

STATE OF COLORADO

DEPARTMENT OF TRANSPORTATION

Division of Accounting and Finance
4201 East Arkansas Avenue
Denver CO 80222
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DATE: July 3, 2013
TO: Bridge Enterprise Board of Directors
FROM: Ben Stein, CFO *BS*
SUBJECT: Second Supplement to the FY 2014 Bridge Enterprise Budget

Enclosed is the Second Supplement to the FY 2014 Bridge Enterprise Budget.

REGION 1

- \$10,402,000 – Establish the construction phase for this project. Construction advertisement is scheduled for August 2013. (18206/10001...)

**SH 44 over Bull Seep and South Platte River in Adams County
 Structures E-17-VB and E-17-VA to replace Structures E-17-ER and E-17-CA**

Budget Components by Phase, Funding Program, Fiscal Year

Phase of Work	Funding Program	Current Budget				Second Supplement Action	Revised Budget	Expended To-Date
		Prior Years	FY 2014	Advanced (FY')	Total			
ROW	<i>Bond Proceeds</i>	\$166,500	\$0	\$0	\$166,500	\$0	\$166,500	\$2,323
	<i>Adams County</i>	\$4,250	\$0	\$0	\$4,250	\$0	\$4,250	\$4,250
	<i>Commerce City</i>	\$2,125	\$0	\$0	\$2,125	\$0	\$2,125	\$2,125
	<i>City of Thornton</i>	\$2,125	\$0	\$0	\$2,125	\$0	\$2,125	\$2,125
	Total ROW	\$175,000	\$0	\$0	\$175,000	\$0	\$175,000	\$10,823
Design	<i>Bond Proceeds</i>	\$3,826,594	\$0	\$0	\$3,826,594	\$0	\$3,826,594	\$3,324,820
	Total Design	\$3,826,594	\$0	\$0	\$3,826,594	\$0	\$3,826,594	\$3,324,820
Construction	<i>FASTER Bridge</i>	\$0	\$0	\$0	\$0	\$8,410,500	\$8,410,500	\$0
	<i>Local</i>	\$0	\$0	\$0	\$0	\$1,991,500	\$1,991,500	\$0
	Total Construction	\$0	\$0	\$0	\$0	\$10,402,000	\$10,402,000	\$0
Total Project Budget		\$4,001,594	\$0	\$0	\$4,001,594	\$10,402,000	\$14,403,594	\$3,335,643

REGION 3

- \$10,634,000 – Supplement the design budget for in-house personnel and consultant services to advance preliminary engineering effort to 60% Design Office Review (DOR) level. Additional funds will be requested at a later date for 100% Plans, Specifications, and Estimate (PS&E) level Final Design. See attached letter from the design team for a more detailed explanation. (18158/10001...)

**SH 82 ML over I-70 ML, Colorado River and Railroad in Garfield County
 Structure F-07-V to replace Structure F-07-A**

Budget Components by Phase, Funding Program, Fiscal Year

Phase of Work	Funding Program	Current Budget				Second Supplement Action	Revised Budget	Expended To-Date
		Prior Years	FY 2014	Advanced (FY')	Total			
ROW	<i>Bond Proceeds</i>	\$441,000	\$0	\$0	\$441,000	\$0	\$441,000	\$0
	Total ROW	\$441,000	\$0	\$0	\$441,000	\$0	\$441,000	\$0
Design	<i>Bond Proceeds</i>	\$882,000	\$0	\$0	\$882,000	\$1,000,000	\$1,882,000	\$337,680
	<i>FASTER Funds</i>	\$848,300	\$0	\$0	\$848,300	\$9,634,000	\$10,482,300	\$0
	Total Design	\$1,730,300	\$0	\$0	\$1,730,300	\$10,634,000	\$12,364,300	\$337,680
Miscellaneous	<i>Bond Proceeds</i>	\$7,655,357	\$0	\$0	\$7,655,357	\$0	\$7,655,357	\$3,751,148
	<i>FASTER Funds</i>	\$1,270,100	\$0	\$0	\$1,270,100	\$0	\$1,270,100	\$0
	Total Miscellaneous	\$8,925,457	\$0	\$0	\$8,925,457	\$0	\$8,925,457	\$3,751,148
Total Project Budget		\$11,096,757	\$0	\$0	\$11,096,757	\$10,634,000	\$21,730,757	\$4,088,828

REGION 4

- \$150,000 – Increase the utility phase budget for relocation of the City of Fort Collins electrical utilities. (18085/10001...)

**SH 14 ML over Cache La Poudre River in Larimer County
 Structure B-16-EV to replace Structure B-16-D**

Budget Components by Phase, Funding Program, Fiscal Year

Phase of Work	Funding Program	Current Budget				Second Supplement Action	Revised Budget	Expended To-Date
		Prior Years	FY 2014	Advanced (FY ')	Total			
Utilities	<i>Bank of America</i>	\$983,000	\$0	\$0	\$983,000	\$0	\$983,000	\$483,627
	<i>Bond Proceeds</i>	\$0	\$0	\$0	\$0	\$150,000	\$150,000	\$0
	Total Utilities	\$983,000	\$0	\$0	\$983,000	\$150,000	\$1,133,000	\$483,627
Design	<i>Federal-Aid Bridge</i>	\$65,467	\$0	\$0	\$65,467	\$0	\$65,467	\$65,467
	<i>Bond Proceeds</i>	\$551,612	\$0	\$0	\$551,612	\$0	\$551,612	\$363,123
	<i>Bank of America</i>	\$498,388	\$0	\$0	\$498,388	\$0	\$498,388	\$378,388
	<i>FASTER Funds</i>	\$16,367	\$0	\$0	\$16,367	\$0	\$16,367	\$16,367
	Total Design	\$1,131,834	\$0	\$0	\$1,131,834	\$0	\$1,131,834	\$823,345
Total Project Budget		\$2,114,834	\$0	\$0	\$2,114,834	\$150,000	\$2,264,834	\$1,306,972

Resolution No. BE – 138

**“BE IT RESOLVED, That the Second Supplement to the Fiscal Year 2013-2014
Budget is approved by the Bridge Enterprise Board.”**

BRIDGE ENTERPRISE BOARD OF DIRECTORS
Contingency Reserve Fund

Transaction Date	Transaction Description	Amount	Balance
Jul-12	Contingency budget 2013	\$9,302,648	\$18,302,648
Jul-11	Contingency budget 2012	\$9,000,000	

PROJECT: SH 82 GRAND AVENUE BRIDGE FBR 0821-094 (18158)

Date: July 1, 2013
TO: Ben Stein, Acting CFO, Office of Financial Management & Budget
FROM: Joe Elsen, Region 3 Program Engineer – Central Area
Via: David A. Eller, Region 3 Director
SUBJECT: Request for Budget Supplement to Advance Design to 60% Level

Region 3 is requesting a \$10,633,305 budget supplement to take the design of the SH 82, Grand Avenue Bridge to the 60% Design Office Review (DOR) level. The \$10,633,305 value is broken out as \$5,439,031 for consultant and in-house staff directs costs and \$5,194,274 in Indirects at 95.5%.

The purpose of this memo is to explain where the project costs have changed since the scoping level estimate of \$59M (Preliminary Engineering (PE) \$13.8M + Construction \$45.2M).

The SH 82 Grand Avenue Bridge project is one of the most challenging that CDOT Region 3 has initiated both in terms of gaining community acceptance of the alternative, environmental clearance and the technical design. The challenges to clear and design this project are summarized below:

1. The lack of redundancy in the SH 82 transportation network, combined with high volumes that feed the entire Roaring Fork Valley (and the economic engine of Aspen, CO), severely complicates options for managing construction traffic control, and closure periods. All of this is magnified by the lack of viable alternative transportation routes for users. In the case of serious emergency, such as a valley-wide fire, the Grand Avenue Bridge is the only viable state-owned facility to provide an evacuation route to the I-70 corridor.
2. The new vehicular and pedestrian structures will cross the Colorado River, the Union Pacific Railroad (with 22 trains per day), Interstate 70, two Glenwood Springs city streets and the parking lot for the Hot Springs Pool; all require significant care and coordination efforts.
3. The Hot Springs Geothermal Aquifer is an important local resource, which is vital to the economy and the tourism industry of Glenwood Springs. It is both a politically-guarded and sensitive topic within the community. With limited existing information on its exact location and load-bearing potential, it presents several challenges, including geotechnical and local community concerns related to possible impacts to the resource. The existing structure is also Scour-Critical.
4. The implementation of a Context Sensitive Solution (CSS) in Glenwood Springs requires a comprehensive process of community engagement to gain acceptance for the project alternatives, which requires greater public information and outreach effort than a typical infrastructure “improvement” project. The community is somewhat divided in the desire for a bypass route, which creates additional challenges. Some locals have threatened litigation to further their cause of a mobility option or a “SH 82 Bypass” planning process. All of this has required additional work.
5. The need to accommodate business access concerns on the tails of an intense local recession, combined with a lack of viable alternative routes for SH 82 traffic and significant commuter issues, has led to development of innovative “Accelerated Bridge Construction” (ABC) solutions that require more significant engineering resources to design, refine and screen in a level of detail great enough to support alternatives screening and decision-making.

6. Several additional items impact the construction, including environmental resources and economic concerns related to tourism. For example, the spring runoff period of the Colorado River, in conjunction with both spring and fall trout spawning periods, seriously constrain the available construction access to the river. In addition, construction activities need to respect the importance of the summer tourism season.
7. There are several sensitive environmental resources identified during the NEPA phase that will require additional effort to address during the design and construction phases, primarily noise, historic, visual, wetlands, water quality, fisheries, hazardous waste, and economic.
8. The tight physical constraints on every element of the project—as a high-volume, highly visible recreational destination and a vital downtown business area—require high levels of planning and coordination to develop acceptable design and construction solutions.
9. There are risks and constraints at every turn on this project. For example the existing Grand Avenue Bridge also provides important utility infrastructure across the Colorado River including gas, water and communications. These facilities must be relocated prior to construction of the new bridge.

When this project was scoped in 2010, the original estimate was based on the assumption that the build alternative would be in essentially the same location as the existing bridge, with limited need for additional right-of-way, and the NEPA Environmental Assessment process would be relatively straightforward with limited discussion of bypass or relocation alignments for SH 82. Instead, the build alternative covers a much wider range of alignment and construction alternatives, as well as the unanticipated addition of a pedestrian bridge replacement to meet project goals. In summary, 15 build alternatives were brought forward and studied by the consultant team. The process required extensive public outreach to meet the intent of CDOT's CSS policy.

The project's recommended alternative includes an alignment and profile of the SH 82 Grand Avenue replacement bridge, plus additional elements related to the recommended alternative not originally anticipated in early scoping. These additional items include:

- **Replacement of adjacent pedestrian bridge.** A new pedestrian bridge has been found necessary to accommodate affordable utility relocates, meet the multi-modal mobility goals of the project, accommodate needed acceleration lengths for the 116 East on-ramp on I70, and other considerations established by stakeholder input and the project team. The pedestrian bridge design includes accessibility treatments, such as ramps and potentially elevators. The addition of the pedestrian bridge may drive the *total construction cost of the project down* as the focus of the aesthetic treatments will be on the much smaller pedestrian bridge, rather than the Grand Avenue highway bridge. The pedestrian bridge type is still being determined through the CSS process with constructability and risk/cost input from the CM/GC. There is also strong potential for cost-sharing with the utility companies toward the construction cost of the pedestrian bridge.
- **Reconstruction of the SH 82 and I-70 intersection area on the north side.** The recommended alternative realigns the existing bridge touchdown point to the north to be closer to the I-70 westbound exit and provide a more direct connection for vehicles traveling from I-70 to SH 82 through Glenwood Springs, eliminating the circuitous loop that SH 82 traverses today to connect to I-70. The realignment requires the reconfiguration of a complex intersection and interchange movements on the north side of the river that are vital to tie the bridge into the system.
- **Additional geothermal investigation to minimize risk of damage to the geothermal resource.** The project team has identified potential contingency costs involving on-site, stand-by contractors to cap or plug a potential intrusion to the confining layer of Belden Shale or the conveying layer of Leadville Limestone that could result in a release of the pressurized geothermal resource. The knowledge of the geothermal resources is

evolving and meetings are being held with the Hot Springs Lodge and Pool and the project geotechnical and design team.

- **Construction methods for the project have been evolving as the project has progressed.** The new and innovative methods have been driven by the project goal to minimize impacts to the only direct connection to down-valley locations south of Glenwood Springs. These construction methods include new bridge slide and rotation foundations for Accelerated Bridge Construction (ABC) and are more sizeable and complex than earlier scoped with the shorter bridge.
- **Detour improvements necessary for a full bridge closure.** During scoping, suggestions for bridge construction included keeping two lanes of traffic open on the bridge. Through the planning and CSS process, the best solution has been found to be a full, but short-term, closure of the bridge to tear down and reconstruct the new bridge using ABC techniques. The required detour during this time includes improvements to Exit 114 and Midland Avenue through Glenwood Springs to keep traffic movements efficient and minimize delays.

Current CBE Budget Supplement Request:

The current schedule is to take the design from its current “concept level” to 30% plans at NEPA Decision Document (estimated to be May of 2014) to a 60% Design Office Review (DOR) level, and we have obtained FHWA Concurrence regarding permissible activities during the NEPA process; we expect to hold the DOR in August 2014. This project is utilizing the Innovative Contracting Delivery Method of CM/GC, and this method uses a series of iterative risk identification/mitigation sessions along with detailed cost estimating at 30/60/90/100 percent plan levels. Through this effort we expect to be able to keep the costs at the lowest possible level.

The \$10,633,305 Budget Supplement Request (\$5,439,031 consultant/in-house staff direct costs and \$5,194,274 at 95.5% Indirects) will progress the design to 60% which will provide a very clear picture of remaining work effort required for design, utilities, right of way as well as constructions costs.

In 2010 we initiated this project and estimated the PE phase at \$13.8M and construction at \$45.2M, including Indirects. Removing the 95.5% Indirects yields a PE phase estimate of \$7.1M and we assumed the consultant portion would be about \$6.2M and internal/right of way/utility costs of \$0.9 M. This was all based on a replacement of the bridge in its current, existing location.

The existing bridge deck area is 27,040 SF and the area used for the above cost estimate was 42,588 SF as it widened for the most part in place, and the end points were essentially the same.

The current area of the proposed vehicular bridge is about 90,000 SF and the pedestrian bridge is 9,000 SF.

The most recent construction cost estimate is \$65M (without CE & Indirects). This contains a fair amount of contingency, and we plan to actively and aggressively trim ineligible costs from this estimate as well as risk/contingency numbers. We have remaining budget in our constructability consultant and we plan to have an updated cost estimate by the end of August. We also hope to have narrowed down the structure types for the two bridges as well. We should have geotechnical borings underway near the hot springs aquifer and should be able to refine that risk as well.

Using the \$65M number, the percent of Preliminary Engineering cost per construction breaks out as:

Work Task	Amount	Percent of Construction Cost (\$65M)	Comment
NEPA	\$4.6M	7.1%	
Design	\$8.0M	12.3%	
CM/GC	\$0.4M	0.6%	Subtotal Design Effort = 20.6%
ROW/Utils (estimated)	\$5.7M	8.8%	
Total (estimated)	\$18.7M	28.8%	

The above costs are without Indirects, to be able to compare more quickly with other projects. The Indirects related to the \$18.7M PE phase total comes to just over \$13M.

The construction cost of \$65M attracts \$14,365,000 in CE & Indirects charges to total \$79,365,000.

The total project features almost \$21M in Indirects.

The total projected cost of the project, including \$20.9M of Indirects is \$111.1M which constitutes a 1.88 factor increase. The increase in anticipated bridge deck area is 99,000 SF/42,588 SF or a factor of 2.32 in the structure size.

The increase of the project from the initially scoped smaller bridge was consistent with CDOT's CSS process and included CBE throughout the process, including the selection of the preferred bridge alignment (including necessary improvements to Exit 116 connections) and the pedestrian bridge replacement.

The internal staff and consultant staff fully understand the need to control costs and we hope to have improved forecasts in the near future.

copy: Joe Elsen, R3
Roland Wagner, R3
Behrooz Far, Staff Bridge
Region Files, R3

