structure of the Fort. These include:

- *Destructive atmospheric changes and severe weather events (very few adobe structures at this longitude)*
- *Poor water diversion*
- *No foundation (shoes) to deal with expansive soils and weight load of structure*
- *No means to mitigate capillary rise from groundwater*
- *Lack of protection for top (cap) of structure*
- *Patchwork of dissimilar materials and restoration techniques*
- *No cohesive maintenance strategy*

The Special Project Manager at History Colorado was tasked by History Colorado and the State Architect, to find a long-term solution to the adobe issues across History Colorado's properties to avoid the continual costs of major repairs the agency was experiencing. As all of the agency's adobe properties are listed on the National Register of Historic Places, letting the structures decay will put History Colorado in violation of the State Register Act when it should be the State model for historic preservation required under the Act. Bringing the entire Fort to the same level of repair as the South Wall is necessary for History Colorado to:

1. *Be stewards of the State's Monuments, as outlined in 24-80-501, C.R.S. in the most efficient and cost-effective way possible;*
2. *Stay in compliance with the State Register Act and be a model for the State in historic preservation; and*
3. *Meet its Performance Plan goal of increasing revenue to stay financially sustainable and stable as its COP payments increases, as the Community Museums like Fort Vasquez contribute to increasing the revenue of the agency; this requires Community Museum properties to be in good condition for visitors and tourists.*

To meet these goals, the Special Projects Manager did extensive research on the past adobe ethos (methods and procedures to repair and maintain the adobe properties) and it was decided to create an Adobe Ethos Team that consists of an Adobe Preservation Specialist, a historic preservation architect and a historic preservation general contractor. This resulted in an adobe ethos protocol the agency could test on the EM-1626 project. The entire protocol is outlined in the report, "EM-1626 Repair/Rebuild Adobe Wall at HC/Fort Vasquez, South Wall" and summarized in the "Adobe Ethos Protocol" section below.

Adobe Ethos Protocol

1. *Inject Cresin 76 Concentrate into and below the base of the wall to mitigate capillary rise, wall subsidence due to freeze/thaw upheaval*
2. *Rebuild the collapsed section, and any other sections destabilized from the collapse*
3. *Tie the 2 wythes together*
4. *Fabricate and install lightweight ship-lapped masonry caps on the top of wall and ledge of the SE wall section.*
5. *Fabricate and install j channel and counter-flashing at the cap and wall intersections*
6. *Fabricate and apply appropriate sacrificial render coats*
7. *Install drainage channel to divert water from the low point of concentration to outside the gate line*
8. *Remove existing remains of years of previous renders from the ground surrounding the walls where work was done, and direct water away from the walls via shallow swales towards the installed drainage channel*

Crisin 76 Concentrate

Once the Adobe Ethos Team determined a portion of the reoccurring structural damage to the Fort was a result of capillary rise (moisture rising through the interior of the wall and eroding the adobe brick and mortar from the inside-out, either from a heavy precipitation event or perception over time), the goal of the Team is to prevent moisture from soaking up from the ground, into the adobe walls.

Fort Vasquez is listed on the National Register of Historic Places in part for its archaeological significance. As a result, the site has been examined by an archaeologist and a report was completed, which resulted in an agreement with the State Historic Preservation Officer within the Office of Archaeology and Historic Preservation for the site. The report recommended that ground disturbances go no deeper than forty centimeters (sixteen inches) at the Fort and the aforementioned agreement adopted that recommended. As a result, any attempt to prevent capillary rise cannot involve ground disturbance deeper than sixteen inches, so a physical barrier, such as a concrete footer, is not an option. The Team explored innovative options and found a product from Koster USA, Crisin 76 Concentrate, that could be injected into the base of the walls to limit capillary

[1] "Fort Vasquez Museum: A Capsule History and Guide". Litvak, Dianna. Colorado Historical Society, 2009

rise, wall subsidence, and to provide protection against freeze/thaw upheaval. According to the report, "EM-1626 Repair/Rebuild Adobe Wall at HC/Fort Vasquez, South Wall" (Attachment X), Crisin 76 Concentrate was picked because:

> *"[It] was found to be the best choice for the above grade application to cease capillary rise of water. This had the viscosity of water, but its density was lower, so that it had the ability to travel into and occupy all of the wall, regardless if it was wet or dry. This created a complete horizontal plane within the wall that, and once dried, will disallow water to rise past it."*

The Adobe Ethos Team has observed the South Wall, which was injected with the Crisin 76 Concentrate in XXX in 20XX, and determined that the product is acting as the Team hoped. The report, "2018 Emergency Inspection Final - Vasquez Spring 2015", outlines the results of the Crisin 76 Concentrate injection on the South Wall.

> *"For this inspection, staining marks from moisture and ground impurities were looked for on the existing render on the rebuilt wall section. The render was just short of completely free of evidence of dark staining. The passage of time will continue to reveal the effectiveness of the Crisin. The only section found with staining was on the south side of the wall, approx. 4' in from fence line. Since this stain is within the section of the Crisin injections, it shows that the Crisin did not fully saturate a small area, leaving capillary rise to transport impurities up and out in this specific spot.*
>
> *Additionally, cracks were looked for that would have exposed Crisin having formed a 'rigid' and inflexible foundation. The only crack in the Crisin section was at the intersection of the original WPA corner tower and the new rebuilt and re-stacked section. This crack is minor at this point, and of no significant issue. Because of the dissimilar core materials, this crack was half expected." (Page 3)*

<u>Replace Deteriorated Bricks/Rebuild Wall</u>
The Adobe Ethos Team has done extensive review of the walls at the Fort and based on estimates from the Adobe Ethos Team, the bricks on the inner wythe will need to be almost entirely replaced and the outer wythe will have some brick replacement in order to get a solid, bonded, and undisturbed course of bricks with the inner wythe. The brick will be similar in composition to the South wall and will come from the New Mexico Earth Industries in Albuquerque, NM. The brick recently tested at 550 PSI crush strength and New Mexico building code minimum (Colorado does not have an adobe building code) is 300 PSI. The means of removing the damaged bricks, replacing the wythe, stacking the bricks, and installation of through rods and cleats, as well as the mortar formula, is outlined in detail in the "EM-1626 Repair/Rebuild Adobe Wall at HC/Fort Vasquez, South Wall" report. Cost estimates for the replacement brick and the number of bricks required is from the actual costs for the emergency repair to the South Wall at Fort Vasquez.

<u>Roof and Ledge Caps</u>
A lack of protection to the top of the structure is a clear weakness in the current structure. In an open adobe structure like Fort Vasquez, roof and ledge caps are the best solution to keep moisture from entering the wall and causing interior erosion of the adobe bricks and mortar and to prevent hail from damaging the protective render on the walls. A portion of the Fort has no roof and ledge caps and another portion has a cap and roof that are made of a heavy material, do not meet National Park Service historic preservation standards and allows water seepage into the mortar joints that connect the caps to the structure, causing interior erosion of the adobe.

The Adobe Ethos Team has recommended the caps be lightweight cementitious cap, similar in style and function of the original WPA reconstruction, which is re-usable, and re-settable. This allows the caps to be readjusted easily over time, as needed, and reduce the weight loading on the wall. Too much weight on the structure can cause wall collapse, especially after a heavy precipitation event. Details on the fabrication, specifications and installation of the caps is outlined in the "EM-1626 Repair/Rebuild Adobe Wall at HC/Fort Vasquez, South Wall".

<u>Render Replacement</u>
The agency has tested three types of render at Fort Vasquez since the emergency project to repair the South Wall: asphalt emulsion, Koster restoration plaster and NHL lime. The location of Fort Vasquez tends to result in more serious weather events than at other adobe properties in the State's southwest region, making choosing the appropriate render crucial to ensuring the repairs are long-lasting and require the least amount of maintenance.

While all three renders are holding up fairly well to the weather the Fort has experienced over the last two years, the asphalt emulsion is beginning to have minor cracks that require regular maintenance. The Koster restoration plaster has not cracked, but it also does not "breathe", which means that moisture is staying in the walls, rather than evaporating. This means that while the wall looks aesthetically pleasing from the exterior, the inside wythes are subject to erosion and damage. The NHL lime render does have some cracks, but they have "self-healed" due to the nature of lime. In addition, the Adobe Ethos Team has noticed that the color of the render has grown darker in color overtime, which means that the wall is "breathing" and allowing moisture to wick to the surface and evaporate. This characteristic of the lime render ensures that the interior walls are not continually moist, preventing long-term damage to the adobe, while also limiting surficial erosion.

The agency has included costs to upgrade the render on the Fort to the NHL lime formula after the Fort's walls are repaired because it has been found to be the most protective to the adobe walls over time, resulting in less costs to the agency for future repairs, and because the use of lime render is historically accurate, meeting the agency's preservation goals.

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
Cash Capital	FTVA: Repair render, test hydraulic lime product	$17,000	9/2016
EM-1626	FTVA: Collapsed wall repair and drainage	$76,800	8/2016
FEMA	FTVA: Spring 2015/Phase II FEMA Funded Project	$35,272	8/2016
Cash Capital	Adobe Render Repairs	$24,340	11/2015
P-012018	FTVA: Repair eroded walls and replace render	$43,435	9/2008

F. CONSEQUENCES IF NOT FUNDED:

If this project is not funded, Fort Vasquez will continue to disintegrate from water retention and efflorescence. As efflorescence disintegrates adobe from within, any attempts by the agency to do minor repairs to the exterior of the sites' walls will only be cosmetic and not address the primary structural issues.

Without Capital Renewal Funds, History Colorado will continue to prioritize adobe projects as part of its annual Regional Properties Project capital construction request of $700,000 in cash funds for community museums, alongside other risk management level regional properties projects. Note that over half of the $700,000 is allocated for the Georgetown Loop® Railroad, leaving about $250,000 annually for the other regional properties. History Colorado staff analysis of risk management needs at regional properties shows that this work could take at least five to eight fiscal years to complete if the agency must rely on its cash funds for the adobe projects. Given the current condition of the buildings, as discussed in the reports included in attachments A-F, it is significantly possible that the Fort will experience loss of use in the time it would take History Colorado to fund the projects with cash funds.

As these are sites are historical monuments and museums, it must first be noted that that loss of use in an adobe structure can mean its collapse and near disintegration, as adobe is essentially specialized mud. In some cases, such as the buildings at Fort Garland, the State could lose historic sites almost 160 years old. These sites are open to public visitation and provide educational programs to local schools. The loss of use of the buildings including in this project would result in lower visitation, driving down History Colorado's revenue. Earned revenue is one of History Colorado's primary sources of funding. Reductions in earned revenue will result in the destabilization of History Colorado's financial condition, as well as possible lay-offs and elimination of programs, making it difficult for the agency to fulfill its mission. At the least if this project is not funded, History Colorado will likely have additional emergency wall collapse projects at the Fort.

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

This project would increase the Facility Condition Index (FCI) at Fort Vasquez 46.8 to 85.9, see attachment A. The project would also reduce the current costs of maintaining the structure, which currently come from the agency's cash capital construction appropriation. This would free up the cash capital construction funds to be used on other maintenance projects at the Community Museums.

H. ASSUMPTIONS FOR CALCULATIONS:

The Personal Services costs were calculated as a percentage of total construction costs, except for Site Surveys and Reports. Site Surveys and Reports includes the estimated costs to complete a survey on the site's property for the water diversion portion of the project. This is estimate is based on previous site surveys the agency has completed. The Site Surveys and Reports costs also include a report from the Adobe Ethos Team that the agency can use as an owner's manual for the future maintenance of the restored Fort. Architectural/Engineering/Basic Services, includes the costs for a civil engineer to create a water diversion plan for the site and for an architect to create drawings of the Fort after the repairs have been completed. Drawings are needed because the agency currently does not possess red-lined plans of the site, which are needed for future planning and projects. Architectural/Engineering/Basic Services are calculated as fifteen percent (15%) of the total construction costs. As the site is located over an hour from Denver, lessons learned from other large community museum capital construction projects have lead the agency to realize it is not reasonable for a History Colorado project manager to be on site to make daily decisions on the project and ensure work is being completed as designed and on-time. As a result, the agency is requesting ten percent (10%) of the total project cost on an owner's representative to conduct construction management on the project.

The estimates for Infrastructure Site Improvements include the costs to complete water diversion on the entire site. The emergency project to restore the South Wall of the Fort included the installation of a French drain to drain water from the interior of the Fort. The estimate is based off of the cost of previous water diversion to the site, as well as cost estimates to complete similar water diversion at the Fort Garland Museum.

The estimated costs of the capital renewal construction include the following base assumptions:

- *South walls- approx. 45 ft. each on either side of entry way (total 90ft), and 50% each of Works Progress Administration (WPA) and asphalt brick*
- *West wall- approx. 108 ft., close to 100% asphalt brick*
- *North wall- approx. 100 ft., close to 100% WPA brick.*
- *East wall- approx. 100 ft., close to 100% WPA brick*
- *Northeast & Northwest towers- approx. 25 ft. around each base (total 50 ft.), and unknown what brick substrate*
- ***Total approx. running feet of foundation- 448 linear feet with 380 feet remaining.** (Approx. 50 feet of foundation has already had Crisin 76 injections.)*

- ***Total approx. running feet of cap-able wall- 398 linear feet.*** *(Approx. 140 ft has already had the cap fabricated and placed.)*
  - ***Total approx. running feet of firing ledge and parapet cap lengths - 788 linear feet, with 648 feet remaining***

The estimates for the cost of construction were provided by Natural Dwelling, a member of the Adobe Ethos Team and are included in attachment B. Crisin injections are projected to cost $450 per running foot for 380 feet for a total cost of $171,000. The demolition of the existing cap will cost $8,500 and the lightweight CLC cap for 648 feet at a cost of $300 per foot is $194,400. For the connecting of existing disconnected wythes, of the walls with asphalt brick will cost $25,000. Demo of existing render and compromised brick will cost $22,500. A full system of NHL lime coating will cost $225,800 for the asphalt walls and $373,275 for the WPA brick walls. These estimates were provided in June 2019, so an inflationary rate of 5.11% was applied from the time of the estimate to the middle of the project. The table below includes a breakdown of the construction cost estimates.

Construction Item	Estimated Cost
Demo Existing Cap	$8,500
Demo Existing Render & Compromised Brick	$22,500
Mechanical Fastening of Asphalt Brick Wythes	$25,000
Crisin 76	$171,000
Lightweight CLC Cap	$194,400
Full NHL System for Asphalt Walls	$225,800
Full NHL System for WPA Walls	$373,275
Total	$1,020,475

Finally, as suggested by Natural Dwelling, a twelve percent (12%) contingency was applied to the project. From Attachment B,

"Probably a 12% for this ought to do it, as we are essentially addressing the ENTIRE structure, and I feel more comfortable understanding intricacies the project. Contingency would be much larger for any other contractor. Places where contingency may be needed- temporary shoring will be needed for possibly weakened walls, protective covering from inclement weather during work, or for application of lime renders."

I. SUSTAINABILITY:

This project is exempt from the High Performance Certification Program because it is an open historic structure with no ceiling.

J. OPERATING BUDGET IMPACT:

This project will likely not have in impact on Fort Vasquez's operating budget. However, the repairs will reduce the costs of future maintenance to the Fort and will free up funds from the agency's cash capital construction appropriation to be used on maintenance project as other community museums and regional sites.

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	7/2020	10/2020
Design	10/2020	7/2021
Construction	7/2021	6/2022
Occupancy	6/2022	7/2022

L. ADDITIONAL INFORMATION:

N/A

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

10/1/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	**General Funded**	(2) Project Title:	Fort Vasquez Adobe Restoration
(B)	(1) Agency/Institution:	History Colorado	(2) Project Phase:	Phase1 of 1
(C)	(1) OSA Delegate Email:	Tonya.Covarrubias@state.co.u	(2) Project Type:	Capital Renewal (CR)
(D)	(1) Year First Requested:	FY 2018	(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 2020-21**	(e) **Year Two Request FY 2021-22**	(f) **Year Three Request FY 2022-23**	(g) **Year Four Request FY 2023-24**	(h) **Year Five Request FY 2024-25**
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ 155,000	$ -	**$ 155,000**	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic Services	$ 212,858	$ -	**$ 212,858**	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(9)	Construction Management	$ 141,906	$ -	**$ 141,906**	$ -	$ -	$ -	$ -
(10)	Advertisements	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(11)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional Services	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 509,764	$ -	**$ 509,764**	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(15)	Infrastructure Service/Utilities	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(16)	Infrastructure Site Improvements	$ 398,580	$ -	**$ 398,580**	$ -	$ -	$ -	$ -
(17)	Structure/Systems/ Components							
(18)	Cost for New (GSF):	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(19)	New at $_____ X _____GSF							
(20)	Cost for Renovation (GSF):	$ -	$ -		$ -	$ -	$ -	$ -
(21)	Renovation at $_____ X _____GSF							
(22)	Cost for Capital Renewal (LF):	$ 1,020,475	$ -	**$ 1,020,475**	$ -	$ -	$ -	$ -
(23)	Renewal at $2,278 X 448 LF							
(24)	Other (Specify)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(25)	High Performance Certification	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	$ -	$ -		$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied		0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 1,419,055	$ -	**$ 1,419,055**	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ 140,225	$ -	**$ 140,225**	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	**5.11%**	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	**$ 140,225**	**$ -**	**$ 140,225**	**$ -**	**$ -**	**$ -**	**$ -**
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(37)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(38)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(39)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(40)	Other Costs [specify]	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	**$ 2,069,044**	**$ -**	**$ 2,069,044**	**$ -**	**$ -**	**$ -**	**$ -**
	Project Contingency							
(43)	5% for New	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(44)	12% for Renovation	$ 248,285	$ -	**$ 248,285**	$ -	$ -	$ -	$ -
(45)	***Total Contingency***	$ 248,285	$ -	**$ 248,285**	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	**$ 2,317,329**	**$ -**	**$ 2,317,329**	**$ -**	**$ -**	**$ -**	**$ -**
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 2,317,329	$ -	**$ 2,317,329**	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	**$ 2,317,329**	**$ -**	**$ 2,317,329**	**$ -**	**$ -**	**$ -**	**$ -**

* Accompanies CC/CR-N Form

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*				
A	(1) Funding Type:	Capital Construction Funds		
B	(1) Agency/Institution:	Department of Personnel & Administration	(2) OSA Delegate Signature:	Date 6-28-19
C	(1) Project Title	Merrick Garage EV Charging Stations	(2) OSA Delegate Email:	Lance.shepard@state.co.us
D	(1) Project Phase (Phase _of_):	1 of 1	(2) State Controller Project # (if a continuation):	6/28/19
E	(1) Project Type:	X Capital Construction (CC) Capital Renewal (CR)	(2) Agency/Institution Signature Approval	Date
F	(1) First Year Requested:	FY 2020-21	(2) OSA Review Signature	10.1.19 Date
G	(1) Priority Number:	2 OF 6	(2) Revision Date:	Date

* Attach CC/CR-CS Form

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 _____ Date Approved _____

B. PROJECT SUMMARY/STATUS:

This Capital Construction requests seeks $840,252 in Capital Construction Funds for electric upgrades for the Merrick Parking Garage to provide capacity and installation of 25 Level II dual-port electric vehicle (EV) charging stations on the 5th Floor of the facility. This request stems from Executive Order B 2019-002, issued in January 2019, which provides directives for the State to accelerate the widespread use of electrification of cars, while aligning with the Colorado Electric Vehicle Plan through the Colorado Energy Office, which seeks to address the lack of a network of EV fast-charging stations throughout the State. This project intends to provide the electrical capacity to allow for sufficient infrastructure for the installation of Level II EV charging stations for use by multiple state agencies for state owned vehicles.

This project encompasses two stages of installation; the first stage is for the installation of infrastructure for electric upgrades to allow for the distribution of electricity capacity to install EV charging stations and then install 10 Level II dual-port EV charging stations at the Merrick Parking Garage. The remaining 15 Level II dual-port EV charging stations will be installed in the Merrick Parking Garage over the course of a few years, as the adoption of State owned EVs increase. The installation of 25 dual-port EV charging stations will allow for a total charging capability for 50 EVs in the Merrick Parking Garage.

There are approximately 700 EV charging stations in Colorado, which encompasses all public and private charging stations. Of that amount, 72 are DC fast-charging stations, which provide a relatively fast charge of 20 minutes for 60 to 80 miles of range, with the remainder being Level II EV charging stations, for which an EV can charge for 3-5 hours for the same mileage range.[1] Currently, there are approximately 32 EV charging stations at 16 State facilities, each provides access to reliable charging for the agency that purchased and installed the stations. While the number of publicly available EV charging stations around the state continues to rise, in order to meet the goals of the Governor's Executive Order and the Colorado Electric Vehicle Plan, the State must also install an adequate number of EV charging stations at locations where State owned vehicles are housed. It is critical to have reliable charging infrastructure installed at the Merrick Parking Garage so that agencies that park at the Merrick Parking Garage will be able to replace older gasoline-powered vehicles with more efficient electric vehicles.

C. SUMMARY OF PROJECT FUNDING REQUEST: *(from CC CR-CS form, Rows 47 through 52)*

The Department is requesting a total of $840,252 in FY 2020-21 to complete the installation of electrical infrastructure and EV charging stations in the Merrick Parking Garage.

(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)	$840,252	$0	**$840,252**	$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

[1] https://afdc.energy.gov/fuels/electricity_charging_public.html

(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)	$840,252	$0	**$840,252**	$0	$0	$0	$0

D. PROGRAM INFORMATION:

Outside of the Capitol Circle, the Department's Facilities Maintenance - Capitol Complex manages the State controlled Capitol Complex parking. Capitol Complex operates 905 parking spaces in the Denver metro area, allocating approximately 34% of spaces to state agencies, with the remaining 66% to individual state employees. Each parking spot is assigned to a specific agency or state employee, as to not oversell available parking.

The Merrick Parking Garage, located at 1350 Lincoln Street, offers five levels of parking, with 165 of the 665 parking spaces utilized by State agencies, making it a prime location for the installation of EV charging stations. Additionally, the Merrick Parking Garage is a secured site, meaning access must be granted through a security gate and it houses a large concentration of State Fleet light duty vehicles for several agencies. These agencies include the Departments of Natural Resources, Local Affairs, Human Services, Agriculture, Revenue, Public Safety, and Public Health and Environment.

When the Merrick Parking Garage was constructed in 2006, it was designed to pull electrical services from the Capitol Annex building next to it and the design did not forecast the need to install EV charging stations. An assessment completed in FY 2017-18 found that the current electrical infrastructure is unable to support the electrical demand required for EV charging stations. Therefore, until electrical capacity in the garage is increased, the option for replacing existing gasoline-powered vehicles with electric models for those agencies using the parking in the garage is extremely limited.

Since onsite EV charging is the easiest method for fleet vehicle charging, installing EV charging stations at the Merrick Parking Garage is a prerequisite for agencies to replace existing vehicles, at the time replacement is needed with EVs. Currently, State Fleet is comprised of approximately 6,300 vehicles, of which only 60 are electric vehicles. Approximately 600 vehicles are replaced annually on a statewide basis and this request would require that State Fleet Management, in accordance with the agencies that utilize the Merrick Parking Garage, to purchase EVs through attrition. As EVs are selected, the better suited the agencies will be to transition to zero emission vehicles and align with the Governor's initiatives. State Fleet Management has identified approximately 52 vehicles statewide that have the potential to be replaced from gasoline-powered vehicles with EVs in FY 2020-21. Phasing in the installation of EV charging stations is crucial to allow the State to move toward increasing the number of EVs housed at the Merrick Parking Garage, and replace gasoline-powered vehicles with electric vehicles.

E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

Project Description: This project will provide electrical capacity and distribution, as well as the installation of a total of twenty-five Level II dual-port EV charging stations in the Merrick Garage for usage by multiple state agencies.

Scope of Work:

The Capitol Complex electrical loop will require a utility meter upgrade and electrical distribution to accommodate the EV charging stations. Outlined below is the scope of work for the Merrick Parking Garage.

Merrick Parking Garage

Currently, the Merrick Parking Garage utilizes electrical services tied to the Annex Building for the security gates, elevators, and lighting. The Merrick Garage will need an electrical upgrade that provides new electrical services that are separate from the electrical services tied to the Capitol Annex Building to be able to offer enough electrical infrastructure to support up to 25 dual-port Level II EV charging stations. The electrical infrastructure will include the conduit, wiring, distribution panels, circuit breakers, and transformers. Due to the scope of work for this portion of the project, moving electrical services from the Annex Building to a standalone electrical unit for the Merrick Garage, a general contractor is necessary. Once the electrical infrastructure is in place, the installation of 25 dual-port EV charging stations will be completed over the course of the 3 years, on the 5th floor of the parking garage, with one spot that complies with ADA regulations.

EV Charging Stations

The funding for 25 Level II dual-port EV charging stations to accommodate up to 50 vehicles and associated expenses, include installation and 1 year of warranty.

Justification:

Currently, 165 State owned vehicles are housed in the Merrick Parking Garage. With the infrastructure for EV charging stations in place, the ability for agencies to replace gasoline-powered vehicles with electric vehicles will arise and result in an increase in the number of EVs using the charging stations over time. Completing the electrical upgrades and installing EV charging stations provides the opportunity for the Department to increase the level of service available to agencies that utilize the facility. Further, it provides significant benefits to the State of Colorado as a whole and to the agencies that manage and park at the facility, in addition to those agencies that could use the EV charging stations in emergencies, by providing for more certainty of availability than that of a public station.

Cost savings are found through each charging event, based on the total kilowatt hours (kWh) of electricity used, at an average rate of eleven cents per kWh, compared to the traditional vehicle with gasoline costs of $2.39 per gallon[2]. Further, a reduction in petroleum use in State Fleet vehicles

[2] https://www.nrel.gov/docs/fy17osti/69031.pdf

would produce a cost savings to the State. Additional savings to the State could be achieved through the reduction in maintenance and operating costs of EVs compared to standard gasoline-powered vehicles. Moreover, driving electric vehicles will result in far fewer emissions, which helps improve air quality.

Currently, the Capitol Complex program bills State agencies for designated parking spots in the Merrick Garage. This request would require that Capitol Complex develop a billing system for the utilization of EV charging stations based on the assignment of the parking space and usage of electricity.

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
	Merrick Parking Garage Construction	$12,282,477	2006

F. CONSEQUENCES IF NOT FUNDED:

The purchase and use of EVs is a key strategy in reducing petroleum use of State owned vehicles. Without electrical infrastructure to supply the power to be able to install EV charging stations at the Merrick Parking Garage, agencies will continue to replace old gasoline-powered vehicles with new gasoline-powered vehicles, even when an electric model is preferable. Though there are public locations for charging stations, the challenge with public stations is that there is no certainty that at any given time a station is reliable, available, or conveniently located. A public station might be a more viable option in an emergency or if the EV needs a quick charge.

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

The State will be able to re-use existing parking spaces to provide for the addition of the EV charging station infrastructure. Although, the use of the EV charging stations in Capitol Complex parking areas will result in increased electricity usage, this is a net benefit to the State as electricity is less expensive than gasoline. Further, fuel consumption will decrease with the increase of EVs within State Fleet and result in fewer greenhouse gas emissions, increasing air quality. The table below summarizes the project cost benefit comparative analysis over a 10-year timeframe.

Table 1 – Cost Benefit Comparative Analysis

	Current	EV Charging Stations	Cost/Benefit
ITEM	**Amount**	**Amount**	**Calculations (over 10 year timeframe)**
Fuel Consumption	$10,367,746	-$1,172,063	(average miles per year X $0.12 per mile) + 2% YOY
EV Charging Stations	$0	$991,909	($840,252 + $560 annual subscription per dual-port EV station) + 2% YOY
Electricity Usage	$0	$546,830	((hours used per year X $0.11 per kWh) X number of dual-port EV stations)+ 2% YOY
Overall Cost	**$10,367,746**	**$446,179**	
Carbon Emissions	*325,710 MT*	*-4,888 MT*	*4.7 metric tons per year X number of vehicles*

H. ASSUMPTIONS FOR CALCULATIONS:

The table below summarizes the estimates provided by the design engineer for the Merrick Parking Garage that have been updated from 2018 estimates, with an inflation factor to arrive at FY 2020-21 estimates. The project can be accomplished within a single capital construction appropriation timeframe.

Table 2 – Engineers Cost Estimate by Project and Installation Stages

EV Charging Stations Orig Prepared: 7/2018, **Revised: 6/11/2019**	Scope: Install electrical Infrastructure Installation and EV charging stations at the Merrick Parking Garage	
INFLATION / YR1= 5%, YR2 & YR3=6.5%		
ITEM	**Original Estimates**	**Projected 2021 Amount**
Merrick Parking Garage (Install Electrical Infrastructure, Distribution & Connection, 2018)	$178,644	$212,754
Campus Utility Grade Connection, Electrical Infrastructure, Distribution, 2019)	$193,780	$216,694
A&E with increased Utility Services & Meter Upgrades (2019)	$37,785	$45,000
GC Oversight	$55,864	$64,417
Level 2 EV Charger -Dual (24) w/ 1 year warranty*	$225,000	$225,000
10% contingency	$69,107	$76,387
Total	**$625,180**	**$840,252**

**EV charging station costs are expected to remain constant through a price agreement.*

I. SUSTAINABILITY:

All installations will use modern methods for electrical power distribution to create efficiencies for energy consumption.

J. OPERATING BUDGET IMPACT:

The increased infrastructure will require periodic maintenance and service, with an estimated annual subscription cost of $560 per Level II dual-port charging station. Additionally, the Capitol Complex program would see an increase in electric utility billings as EV stations are utilized, this increase would then be allocated to State agencies through the Capitol Complex Leased Space Common Policy based upon square footage occupied within the Capitol Complex. Signage for the EV charging stations will be purchased within the existing operating budget and additional workload will be absorbed through existing staff.

K. PROJECT SCHEDULE:

The Department expects to begin the projects in this request commencing with the annual appropriation on July 1, 2020 and conclude all projects of the request no later than June 30, 2023.

Phase 1 of 1	Start Date	Completion Date
Pre-Design		
Design	**Upon Appropriation**	**10/1/2020**
Construction	**11/1/2020**	**6/30/2023**
FF&E /Other		
Occupancy		

L. ADDITIONAL INFORMATION:

Please review the attached appendices for additional information on the parking locations and infrastructure.

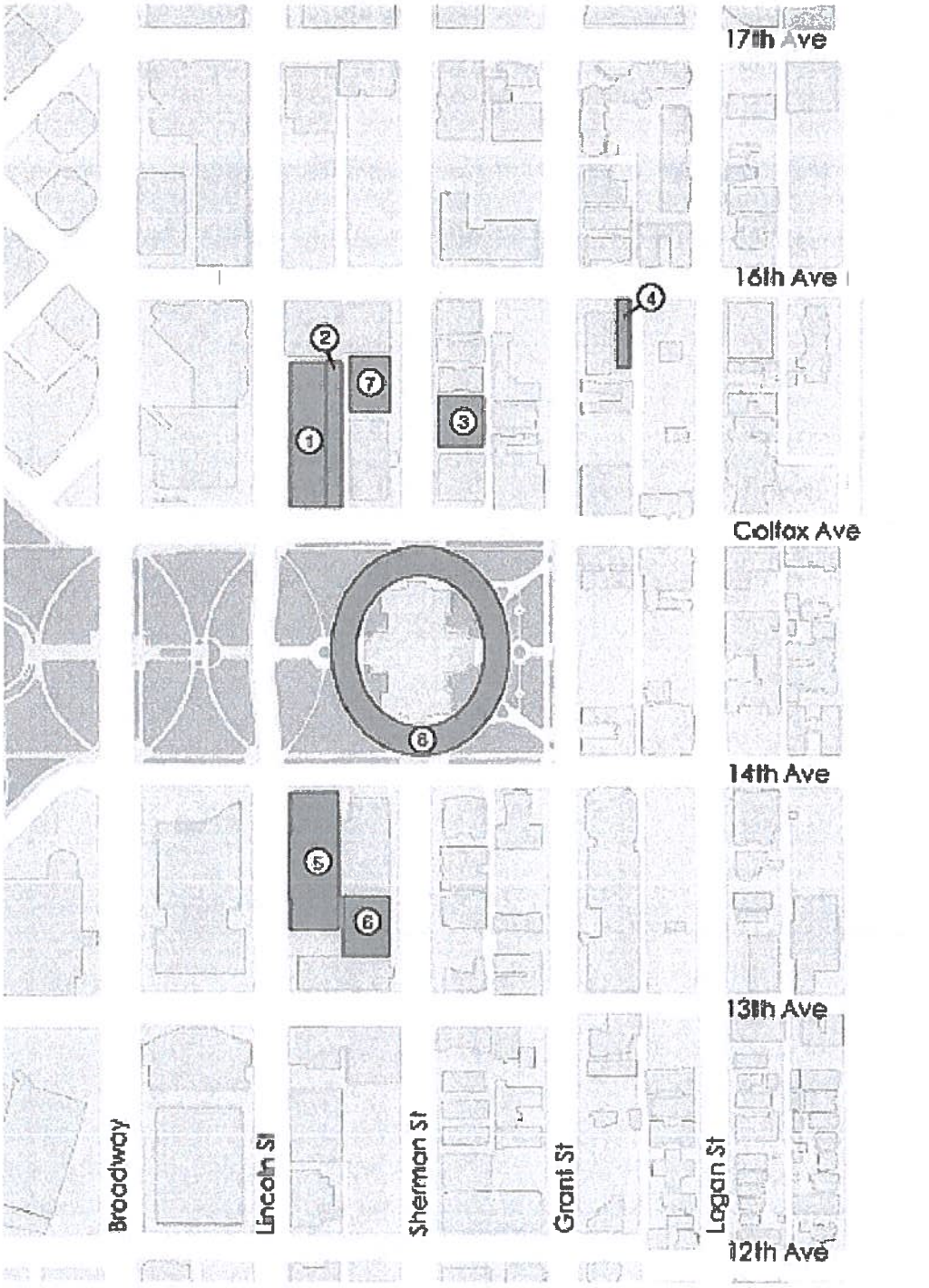
- Appendix A-Merrick Parking Garage Location
- Appendix B- 5th Floor EV charging station locations

M. CASH FUND PROJECTIONS:

Cash Fund name and number:		Not Applicable.	
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):			
Prior Year Actual Ending Fund Balance	**Current Year Projected Ending Fund Balance**	**Year 2 Projected Ending Fund Balance with Project Approval**	**Year 3 Projected Ending Fund Balance with Project Approval**
$	$	$	$

Appendix A
Merrick Parking Garage Location

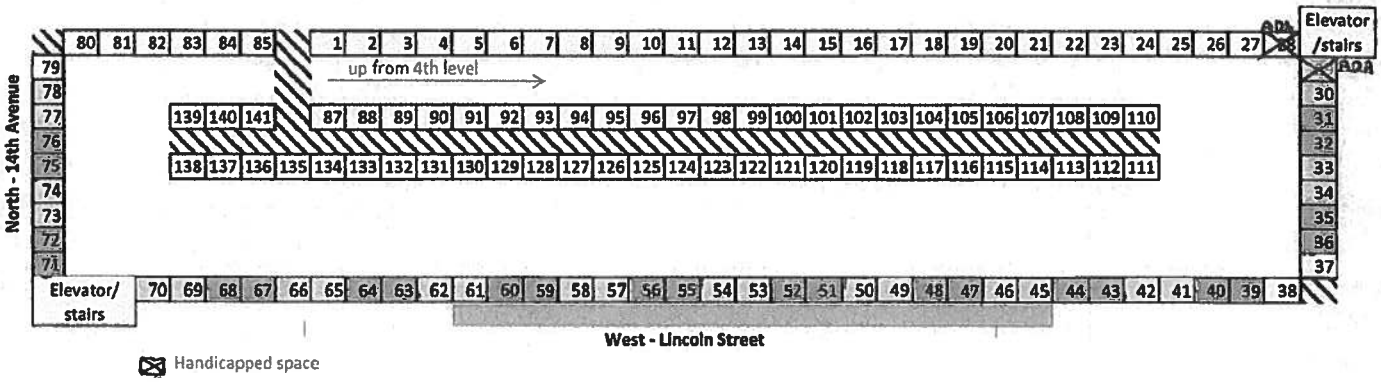
Diagram Showing State-Owned Parking Facilities



1. Tan Parking Lot
2. Green Parking Lot
3. Yellow Parking Lot
4. Blue Parking Lot
5. Merrick Parking Structure
6. Black Parking Lot
7. Motor Pool Lot
8. Capitol Circle

Capitol Complex Parking Facilities

Appendix B
5th Floor Charging Station Locations



Fifth Floor - Roof

Total - 24 Duel Head Charging Stations

1 Duel Head Charger Per 2 Spaces

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

6/27/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	General Funded	(2) Project Title:	Merrick Garage EV Charging Stations
(B)	(1) Agency/Institution:	Dept. of Personnel and	(2) Project Phase (__ of __):	1 of 1
(C)	(1) OSA Delegate Email:	lance.shepherd@state.co.us	(2) Project Type:	Capital Construction (CC)
(D)	(1) Year First Requested:	FY 2020-21	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	6/26/19	(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 2020-21	(e) Year Two Request FY 2021-22	(f) Year Three Request FY 2022-23	(g) Year Four Request FY 2023-24	(h) Year Five Request FY 2024-25
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic Services	$ 37,785	$ -	$ 37,785	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Construction Management	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(10)	Advertisements	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(11)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional	$ 7,215	$ -	$ 7,215	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied		0.00%	See Narrative	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 45,000	$ -	$ 45,000	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(15)	Infrastructure Service/Utilities	$ 428,288	$ -	$ 428,288	$ -	$ -	$ -	$ -
(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 GSF							
(22)	Cost for Capital Renewal (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(23)	Renewal at $_____ X GSF							
(24)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(25)	High Performance Certification	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	$ 65,578	$ -	$ 65,578	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied		0.00%	See Narrative	0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 493,866	$ -	$ 493,866	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(37)	EV Charging Stations	$ 225,000	$ -	$ 225,000	$ -	$ -	$ -	$ -
(38)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
(39)	Other Costs [specify]	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(40)	Other Costs [specify]	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ 225,000	$ -	$ 225,000	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	$ 763,866	$ -	$ 763,866	$ -	$ -	$ -	$ -
	Project Contingency							
(43)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ 76,387	$ -	$ 76,387	$ -	$ -	$ -	$ -
(45)	***Total Contingency***	$ 76,387	$ -	$ 76,387	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	$ 840,252	$ -	$ 840,252	$ -	$ -	$ -	$ -
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 840,252	$ -	$ 840,252	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	$ 840,252	$ -	$ 840,252	$ -	$ -	$ -	$ -

* Accompanies CC/CR-N Form

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*					
A	(1) Funding Type:	Capital Construction Funds, Cash Funds			
B	(1) Agency/Institution:	Department of Personnel & Administration – DCA	(2) OSA Delegate Signature:	Date 6.28.19	
C	(1) Project Title	Renovation Centennial Building – 1313 Sherman St	(2) OSA Delegate Email:	Lance.shepherd@state.co.us	
D	(1) Project Phase (Phase _of_):	1 of 1	(2) State Controller Project # (if a continuation):		
E	(1) Project Type:	X Capital Construction (CC) Capital Renewal (CR)	(2) Agency/Institution Signature Approval	6/28/19 Date	
F	(1) First Year Requested:	FY 2015	(2) OSA Review Signature	10.1.19 Date	
G	(1) Priority Number:	CR01-20	(2) Revision Date:	Date	

* Attach CC/CR-CS Form

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 X No _____ Date Approved 2014

B. PROJECT SUMMARY/STATUS:

Completion of construction of the Centennial Building at 1313 Sherman Street in Denver marked the State's 100-year anniversary into the union of the United States. The building is now 43 years old and in need of a renovation; the building systems - HVAC, Electrical, Plumbing, Life Safety and Fire Suppression are beyond their life expectancy and need to be replaced. The building does not meet current building codes for accessibility, life safety, and the building's exterior facade contains asbestos-containing material (ACM) and poses health concerns. Energy efficiency is greatly needed in a building with minimal insulation, single pane windows and inefficient building systems. With a renovation, the building would continue to provide multiple state agencies with efficient, healthy, updated office space and state archive space for another 40 years.

Funding Strategies

The Department of Personnel & Administration (DPA) requests $50,526,360 for renovation of the Centennial Building, of which, $10,000,000 is from Capital Construction Funds and $40,526,360 is from Cash Funds. The Department is requesting to employ four funding sources to complete a renovation for the Centennial Building. Two of the funding sources will be available outside of this request and include Controlled Maintenance – CM, and Energy Performance Contracting – EPC. This request seeks spending authority for two other funding sources - the use of Certificates of Participation - COPs and Capital Construction Funds - CCF.

Controlled Maintenance projects would replace building systems that require immediate replacement. The proposed controlled maintenance projects associated with this project include projects in progress and previously funded - fire detection system and fire suppression system, in addition to a Controlled Maintenance project requested for FY-2020-21 - freight elevator with building power supply equipment. Energy Performance Contracting – EPC, will assist with HVAC and LED lighting, and an investment grade audit is proceeding at this time. Authority to issue COPs for the purposes outlined in this document will be required in conjunction with Long Bill spending authority. Every effort is being given to complete this project on a limited budget. Design fees, project management, move management and swing space are reduced to a bare minimum. Full renovation costs projection in May 2018 were approximately $75 million. Based on the project's current budget of $40.5 million from COPs, $2.5 million from EPC, $2.4 million from CM and $10 million CCF, the total project budget is $55.4 million – a reduction from the original, full renovation budget of $19.6 million, or 26%.

Funding Sources Outside of the Scope of the Request:

Controlled Maintenance Projects - CM (currently appropriated and anticipated for FY 2020-21 - $2.4 million)
Energy Performance Contracting - EPC (currently appropriated - $2.5 million)

Newly requested spending authority:

$32,310,715 COPs/National Western Complex (NWC) funds - CF
$8,215,645 COP Interest Payments - CF
$10,000,000 Capital Construction Funds - CCF
$50,526,360 Total Funds

C. SUMMARY OF PROJECT FUNDING REQUEST: *(from CC CR-CS form, Rows 47 through 52)*

(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) COP/cash funds	$40,526,360	$0	$40,526,360	$0	$0	$0	$0
(48) Capital Construction Funds (CCF)	$10,000,000	$0	$10,000,000	$0	$0	$0	$0
(49) Reappropriated Funds (RF) CCMP-IF FY19/20		$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)	**$50,526,360**	$0	**$50,526,360**	$0	$0	$0	$0

D. PROGRAM INFORMATION:

Current tenants of 1313 Sherman Street including the Department of Local Affairs (DOLA), State Archives (of DPA) and the Department of Natural Resources (DNR), will be displaced during this project. Tenants will be moved within the building to a designated swing space floor while their floor is under construction. DNR has agreed to move one floor of their staff temporarily to another State-owned building during the 18-24 month anticipated construction schedule. Both DNR and DOLA are in support of this project and both do not anticipate changes to their space lease program at the conclusion of construction. Statewide planning consultants have suggested an 80/20 mix design concept to modernize all tenant spaces, this 80/20 mix produces 80% open office space on the window side and 20% hard walled private office organized toward the center of the space. This layout provides more natural light and increased ventilation for all employees. This layout produces a 96-employee capacity per floor on average - about a 33% increase from current use layouts and overall increase of 238 work stations. Tenants understand that providing all furniture, fixtures, and equipment (FFE)/systems furniture and support furniture as needed will be their responsibility. This funding request will provide the swing space floor with systems furniture only. This will allow every floor to move smoothly onto the swing floor outfitted for the largest of tenant program needs. It is anticipated that completion of all interior tenant spaces will occur within 18 months and will return all tenants to their original floor location. Construction may continue on the exterior and in support areas not affecting tenant spaces after the 18 months. This project is a top priority project for DPA as identified in the 2015 adopted Capitol Complex Master Plan, CCMP. Approval of this funding request will ensure DPA's commitment to the master plan and complete one of the top four CCMP prioritized projects.

E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

The Centennial Building has not experienced a complete renovation since its construction in 1976. The most problematic issues include a poorly functioning HVAC system with limited controls, unsafe electrical distribution system, outdated fire alarm system, lack of accessibility for the disabled, building code compliance and energy efficiency issues and the deteriorated condition of the exterior and interior finishes. The plumbing system needs full replacement and all restrooms on every floor need full gut and replacement to comply with current ADA requirements. The energy upgrades would generate significant cost savings in future years. The new HVAC system with increased insulation values from new building skin and high-performance windows will greatly increase efficiencies. Hazardous Asbestos Containing Materials identified require encapsulation of exterior building skin and abatement of interior finishes including those found behind the plaster walls within the restrooms and all VCT flooring areas. The Department of Natural Resources (DNR) will relocate one floor to a DNR State-owned building in order to complete the renovation of the Centennial Building. Upon completion, DNR will backfill the vacated spaces with DNR employees. Please refer to attached letters of support from DNR & DOLA.

Renovation Scope of Work under COP funding source (CF)

- All public areas on all floors will be remodeled from floor to ceiling with new tile flooring; old dark faux wood paneling will be removed and replaced with new brightly painted walls; and suites and building entrances will be updated with new storefront systems. All lighting will be updated with energy efficient LEDs.
- All public restrooms will be gutted and replaced with new ADA-compliant restrooms including new plumbing, plumbing fixtures, new floor and wall tile. Solid surface countertops and new toilet partition systems will be installed.
- HVAC distribution system will be replaced. The system will provide better air distribution and comfort control with thermostats per open office area and private offices. Archive storage areas will receive new RTUs and humidity control.
- New windows and exterior wall insulation will provide better comfort control summer and winter.
- All lighting will be replaced with LEDs including tenant spaces.
- Asbestos containing materials will be removed from the interior and encapsulated on the exterior.
- All interior doors will be replaced.
- Exit stairwells will be upgraded with code compliant guardrails.
- Life-safety systems will be brought up to code and will provide air pressurization to the east stairwell.
- The sixth floor will be used as a swing space for all tenants while their floor is being renovated. This floor with be built-out in 80/20 mix design (80% open workstations and 20% hard-walled offices) allowing up to 96 occupants and will satisfy all existing program needs.

Scope of Work beyond COP funding source (CCF)

- Demo & remodel tenant spaces: half of first floor occupied by Archives is not included but will receive new paint and carpet; 2nd, 3rd, 4th, 5th, 7th, 8th floors planned for 80/20 mix as indicted below. Improvements include new carpeting, new wall layout, new ceilings and fresh paint. Tenants are responsible for FFE – furniture, audio/video (A/V) and cubicle systems. The B1 level will receive minor renovation in the café area and Archives conference space for project swing space and ultimately the café will become a wellness center for state employees.
- Exterior building skin: encapsulate asbestos containing materials and cover all precast concrete skin with phenolic core wall cladding.
- Financing costs beyond interest on the COP will also come from this fund source; currently they are estimated at $150,000.

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
2020-06M20	Replace Fire Suppression Water Lines, Centennial Building	$1,623,335	Appropriated FY 2019-20
2008—121M17	Fire Alarm System Upgrades, Centennial Building	$1,414,957	Design complete, Appropriated FY 2017-18
M-11011	Replace back-up Generator – 1313 Sherman Street	$751,750	Completed 3/2013
M-06082	Replace Passenger Elevators – 1313 & 1375 Sherman Street	$1,744,515	Completed 7/2011

F. CONSEQUENCES IF NOT FUNDED:

The building is now 43 years old and in need of a full renovation; the building systems - HVAC, Electrical, Plumbing, Life Safety and Fire Suppression are beyond their life expectancy and need to be replaced. The building does not meet current building codes for accessibility, life safety and the building's exterior facade contains ACM which poses health concerns. Energy efficiency is greatly needed in a building without insulation, single pane windows and inefficient building systems. The comfort level has diminished greatly due to one-third of all variable air systems (VAVs) having failed. Without funding this building will slowly become uninhabitable. Some of the life safety systems are being addressed with current CM projects however the east stairwell pressurization is needed along with code upgrades to bring the building up to code. The weakest link of the Centennial Building is the emergency egress provided for half of the building occupants which is a life safety concern.

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

Life cycle cost analysis will be a key factor when evaluating building systems as they relate to life cycle costs and ease of maintenance. The renovation costs are $170 per square foot and new building costs using the New State Office Building proposed for Colfax and Lincoln estimated costs $866 per square foot. The renovation costs will provide a great value to the State's capital assets.

H. ASSUMPTIONS FOR CALCULATIONS:

The pricing for renovation is in parallel with estimates in the approved 2015 Capitol Complex Master Plan. For pricing generated by Stantec in May 2018 the Department has calculated a 6.5% inflation factor for June 2018 through June 2019 and future years until mid-construction, when 5% inflation was included based on a local contractor's prediction (Mortenson).

I. SUSTAINABILITY:

Colorado's High-Performance Certification Program (HPCP) waiver has been received for this limited renovation. As outlined in the "State Sustainability Implementation Process" section of this report, the HPCP recommends a LEED Gold rating and meeting several Office of the State Architect (OSA) Sustainable Priorities. However, LEED design guidelines will be used during this project.

J. OPERATING BUDGET IMPACT:

This project with higher efficiencies in performance will reduce energy costs for this building and reduce hot and cold calls serviced by CCF staff. Adjustments to Capital Complex Leased Space common policy space allocations will be known after CCLS rates are set in August. Currently, it is expected that tenants will be in swing space on a rotating basis for 18 months, or $572,340 of CCLS payments based on current rates. DPA plans to pay for the cost of the vacant space in place of tenants during construction and has accounted for a placeholder in the overall project budget.

K. PROJECT SCHEDULE:

Phase 1 of 1	Start Date	Completion Date
Pre-Design	6/2020	7/2020
Design	7/2020 w/ GMP anticipated for 1/2021	3/2021
Construction	3/2021	9/2022
FF&E /Other	NA	
Occupancy	10/2022	12/2022

L. ADDITIONAL INFORMATION:

Funding sources:

$32,310,715 – COP, with authority still needed by the Department - National Western Complex/CCMP – Implementation Fund – CF
$8,215,645 COP Interest Payments - CF
$10,000,000 –Capital Construction Funds - CCF
$50,526,360 – Total Funds

Please note the NWC/CCMP – Implementation funding stream will pay off the COPs for this project, including interest, as described below.

M. CASH FUND PROJECTIONS:

Cash Fund name and number:		National Western Capitol Complex Master Plan Implementation Fund (NWC – CCMP-IF)	
Statutory reference to Cash Fund:		24-75-307, C.R.S.	
Describe how revenue accrues to the fund:		The General Assembly approves the transfer of funds to the NWC-CCMP-IF in an amount that represents the difference between $20 million and the anticipated annual lease payments for certificates of participation issued on behalf of projects authorized under Section 23-31-903, C.R.S. to be spent on projects in the Capitol Complex Master Plan. The most recent transfer, $5,952,130, will be available for this project. The proposed COP financing described below constitutes the remainder of the cash funds spending authority in this request.	
Describe any changes in revenue collections that will be necessary to fund this project:		No changes in revenue collections beyond the COP financing described below will be necessary.	
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):		The Department plans to finance the majority of the project through COPs. The terms are yet to be determined, but when details regarding the length of the bond, interest rate, and timing to go to market are known, DPA will provide specifics. To estimate the request, an average interest rate of 2.75% was used to calculate annual COP payments totaling $32,310,715, plus an additional $8,215,645 estimated for interest on the payments. Actual additional financing costs are unknown at this time, but based on previous COP projects, an estimated $150,000 is included in the $10,000,000 CCF portion of the request.	
Prior Year Actual Ending Fund Balance (FY 2019-20)	**Current Year Projected Ending Fund Balance (FY 2020-21)**	**Year 2 Projected Ending Fund Balance with Project Approval (FY 2021-22)**	**Year 3 Projected Ending Fund Balance with Project Approval (FY 2022-23)**
$5,952,130	**$34,180,760**	**$21,131,612**	**$7,982,931**

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

6/28/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	General Funded	(2) Project Title:	Renovate Centennial Building - 1313 Sherman St
(B)	(1) Agency/Institution:	Dept. of Personnel and Administration - DCA	(2) Project Phase (__ of __):	1 of 1
(C)	(1) OSA Delegate Email:	lance.shepherd@state.co.us	(2) Project Type:	Capital Construction (CC)
(D)	(1) Year First Requested:	FY 2016	(2) State Controller Project #:	
(E)	(1) Narrative Signature Date:	6/28/19	(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 2020-21	(e) Year Two Request FY 2021-22	(f) Year Three Request FY 2022-23	(g) Year Four Request FY 2023-24	(h) Year Five Request FY 2024-25
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic Services	$ 1,792,000	$ -	$ 1,792,000	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	$ 148,460	$ -	$ 148,460	$ -	$ -	$ -	$ -
(9)	Construction Management	$ 500,000	$ -	$ 500,000	$ -	$ -	$ -	$ -
(10)	Advertisements	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(11)	Move Coordinator	$ -	$ -		$ -	$ -	$ -	$ -
(12)	10% Contingency - Owners	$ 245,000	$ -	245,000	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied		0.00%		0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 2,685,460	$ -	$ 2,685,460	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(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 $101.81 X 199,947							
(22)	Cost for Capital Renewal (GSF):	$ 20,357,000	$ -	$ 20,357,000	$ -	$ -	$ -	$ -
(23)	Renewal at $_____ X GSF							
(24)	Other - Owner's 10% contingency	$ 2,035,700	$ -	$ 2,035,700	$ -	$ -	$ -	$ -
(25)	High Performance Certification	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	$ -	$ -		$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied		0.00%		0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ 22,392,700	$ -	$ 22,392,700	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(30)	Furnishings FFE	$ 234,000	$ -	$ 234,000	$ -	$ -	$ -	$ -
(31)	Communications	$ 179,000	$ -	$ 179,000	$ -	$ -	$ -	$ -
	10% Contingency - Owners			$ 41,800				
(32)	Inflation for Equipment & Furnishings	$ -	$ -		$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	5.00%	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	$ 454,800	$ -	$ 454,800	$ -	$ -	$ -	$ -
	Miscellaneous							
(35)	Art in Public Places	$ 224,000	$ -	$ 224,000	$ -	$ -	$ -	$ -
(36)	Move Managemant	$ 1,887,800	$ -	$ 1,887,800	$ -	$ -	$ -	$ -
(37)	NWC - CCMP-IF 2.75% costs	$ 8,215,645	$ -	$ 8,215,645	$ -	$ -	$ -	$ -
(38)	Temp Furnishings	$ -	$ -		$ -	$ -	$ -	$ -
(39)	Improvements Beyond COP Funding	$ 10,000,000	$ -	$ 10,000,000	$ -	$ -	$ -	$ -
(40)	10% Continency - Owners	$ 211,200	$ -	$ 211,200	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ 20,538,645	$ -	$ 20,538,645	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	$ 46,071,605	$ -	$ 46,071,605	$ -	$ -	$ -	$ -
	Project Contingency							
(43)	5% for New	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(44)	Escalation 6.5% 2018-2019 ,5% to mid point of const.	$ 4,454,637	$ -	$ 4,454,637	$ -	$ -	$ -	$ -
(45)	***Total Escalation Costs***	$ 4,454,637	$ -	$ 4,454,637	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	$ 50,526,242	$ -	$ 50,526,242	$ -	$ -	$ -	$ -
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ 10,000,000	$ -	$ 10,000,000	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ 40,526,360	$ -	$ 40,526,360	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -		$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	$ 50,526,360	$ -	$ 50,526,360	$ -	$ -	$ -	$ -

* Accompanies CC/CR-N Form

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

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- NARRATIVE (CC/CR-N)*					
A	(1) Funding Type:	General Fund			
B	(1) Agency/Institution:	Department of Transportation		(2) OSA Delegate Signature:	Date
C	(1) Project Title	Eisenhower-Johnson Memorial Tunnels (EJMT) Electrical Systems		(2) OSA Delegate Email:	
D	(1) Project Phase (Phase _of_):	1 of 1		(2) State Controller Project # (if a continuation):	
E	(1) Project Type:	x Capital Construction (CC) / Capital Renewal (CR)		(2) Agency/Institution Signature Approval	9/26/19 Date
F	(1) First Year Requested:	FY 2020-21		(2) OSA Review Signature	Date
G	(1) Priority Number:	1 OF 1		(2) Revision Date:	Date

* Attach CC/CR-CS Form

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_____

B. PROJECT SUMMARY/STATUS:

CDOT Engineering Region 1 requests $1,000,000 for the installation of Variable Frequency Drive controllers on the ventilation and exhaust fans at the Eisenhower-Johnson Memorial Tunnels (EJMT). The EJMT complex currently contains 28- 600 HP inductive motor fans that were installed when the tunnel was constructed in the 1970s. When these fans start, they pull 8-10 times their steady state current until they are spinning full speed. The requested Variable Frequency Drive controller is a technology that limits this starting current. The benefits to this approach are twofold: Economic and Operational. The Economic benefits include substantial savings on electrical expenditure. While Xcel Energy bills CDOT for both total energy used (kilowatt-hours) as well as peak demand (kilowatts), reducing the starting surge current reduces peak demand and will result in considerable electrical cost savings whenever the fans are started. Operational benefits will allow multiple fans to be started at a single time. The primary purpose of the fans is to provide life safety fire ventilation. Because of the limitations of the electric power grid, peak demand is a restriction on how quickly the fans can be turned on. In their current configuration, each fan takes over 30 seconds to come up to speed, and because of the peak demand limitation (due to the limited capability of existing power lines), only one fan can be started at a time. To turn on a full array of fans in order to properly exhaust smoke and provide fresh air to trapped motorists can take up to ten minutes. Using new Variable Frequency Drives (requested in this application) will allow multiple fans to be started at once and provide full ventilation operation in less than two minutes, instead of ten, creating time and monetary benefits.

C. SUMMARY OF PROJECT FUNDING REQUEST: *(from CC CR-CS form, Rows 47 through 52)*

(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)	$1,000,000	$0	**$0**	$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)	$1,000,000	$0	**$0**	$0	$0	$0	$0

D. PROGRAM INFORMATION:

CDOT Operations and Maintenance at EJMT will be positively impacted, both by electrical cost savings and improved operational ability.

E. PROJECT DESCRIPTION/SCOPE OF WORK/JUSTIFICATION:

CDOT's desire to install Variable Frequency Drives for all fans at the tunnel. There are currently 14 fans at each portal. As currently envisioned, if this application is approved, each motor would have a dedicated drive. There is also the possibility that several motors could share a drive, and use a switching system to start each motor. This approach is possible, though it would add some complexity and operational compromises. The goal of this project is to identify the best type of equipment and install it on multiple (four to eight) fans on both portals of the tunnel. This project would immediately provide the economic benefits of reducing the peak demand charges at the tunnel.

F. CONSEQUENCES IF NOT FUNDED:

The tunnel ventilation fans will continue to operate, with costs of approximately $60,000 added to the EJMT's electrical bill whenever they are run full speed. This occurs, on average, one or two times per year. Even when the fans are not run full speed, they still pull the eight times startup surge current. Even in day-to-day use, when they are run at low or medium speed, the demand charge will be reduced significantly.

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

Variable Frequency Drives (VFDs) demonstrate a life of at least 30 years. In the rate agreement between CDOT and Xcel Energy at EJMT, CDOT pays $17.47 for each Kilowatt of demand. In July 2016, the fans were run for a fire test. The total demand experienced at the east portal was 2,808 Kilowatts, and the demand charge was over $49,000. In August 2016, the fans were run only at low speed, with demand experienced of 1,025 Kilowatts, costing only $18,000. The west portal experienced a similar difference from the July and August 2016 billings, with a total cost of running the fans on both sides of the tunnel estimated at $60,000. It is estimated that the electrical cost savings from the VFD starting equipment will exceed $150,000 per year, assuming the fans are run full speed two times per year. There is a similar, though smaller, demand reduction experienced starting the motors at lower speeds when they are used only for vehicle exhaust ventilation purposes. Using a discount rate of 3%, the net present value of the expected annual savings over the 30-year project life is $2.9 million, weighed against a project cost of $1.0 million.

H. ASSUMPTIONS FOR CALCULATIONS:

Conversations have occurred over the years with heavy electrical equipment suppliers discussing the potential for VFD or capacitor based soft start technologies. In recent years, high voltage Variable Frequency controllers have become less expensive as the technology has matured. The reliability of these systems is now believed to be better than that of capacitor-based systems. A tunnel owner in New Zealand was consulted last year, as they had installed a VFD system to replace a capacitor system in 2011. The cost, in US dollars, was approximately $150,000 per 400 horsepower (HP) motor. Currently, the costs for similar equipment are estimated to be about $100,000. The New Zealand system required very specific speed controls that are not currently at EJMT. It is expected that the more "bare bones" system suitable for the EJMT is less than $40,000 per 600 HP motor. Part of this project will be to rationally evaluate the equipment available and determine the best value for this project. A bare bones solution would satisfy all of CDOT's requirements and provide a complete outfitting of all 28 motors for the requested budget amount.

I. SUSTAINABILITY:

In order for industrial sites to use inductive motors, utilities must keep power plants running, ever ready to provide the surge demands required to start such motors. Reducing these surge demands will allow utilities to better manage their supply and run their power plants closer to steady state demands rather than keeping reserve capacity online to start inductive motors.

J. OPERATING BUDGET IMPACT:

In a normal summer month, with minimal ventilation usage, EJMT spends approximately $70,000 in electricity for lighting and ventilation. The cost of electricity is tied both to total energy usage in, Kilowatt hours, and peak demand, in Kilowatts. Of that $70,000, approximately 40% is regular energy usage and 60% is demand charges. When the fans are run at high speed, even for only an hour or two, the total cost more than doubles to $180,000. Of the $180,000 peak month usage, only 24% is regular energy usage, and 76% is demand charge. This equipment will dampen the demand of the motors, and result in an electrical rate savings of approximately $150,000 per year.

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	7/1/2017	9/30/2017
Design	10/1/2017	9/30/2018
Construction	1/1/2020	3/31/2020
FF&E /Other		
Occupancy		

L. ADDITIONAL INFORMATION:

N/A

M. CASH FUND PROJECTIONS:

Cash Fund name and number:		State Highway Fund - 400	
Statutory reference to Cash Fund:		43-1-219	
Describe how revenue accrues to the fund:		Excise Taxes and provisions of law, along with revenue from the Highway Users Tax Fund created in 42-4-201	
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):		N/A	
Prior Year Actual Ending Fund Balance	**Current Year Projected Ending Fund Balance**	**Year 2 Projected Ending Fund Balance with Project Approval**	**Year 3 Projected Ending Fund Balance with Project Approval**
$	$	$	$

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

6/24/2019

FY 2020-21 CAPITAL CONSTRUCTION/CAPITAL RENEWAL PROJECT REQUEST- COST SUMMARY (CC/CR-CS)*				
(A)	(1) Funding Type:	General Funded	(2) Project Title:	Eisenhower-Johnson Memorial Tunnels (EJMT) Electrical System
(B)	(1) Agency/Institution:		(2) Project Phase (___ of ___):	1 of 1
(C)	(1) OSA Delegate Email:		(2) Project Type:	Capital Construction (CC)
(D)	(1) Year First Requested:	FY 2020-21	(2) State Controller Project #:	N/A
(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 2020-21	(e) Year Two Request FY 2021-22	(f) Year Three Request FY 2022-23	(g) Year Four Request FY 2023-24	(h) Year Five Request FY 2024-25
	Land /Building - Acquisition / Disposition							
(2)	Land Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(3)	Building Acquisition / Disposition	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(4)	***Total Acquisition/Disposition Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Professional Services							
(5)	Planning Documentation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(6)	Site Surveys, Investigations, Reports	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(7)	Architectural/Engineering/ Basic Services	$ 64,381	$ -	$ 64,381	$ -	$ -	$ -	$ -
(8)	Code Review/Inspection	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(9)	Construction Management	$ 88,000	$ -	$ 88,000	$ -	$ -	$ -	$ -
(10)	Advertisements	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(11)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(12)	Inflation Cost for Professional Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(13)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(14)	***Total Professional Services***	$ 152,381	$ -	$ 152,381	$ -	$ -	$ -	$ -
	Construction or Improvement (attached detailed cost estimate)							
(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 GSF							
(22)	Cost for Capital Renewal (GSF):	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(23)	Renewal at $_____ X GSF							
(24)	Other (Specify)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(25)	High Performance Certification	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(26)	Inflation for Construction	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(27)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(28)	***Total Construction Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Equipment and Furnishings							
(29)	Equipment	$ 800,000	$ -	$ 800,000	$ -	$ -	$ -	$ -
(30)	Furnishings	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(31)	Communications	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(32)	Inflation for Equipment & Furnishings	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(33)	Inflation Percentage Applied		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(34)	***Total Equipment & Furnishings Cost***	$ 800,000	$ -	$ 800,000	$ -	$ -	$ -	$ -
	Miscellaneous							
(35)	Art in Public Places	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(36)	Relocation Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(37)	Other Costs [specify]	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(38)	Other Costs [specify]	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(39)	Other Costs [specify]	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(40)	Other Costs [specify]	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(41)	***Total Misc. Costs***	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total Project Costs							
(42)	***Total Project Costs***	$ 952,381	$ -	$ 952,381	$ -	$ -	$ -	$ -
	Project Contingency							
(43)	5% for New	$ 47,619	$ -	$ 47,619	$ -	$ -	$ -	$ -
(44)	10% for Renovation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(45)	***Total Contingency***	$ 47,619	$ -	$ 47,619	$ -	$ -	$ -	$ -
	Total Budget Request							
(46)	***Total Budget Request***	$ 1,000,000	$ -	$ 1,000,000	$ -	$ -	$ -	$ -
	Funding Source							
(47)	Capital Construction Fund (CCF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(48)	Cash Funds (CF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(49)	Reappropriated Funds (RF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(50)	Federal Funds (FF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(51)	Highway Users Tax Fund (HUTF)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(52)	***Total Funds (TF)***	$ -	$ -	$ -	$ -	$ -	$ -	$ -

* Accompanies CC/CR-N Form