Colorado Bridge Enterprise
10 Year Plan Report

Executive Summary

Bridge Enterprise (BE) does not have sufficient funding to address all of the poor bridges within Colorado in the next 10 years, and the funding gap becomes worse with time. CDOT Staff Bridge uses a model to predict the amount of deck area projected to be rated "poor" in future years based upon the year a structure was initially built. This model indicates that "poor" rated deck area will increase 1.7 times by 2020; 3 times by 2025; and over 4.5 times by 2030. The model does not however have the ability to predict (or determine) when a specific bridge may become poor.

Staff requests the BE Board to provide guidance on its priorities on when and how to use the available funding in a 10 year plan, so that plan can be implemented and completed. The BE management team (which includes the program manager and CDOT financial consultants) has developed two funding and timing scenarios to aid in the decision making. If the Board has other alternatives it would like to see, these can be prepared and provided at a future date.

Work Scope and Analysis

The Bridge Enterprise program consists of only on-system CDOT bridges designated as structurally deficient or functionally obsolete, and rated poor (Sufficiency Rating < 50). This reduced the eligible work scope to 128 (in 2009) out of a total of 3,429 bridges or about 4% of the total population at the time the legislation creating the Enterprise was enacted. Since 2009, 39 additional bridges have become poor (or eligible); making the current number of FASTER eligible structures total to 167. In total, 60 structures have been completed since 2009 utilizing both BE and non-BE funding leaving 107.

	2009	2012
Number of on-system bridges	3,429	3,447
Deck area of on-system	31,726,590 sq-ft	32,656,115 sq-ft
Deck area of poor bridges	1,783,317 sq-ft	1,663,467 sq-ft

The BE management team identified discrete scope elements to better plan the 10 year financial investment and timing in our analysis. The BE management team divided the bridges into 4 scope elements (itemized below).

- The first element is the existing bond plan which will complete 57 of 87 structures identified and programmed in the current bond program allocation plan.
- The second scope of work potentially completes the 30 structures included in the bond program allocation plan for phases other than the construction phase.
- The third scope is the I-70 viaduct. The total project cost is estimated at over $1.0B. BE management and the I-70 EIS team and FHWA met to determine an estimate of eligible work per the FASTER legislation. The group determined that approximately $898M of the total cost may be eligible. Therefore, any amount from $0 to $898M can be funded in the next 10 years to complete this project. However the impact to the BE program at the $898M level is significant.
- The fourth scope item is bridges that became poor after the 2009 legislation was enacted and future poor structures.

Note – A fifth cost component associated with on-going maintenance of assets and program management is also included in the analyses.

Bridge Count

The program maintains and reports two bridge counts within the monthly progress report provided by Tim Harris as noted below:

- FASTER eligible bridges
- Bond program bridges

The FASTER eligible bridge count is an ongoing tally of the number of bridges designated as poor which are eligible to receive FASTER funding. When the law was enacted in 2009, there were 128 poor rated structures. In 2010 and 2011, CDOT Staff Bridge identified another 11 and 15 poor rated structures, respectively. CDOT Staff Bridge currently updates the poor listed quarterly and in calendar year 2012 another 13 bridges have been rated poor to date. This brings the FASTER eligible bridge count total to 167 as itemized below. Note the two following clarifications: (1) the law does not mandate that all poor rated bridges be addressed, and (2) as of 2009, once a bridge is rated poor it retains eligibility to receive FASTER funds if subsequent bridge inspections raise its' sufficiency rating above fifty.

Year	Poor list count
2009 (Year FASTER legislation enacted into law)	128
2010	11
2011	15
2012 (poor listed updated quarterly)	13
Total FASTER eligible bridges	**167**

Bond program bridges are those programmed to receive proceeds from the $300M bond. Currently there are 87 bridges that are partially or fully funded with bond proceeds.

10-Year Bridge Plan Cash Flow Model

The 10-year program plan is based upon a cash flow model that recognizes incoming revenues (defined as FASTER pay-go funding, bond proceeds, BABs subsidy, and Federal BR debt service pledge) as compared to outgoing expenditures (defined as payment on debt-service, bridge replacement costs, maintenance and planned preventative maintenance costs) on a quarterly basis also summarized by fiscal year from 2013 through 2023.

The BE management team developed multiple scenarios of bonding and use of the FASTER revenue stream to recommend appropriate fiscal and regulatory decisions for the program (see Figure 1). Bonding financial regulations and debt service calculations were provided by CBE bond counsel and financial consultants Kutak Rock and Stifel Nicolaus, respectively. The amount of cash remaining in the Treasury at the end of the 10 year period is represented by the Un-Committed Cash Balance. A base of $25M per year is recommended as a minimum cash balance to address program management costs, asset maintenance, and unexpected contingencies. The analysis led the BE management team to the following recommendations:

- Complete the Original list of structures but not structures currently designated as "No Action Proposed". This includes 6 structures where BE has made a business decision to not address for various reasons. For example, CDOT addressed structural issues associated with the Perry Street bridge over 6th Ave (F-16-GG); but, the structure remains functionally obsolete (road width) but rework would result in extensive costs addressing the 6th Ave retaining walls.

- Fund the I-70 viaduct via the BE programs remaining bonding capacity and supplement with FASTER revenue. Fund between $569M to $898M as needed. (see above scope item 3)
- Formally implement a more detailed selection process for determining which bridges will be funded in the future with program management developing objective criteria for bridge selection for the Board to adopt. (see above scope Item 4)

Options Summary

	Funding		Viaduct	Total	Total Debt	Uncommitted
	Cash	Bond	Investment	Investment	Service (P+I)	Cash Balance
Option A	$839 M	$809 M	$569 M	$1,648 M	-$1,896 M	$25 M
Option B	$839 M	$809 M	$898 M	$1,648 M	-$1,896 M	$25 M

Figure 1: Summary Data from Detailed analysis of Options

Cost Effectiveness

Identify and implement efficiencies and controls to improve the delivery of projects:

- Delivery methods – Preconstruction and Construction Strategies
- Programmatic Agreements with Agencies or Entities that most impact delivery
- Pre-project assessment to identify scope, cost and delivery issues
- Packaging & Bundling projects to create economies of scale
- Accelerated Construction and Every Day Counts initiatives
- Performance Metrics to track efficient delivery

Program Constraints

The program is constrained to approximately $100M of work annually. This is based upon past CDOT performance and limitations associated with current available CDOT staffing levels. In addition, on a "pay-go-basis" the program's funding is constrained to a number considerably below this level. There are two exceptions: (1) to satisfy $300M bond spending requirements approximately $144M is projected to be spent in FY2013 and FY2014, and (2) the I-70 replacement project is considered a stand-alone project with its own dedicated staff.

Over-budgeting is another challenge that the BE management team is addressing. Projects that are now closing out construction are typically returning about 16% of budgeted funds based on empirical data. For this reason, the BE management team has over-programmed by about 10%. If our estimate is not conservative enough (i.e., the actual amount of over-budgeting is determined to be less than 10%), we will recommend design project(s) be shelved and not constructed at this time.

On-going Program

Completion of the 30 previously noted bond structures (construction funding not within the bond proceeds) represents an additional $274M of investment beyond the currently issued $300M bond. The I-70 viaduct funding is anticipated to exhaust the BE Bonding Capacity with approximately $600M of remaining bond funds supplemented with FASTER fee revenue stream a.k.a. "pay-go" dollars. Once the previously identified poor bridges are completed and the I-70 viaduct is replaced. The BE funding will be insufficient to replace all the bridges in the state expected to become poor in the future.

As the Enterprise becomes more financially constrained, future decisions made by the Bridge Enterprise should include a more robust analysis of investment based upon:

- Safety
- Average Daily Traffic / Economic Impact
- Adjacent roadway work scheduled / needed (Economy of Scale)
- Repair versus replacement

Staff seeks to learn if the Board has any firm views on how to prioritize between these four criteria or would like staff to consider other criteria in place of or in addition to these. After receiving this input, staff will develop and present to the board a recommended process for prioritizing future poor bridges.

Federal Authorization MAP-21

Finally, CDOT/CBE is in the process of digesting the newly issued federal transportation legislation commonly referred to as MAP-21 (Moving Ahead for Progress in the 21st Century). The new legislation outlines new requirements associated with asset management and performance measurement.

There are two changes in the legislation that affect the Bridge Enterprise. The law indicates that the federal government intends to phase-out the use of “sufficiency ratings”. CDOT Staff Bridge uses sufficiency rating to determine whether a bridge is “poor”; poor structure has SR < 50. The new legislation appears to allow state DOT’s to “define” poor which may allow CDOT/CBE greater flexibility on the future usage of FASTER Bridge Fees. The FASTER legislation indicates that bridge must be SD or FO, and rated poor to be eligible for FASTER funding but going forward the Board, or possibly CDOT may be able to establish their own definition of “poor”. The use of a broader definition could make more bridges eligible for BE funding which, given the limitations on BE funding and the number of potentially eligible bridges may simply overwhelm the BE’s resources.

The second change eliminates the Federal Bridge Replacement (FBR) program and the national bridge inspection (NBI) categories. With MAP-21, the funding categories are fewer and the dollars have fewer explicit “strings attached” allowing DOTs greater flexibility on usage. On the other hand, these dollars have to be committed internally by CDOT to meet specific performance goals embedded in MAP-21 some of which are related to bridge conditions.