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TO: THE BRIDGE ENTERPRISE BOARD OF DIRECTORS
FROM: JEFF SUDMEIER, CHIEF FINANCIAL OFFICER
DATE: JANUARY 21, 2021
SUBJECT: FITH SUPPLEMENT TO THE FISCAL YEAR 2020-21 BRIDGE ENTERPRISE BUDGET

Region 1:

This request is to increase the design phase budget for the final design of the I-70 over W. 32nd Ave bridge replacement project as part of a planned incremental budgeting process. In November 2019, the Board approved a budget supplement to advance preliminary design. Preliminary design is now complete. The most recent Structure Inspection and Inventory Report indicates that there is advanced deterioration visible on the underside of the deck with map cracks, delamination, efflorescence, scale, and exposed corroded rebar. The decks of both structures were rated 4 out of 9 which correlates to “poor” condition and a classification of structurally deficient.

Region staff informed Bridge Enterprise that the deck condition has worsened over time and has led to an increased frequency and severity of planned and unplanned repairs. There have been several occurrences of heavy loads punching through the deck and loose concrete falling from the structure. This has resulted in emergency closures to perform full depth concrete repairs and remove loose concrete. One significant unplanned closure caused a traffic back up on I-70 eastbound from West 32nd to Vail. In 2020, a temporary repair was performed to mitigate the potential for falling concrete and keep the structures operating safely until it can be replaced. These structures are listed as Top Tier projects in the July 2020 Bridge Enterprise Prioritization Plan.

- **\$1,263,300 FASTER Funds - Design Phase:** Increase the design phase through final design.

I-70 ML over West 32nd Ave in Jefferson County
 (Old E-16-HE & E-16-HF) (new not assigned yet) (SAP Project # 23673/1000...)
Budget Components by Phase, Funding Program, Fiscal Year

Phase of Work	Funding Program	Current Budget	BE Supplement Action				Revised Budget	Expended To-Date
			Year of Budget			Total Request		
			FY 2021	FY 2022	FY 2023			
Design	FASTER Bridge Funds	\$ 606,200	\$ 1,263,300	\$ -	\$ -	\$ 1,263,300	\$ 1,869,500	\$ 342,545
	Total Design	\$ 606,200	\$ 1,263,300	\$ -	\$ -	\$ 1,263,300	\$ 1,869,500	\$ 342,545
Total Project Budget & Expenditure		\$ 606,200	\$ 1,263,300	\$ -	\$ -	\$ 1,263,300	\$ 1,869,500	\$ 342,545
			Year of Expenditure			Total Request		
			FY 2021	FY 2022	FY 2023			
			\$ 439,300	\$ 824,000	\$ -		\$ 1,263,300	

Region 2:

This request is to establish the construction phase budget for the replacement of structures I-17-GQ and I-17-GR. The structures are located on I-25 at mile marker 135 and cross over South Academy Boulevard in Colorado Springs. Built in 1971, the steel girder bridges are approximately 305-feet long, have a combined average daily traffic (ADT) of 49,000, and are at the end of their useful service lives. Both bridges have weld cracks that are propagating into the primary structural members, significant cracks in the deck, spalling with exposed rebar, and issues with the concrete slope pavement at abutments and wingwalls due to recurring drainage issues. The most recent Structure Inspection and Inventory reports rated both superstructures 4 out of 9 which correlates to “poor” condition and a classification of structurally deficient.

Region staff informed Bridge Enterprise that the planned and unplanned repairs have increased in frequency and scope in recent years and have been a significant burden on CDOT. Per the Region, repairs

of potholes on the bridges have repeatedly led to the identification of more serious issues involving the integrity of the bridge decks and support structure. In turn, these discoveries have resulted in planned and emergency resurfacing projects, occasionally causing the closure (partial or whole) of this section of the I-25 corridor. The replacement of these bridges will result in significant reductions in operational and maintenance costs over the life of these assets and improve reliability for passenger and freight and vehicles utilizing the corridor. Additionally, this project is a key component of the larger Military Access, Mobility, and Safety Improvement Project (MAMSIP) in Region 2. MAMSIP is expected to enhance connectivity and accessibility at several military installations in the Pikes Peak region. These structures are listed as Top Tier projects in the July 2020 Bridge Enterprise Prioritization Plan.

- **\$24,940,100 FASTER Funds - Construction Phase:** Establish the construction phase.

I-25 ML over South Academy Boulevard in El Paso County
 (Old I-17-GR & I-17-GQ) (New I-17-GS) (SAP Project # 23605/1000...)
 Budget Components by Phase, Funding Program, Fiscal Year

Phase of Work	Funding Program	Current Budget	BE Supplement Action				Revised Budget	Expended To-Date
			Year of Budget			Total Request		
			FY 2021	FY 2022	FY 2023/24			
Design	FASTER Bridge Funds	\$ 1,724,900	\$ -	\$ -	\$ -	\$ -	\$ 1,724,900	\$ 1,128,960
	Total Design	\$1,724,900	\$ -	\$ -	\$ -	\$ -	\$ 1,724,900	\$ 1,128,960
Construction	FASTER Bridge Funds	\$ -	\$ 24,940,100	\$ -	\$ -	\$ 24,940,100	\$ 24,940,100	
	Total Construction	\$ -	\$ 24,940,100	\$ -	\$ -	\$ 24,940,100	\$ 24,940,100	\$ -
Total Project Budget & Expenditure		\$ 1,724,900	\$ 24,940,100	\$ -	\$ -	\$ 24,940,100	\$ 26,665,000	\$ 1,128,960
			Year of Expenditure			Total Request		
			FY 2021	FY 2022	FY 2023/24			
			\$ 3,325,350	\$ 9,976,000	\$ 11,638,750	\$ 24,940,100		

Region 3:

This request is to establish the construction phase budget for the I-70 over Forest Service Road Concrete Box Culvert (CBC) replacement project. The existing structure is a CBC that carries I-70 east and westbound traffic and functions as a single lane turnaround for CDOT maintenance and local emergency response vehicles. The most recent Structure Inspection and Inventory Report rated the culvert 4 out of 9 which correlates to “poor” condition and a classification of structurally deficient. During past inspections, it was discovered that the depth of fill above the structure exceeds the design depth by up to six feet in areas. Region staff have indicated that this condition may reduce the capacity of the structure to carry vehicular loads. A significant number of cracks have been documented in inspection reports. Some of the documented structure cracks include numerous top slab longitudinal cracks with active leakage, vertical cracking on the walls up to ½ inch wide, and spalling and corroding rebar on the bottom slab (which is used as the riding surface). CDOT maintenance staff and the Summit County Fire Department informed Bridge Enterprise of numerous operational challenges related to the substandard geometry of the structure. These issues were corroborated by inspection findings which noted several areas of impact damage on the structure.

The CBC will be replaced with two side by side precast box beam bridges using Construction Manager General Contractor (CM/GC) project delivery. The new structures will be designed to accommodate the turning movements of vehicles used by both CDOT maintenance and the Summit County Fire Department. The new structure geometry will also significantly improve operations and provide more reliable response times for CDOT maintenance and emergency responders in this segment of I-70 by providing clearance to pass disabled vehicles; allowing vehicles to safely navigate the turnaround during icy conditions; eliminating head-to-head vehicle conflicts in the structure; and providing adequate clearance so the structure can be used as an emergency turnaround for the travelling public in the event of a closure of the Eisenhower/Johnson Tunnel. This structure is listed as a Top Tier project in the July 2020 Bridge Enterprise Prioritization Plan.

- **\$15,075,600 FASTER Funds - Construction Phase:** Establish the construction phase.

I-70 over Forest Service Road in Summit County
 (Old F-13-S_Minor) (New F-13-V and F-13-VA) (SAP Project # 22712/1000...)
 Budget Components by Phase, Funding Program, Fiscal Year

Phase of Work	Funding Program	Current Budget	BE Supplement Action				Revised Budget	Expended To-Date
			Year of Budget			Total Request		
			FY 2021	FY 2022	FY 2023			
Design	FASTER Bridge Funds	\$ 1,581,610	\$ -	\$ -	\$ -	\$ -	\$ 1,581,610	\$ 1,203,838
	Total Design	\$ 1,581,610	\$ -	\$ -	\$ -	\$ -	\$ 1,581,610	\$ 1,203,838
Miscellaneous	FASTER Bridge Funds	\$ 263,073	\$ -	\$ -	\$ -	\$ -	\$ 263,073	\$ 262,200
	Total Miscellaneous	\$ 263,073	\$ -	\$ -	\$ -	\$ -	\$ 263,073	\$ 262,200
Construction	FASTER Bridge Funds	\$ -	\$ 15,075,600	\$ -	\$ -	\$ 15,075,600	\$ 15,075,600	\$ -
	Total Construction	\$ -	\$ 15,075,600	\$ -	\$ -	\$ 15,075,600	\$ 15,075,600	\$ -
Total Project Budget & Expenditure		\$ 1,581,610	\$ 15,075,600	\$ -	\$ -	\$ 15,075,600	\$ 16,657,210	\$ 1,203,838
			Year of Expenditure			Total Request		
			FY 2021	FY 2022	FY 2023			
			\$ 3,001,946	\$ 10,943,269	\$ 1,130,385	\$ 15,075,600		

Region 4:

This request is to increase the design phase budget for the final design of a project to replace seven eligible bridges as a part of the Eastern Plains Timber Bridge Replacement Bundle. Initial design funding for this project was approved in April 2019 and allowed Region staff to start survey of the structures and to advance early design work. In December 2019, a budget supplement was approved to advance the preliminary design and is nearing completion. This request is the next step in the planned incremental budgeting process and will provide funding to complete final design. The Eastern Plains Timber Bridge Replacement Bundle includes a total of 10 rural bridges that are being delivered in Regions 1 and 4 using the Construction Manager General Contractor (CM/GC) project delivery method. External (non-Bridge Enterprise) funding has been identified for the three non-eligible bridges included in this project to capitalize on the economies of scale of a larger program of works.

All seven of the eligible structures were rated poor in the most recent Structure Inspection and Inventory reports and are classified as structurally deficient. These bridges have an average age of nearly 80 years and have reached the end of their useful service lives. Six of the bridges have deteriorated to the point that they are load restricted, which limits trucking routes through major sections of these corridors. The replacement of these bridges will provide a significant improvement for rural mobility and intra and interstate commerce, particularly for the movement of agricultural and resource products. Six out of the seven poor bridges are top tier candidate bridges in the July 2020 Bridge Enterprise Prioritization Plan with the remaining bridge classified as a second-tier candidate bridge. Based on its location and the anticipated scope of work for the replacement, the second-tier bridge has been included in this bridge bundle to capitalize on the economies of scale of the larger program of works.

- **\$2,633,500 FASTER Funds - Design Phase:** Increase the design phase through final design.
 1. D-28-D US 34 ML over Republican River, Yuma County
 2. D-25-E SH 61 over Surveyor Creek, Washington County
 3. F-20-J US 40 ML over Draw, Arapahoe County
 4. C-22-K US 6 ML over UPRR, S. Platte River, Beaver Canal, Morgan County
 5. F-19-E US 36 ML over Draw, Arapahoe County
 6. F-20-L I-70 Service Road over Draw, State Road, Arapahoe County
 7. D-24-O US 34 ML over Draw, Washington County

Eastern Plains Timber Bridges in Various Counties
 (Old Various) (new not assigned yet) (SAP Project # 23010/1000...)
 Budget Components by Phase, Funding Program, Fiscal Year

Phase of Work	Funding Program	Current Budget	BE Supplement Action				Revised Budget	Expended To-Date
			Year of Budget			Total Request		
			FY 2021	FY 2022	FY 2023			
Design	FASTER Bridge Funds	\$ 1,792,700	\$ 2,633,500	\$ -	\$ -	\$ 2,633,500	\$ 4,426,200	\$ 825,169
	Total Design	\$ 1,792,700	\$ 2,633,500	\$ -	\$ -	\$ 2,633,500	\$ 4,426,200	\$ 825,169
Total Project Budget & Expenditure		\$ 1,792,700	\$ 2,633,500	\$ -	\$ -	\$ 2,633,500	\$ 4,426,200	\$ 825,169
			Year of Expenditure			Total Request		
			FY 2021	FY 2022	FY 2023			
			\$ 1,159,600	\$ 1,473,900	\$ -		\$ 2,633,500	