

CHAPTER 6 FINANCIAL ANALYSIS

This chapter presents the results of project cost estimates (capital as well as operating and maintenance [O&M]), a review of existing funding sources that are available to fund the project, and a discussion of the likely funding gap. The information provided in this chapter is intended to provide sufficient context to allow decision-makers to understand the need for a long-term funding strategy. The focus of this Draft EIS is on the corridor-level improvement packages. A specific funding strategy that addresses anticipated More detailed discussions about specific design concepts and costs will continue as the project advances through future planning phases. funding shortfalls will be developed as part of this project's future planning phases. This is required prior to the final completion of the federal agency decision, documented in the Record of Decision (ROD).

What's In Chapter 6?

Chapter 6 Financial Analysis

- 6.1 Capital Costs
- 6.2 Operating & Maintenance (O&M) Costs
- 6.3 Revenue Projections
- 6.4 Annual Cash Flow Assessment
- 6.5 Summary of Funding Shortfall

6.1 CAPITAL COSTS

This section presents a summary of capital costs for the two build packages. Detailed descriptions of package components, which provide a basis for the cost estimates, are found in **Chapter 2 Alternatives**. Cost estimates are based on the latest unit cost information available for the types of construction and procurement items, and are in accordance with industry accepted procedures. These costs are inclusive of contingencies, utilities, engineering and right-of-way acquisition.

After this Draft EIS, a preferred alternative will be developed which could include certain components of one package combined with certain components of the other package. This would obviously alter the capital and operating costs of the preferred alternative as compared to the two build packages.

6.1.1 Package A Costs

Package A components include new I-25 general purpose (plus auxiliary) lanes, new US 85 and E-470 commuter bus service, and new commuter rail service. **Table 6-1** provides Package A capital cost estimates, which are presented in 2005 dollars.

1 **Table 6-1 Package A Capital Cost Estimate (2005 dollars)**

Item	I-25 General Purpose Lanes	US 85/E470 Commuter Bus	Commuter Rail	Total
Construction	\$896.1M	\$7.8M	\$743.0 M	\$1,646.9M
Utilities	\$26.9M	0.2M	\$22.3M	\$49.4M
Engineering	\$277.8M	\$2.4M	\$230.3M	\$510.5M
Right-of-Way	\$88.0M	\$5.8M	\$42.0M	\$135.8M
Legal Insurance	N/A	N/A	\$14.9M	\$14.9M
Vehicles	N/A	\$12.0M	\$63.0M	\$75.0M
Total Package Cost	\$1,288.8M	\$28.2M	\$1,115.5M	\$2,432.5M

M = million
NA = Not Applicable

2 **6.1.2 Package B Costs**

3 Components of Package B include new I-25 tolled express lanes from SH 14 to 84th Avenue and
4 new bus rapid transit (BRT) service on I-25, E-470, US 34 and Harmony Road. The tolled
5 express lanes would be managed through a toll pricing strategy. There are two variations that are
6 being considered. The base case assumes two-direction, high-occupancy toll (HOT) lanes to
7 84th Avenue. Option "B2" assumes reversible HOT lanes from 84th Avenue to 120th Avenue.
8 **Table 6-2** and **Table 6-3** provide capital cost estimates for the two Package B scenarios, which
9 are presented in 2005 dollars.

10 **Table 6-2 Package B Capital Cost Estimate (2005 dollars)**

Item	I-25 Tolled Express Lanes	Bus Rapid Transit	Total
Construction Items	\$1,315.4M	\$83.2M	\$1,398.6M
Utilities	\$39.4M	\$2.5M	\$41.9M
Engineering	\$407.7M	\$25.8M	\$433.5M
Right-of-Way	\$101.2M	\$2.9M	\$104.1M
Vehicles	N/A	\$28.3M	\$28.3M
Total Package Cost	\$1,863.7M	\$142.7M	\$2,006.4M

* Includes feeder bus
M = million
N/A = Not Applicable

11 **Table 6-3 Option B2 Capital Cost Estimate (in millions)**

Item	I-25 Tolled Express Lanes	Bus Rapid Transit	Total
Construction Items	\$1,327.2 M	\$83.2 M	\$1,410.4 M
Utilities	\$39.8 M	\$2.5 M	\$42.3M
Engineering	\$412.5M	\$25.8 M	\$438.3M
Right-of-Way	\$101.2M	\$2.9M	\$104.1M
Vehicles	N/A	\$28.3 M	\$28.3 M
Total Package Cost	\$1,880.7M	\$142.7M	\$2,023.4M

* Includes feeder bus
M = million
N/A = Not Applicable

6.1.3 Current Allocated Funding

There are limited existing funding sources that are available to help fund construction for the North I-25 corridor transportation improvements. Sources that have been identified from the Regional Transportation Plan (RTP) and other sources are as follows:

- ▶ **7th Pot Commitment.** A total of \$255.3 million has been identified for highway improvements for the North I-25 corridor from CDOT’s 7th pot program.
- ▶ **Highway Improvements.** A total of \$13.2 million has already been identified from the RTP for highway improvements along SH 14. A total of \$37.4 million has already been approved for highway improvements along SH 7.
- ▶ **Transit Improvements.** A total of \$12.9 million has been identified for railroad crossing improvements at LeMay and Vine, \$5.1 million for railroad corridor preservation, \$700,000 for new regional transit service between Greeley and Loveland, and \$8.5 million for the Mason Transportation Corridor project. These improvement projects were also identified from the RTP.

Table 6-4 summarizes known funding sources for each package and identifies the remaining unfunded balance. As **Table 6-4** shows, only 13.7 percent of Package A, 15.7 percent of Package B, and 15.6 percent of Option B2 can be funded with known and committed existing available funds.

Table 6-4 Available Existing Funding Sources / Funding Gap (2005 dollars)

Project Component	Package A	Package B	Option B2
Package Capital Cost	\$2,432.5M	\$2,006.4M	\$2,023.4M
SH 14	\$13.2M	\$13.2M	\$13.2M
SH 7	\$37.4 M	\$37.4 M	\$37.4M
7 th Pot	\$255.3 M	\$255.3 M	\$255.3M
Regional Transit – Greeley to Loveland	\$0.7 M	\$0.7M	\$0.7M
Mason South Transit Center	\$8.5 M	\$8.5 M	\$8.5M
Railroad Corridor Preservation	\$5.1 M	n/a	n/a
Railroad Crossing – (LeMay & Vine)	\$12.9 M	n/a	n/a
Total Available Funding	\$333.1M	\$315.1M	\$315.1M
Remaining Amount Unfunded	\$2,099.4M	\$1,691.3M	\$1,708.3M

M = million

6.2 OPERATION AND MAINTENANCE (O&M) COSTS

6.2.1 Transit O&M Costs

Transit O&M costs include the costs associated with providing and maintaining a certain level of bus or rail service. A large percentage of these costs are for salaries/wages and fringe benefits for drivers, mechanics, and administrative staff. Other items include fuel/lubricants, materials/supplies, utilities, and insurance.

In accordance with industry accepted procedures, annual O&M cost estimates were developed based on unit costs for three types of service; local and feeder bus service, premium bus service, and rail service. For modifications to local bus service and for feeder bus services using conventional buses, an hourly service cost was applied based on a “blended” hourly rate of North Front Range operators. For premium bus service which was assumed for regional commuter bus or BRT services, a higher hourly service cost was applied, based on RTD’s hourly rate for similar bus services. For rail service, O&M costs are based on a commuter rail cost model, developed primarily with Virginia Railway Express (VRE) reported cost data for 2003. All costs are expressed in 2005 dollars.

O&M cost estimates are broken by type of service. Costs for local route service include costs for additional local feeder bus routes. Premium corridor bus service costs include the new commuter bus service in Package A and the new BRT service in Package B. Commuter rail service is only included in Package A. **Table 6-5** provides anticipated annual transit O&M costs.

Table 6-5 Annual Transit O&M Cost Estimates for 2030 Conditions (in 2005 dollars)

Component	Package A	Package B
New Local Route Service	\$5.4M	\$3.8M
Premium Bus Service	\$4.7M	\$8.4M
Commuter Rail	\$28.2M	\$0.0
Total Transit O&M Cost	\$38.3M	\$12.2M

M = million

6.2.2 Highway O&M Costs

Annual O&M costs for highway improvements were estimated by assuming an average cost of \$14,150 per new lane-mile (2005 dollars). This is based on actual maintenance costs for the I-25 corridor from M.P. 243 to M.P. 269 for the years 2001 through 2005. Package A includes approximately 81 new lane-miles of roadway. Package B includes approximately 129 new lane-miles of roadway. O&M costs for revenue collection from the tolled portion of the managed lanes were determined for this project on the basis of tolled express lane traffic forecasts. **Table 6-6** presents projected annual highway O&M costs for the project’s Horizon Year (2030). Annual O&M cost estimates are presented for the two variations of Package B. The base alternative reflects reversible HOT lanes to 84th Avenue. A variation is also being considered with reversible HOT lanes to 120th Avenue (Package B2).

1 **Table 6-6 Annual Highway O&M Cost Estimates for 2030 Conditions**
2 **(in 2005 dollars)**

Component	No Action	Package A	Package B	Package B2
Highway Lane Maintenance	\$4.146M	\$5.292M	\$5.971M	\$5.971M
Tolled Express Lanes O&M	\$0.0	\$0.0	\$1.811M	\$1.795M
Total Hwy O&M Cost	\$4.146M	\$5.292M	\$7.782M	\$7.766M
Incremental Cost Over No-Action	N/A	\$1.146M	\$3.63M	\$3.620M

M = million

3 For the purposes of the cash flow assessment in Section 6.4, annual O&M costs for the
4 tolled express lanes were also estimated for this project for the year 2015 (assumed
5 Opening Year). Those costs are estimated to be \$1.591 million for the Base Case
6 alternative (reversible HOT lanes to 84th Avenue) and \$1.584 million for the package
7 variation (Package B2). O&M cost estimates for 2015 are less than for 2030 because of
8 lower HOT lane vehicle utilization projections.

9 **6.3 REVENUE PROJECTIONS**

10 **6.3.1 Transit Farebox Revenues**

11 Potential farebox revenues were estimated by determining the projected increase in transit
12 riders for each package component (as compared with the No-Action Alternative), and
13 applying fare assumptions. Average blended fares in the regional travel model were
14 estimated by examining RTD's actual fare recovery by boarding. As with many transit
15 agencies, the fare recovery can differ significantly from the posted, walk-up fares. This
16 difference is attributable to discounts such as monthly passes, senior tickets, and employer-
17 subsidized programs such as RTD's Eco Pass.

18 For this analysis, the relevant fare service categories for the bus mode were \$1.74 for
19 SkyRide (or airport) service, \$1.71 for regional service, \$1.10 for express service, and
20 \$0.36 for Longmont / North Front Range local service. A distance-based fare structure was
21 assumed for rail modes in the travel model. For rail trips from 0 to 8 miles in distance,
22 a local fare of \$0.46 was assumed. From 8 to 18 miles, an express fare of \$1.10 was
23 assumed. Finally, for rail trips in excess of 18 miles, a regional fare of \$1.71 was assumed.
24 All bus and rail fares were originally estimated in 1996 dollars in the travel model. For
25 consistency with other costs, fares were inflated to 2005 dollars using an inflation of
26 24.69%. This rate is based on the annual Consumer Price Index (CPI) for the Denver-
27 Boulder-Greeley region (1996 to 2005).

28 Currently, there is no regional agency that provides interurban transit service between the
29 North Front Range and the Denver Metro Area. Without an existing entity in place, RTD's
30 fare structure was considered to be a reasonable proxy for fares that might be charged for
31 long, interurban transit trips. In addition, the transit operations plan for Package A assumes
32 the extension of RTD's North Metro commuter rail line up to Fort Collins. Hence, the use of
33 the distance-based fare structure for the rail mode was considered a reasonable option.

34 Resulting farebox revenue projections for 2030, and resulting farebox recovery ratios
35 (farebox revenues divided into annual O&M costs) are provided in **Table 6-7**.

Table 6-7 Potential Annual Farebox Revenues and Recovery Ratios (2005 dollars)

Component	Package A	Package B
Annual Farebox Revenue	\$4.303M	\$3.644M
Farebox Recovery Ratio	11.2 %	29.9 %

M = million

1 **6.3.2 Tolled Express Lane Toll Revenues**

2 Traffic and potential toll revenues are based on an estimate of the amount of traffic willing to
 3 pay a toll of \$X to save Y minutes. As traffic shifts to the lanes, the travel time in the general
 4 purpose lanes (and therefore, the amount of time savings offered by the tolled express
 5 lanes) will change. Initial toll rate assumptions ranged from \$0.05 to \$0.50 per mile. Toll rate
 6 assumptions were then modified up to \$1.75 per mile to reduce demand in congested “hot
 7 spots”. Resulting annual toll revenue projections for the tolled express lanes are shown in
 8 **Table 6-8.**

Table 6-8 Potential Tolled Express Lane Annual Toll Revenues (2005 dollars)

Component	Package B	Package B2
2015 Toll Revenues	\$1.861M	\$1.787M
2030 Toll Revenues	\$4.534M	\$5.649M

M = million

6.4 ANNUAL CASH FLOW ASSESSMENT

Annual O&M costs and revenue projections presented in **Section 6.2** and **Section 6.3** were used to complete an annual cash flow assessment.

6.4.1 Transit Cash Flow Assessment

As noted in **Section 6.3**, Package A farebox revenues are anticipated to cover only 11 percent of annual transit O&M costs in the Year 2030, based on this project's projected ridership and annual O&M cost estimates. Farebox revenues are projected to cover 30 percent of annual transit O&M costs for Package B. Transit forecasts were not completed for 2015 (Opening Year) or any other interim years. Thus, it is not possible to evaluate farebox revenue projections and anticipated O&M cost-funding shortfalls on an annual basis.

6.4.2 Highway Cash Flow Assessment

Package B toll revenue projections were compared to projected highway O&M costs (additional maintenance costs for new lane miles and tolled express lane O&M). Year 2015 and 2030 toll revenue forecasts and tolled express lane O&M costs have been developed for this project, for both tolled express lane scenarios (to 84th Avenue versus to 120th Avenue). An annual cash flow assessment was completed between 2015 and 2030 by assuming straight line growth in revenues and costs. **Figure 6-1** and **Figure 6-2** illustrate the annual cash flow assessment for Packages B and B2 respectively.

As shown in these figures, Package B revenues steadily climb, but never exceed projected additional highway and tolled express lane O&M costs. In 2015, toll revenues cover 50 percent of the annual O&M costs, increasing to 87 percent by 2030. Over the course of 15 years (2015 to 2030), toll revenues are anticipated to cover 72 percent of the cumulative additional highway-related O&M costs. Package B2, however, has projected toll revenues that exceed additional highway and tolled express lane O&M costs by 2027. Package B2 toll revenues start with covering 48 percent of O&M costs in 2015, increasing to 109 percent by 2030. Over the course of 15 years (2015 to 2030), toll revenues are anticipated to cover 84 percent of the cumulative additional highway-related O&M costs.

Figure 6-1 Package B Tolled Express Lane Annual Cash Flow Assessment

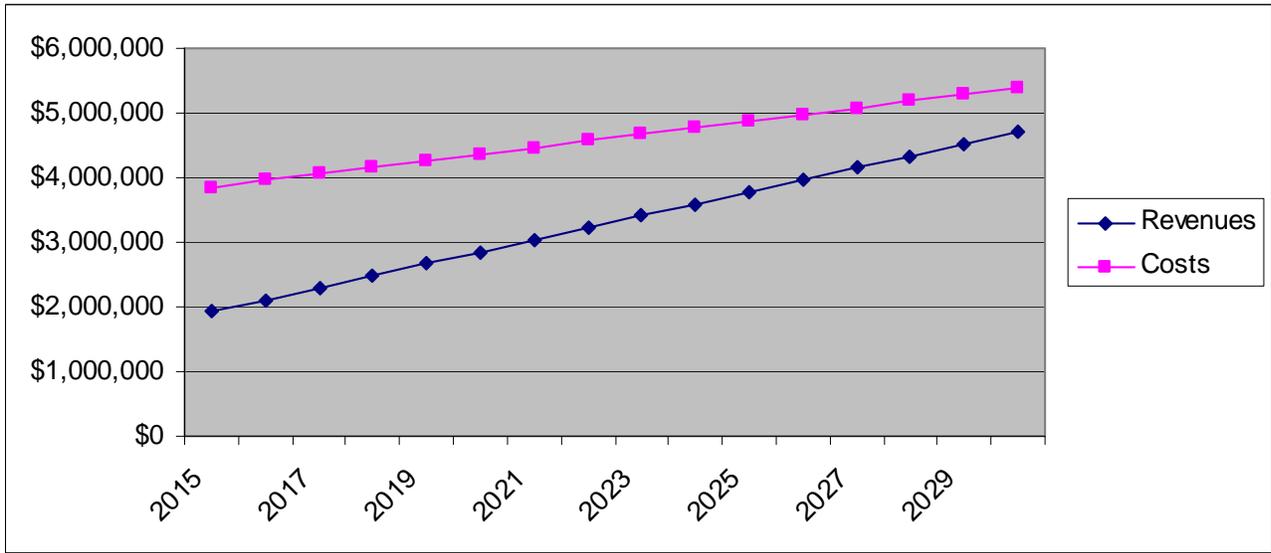
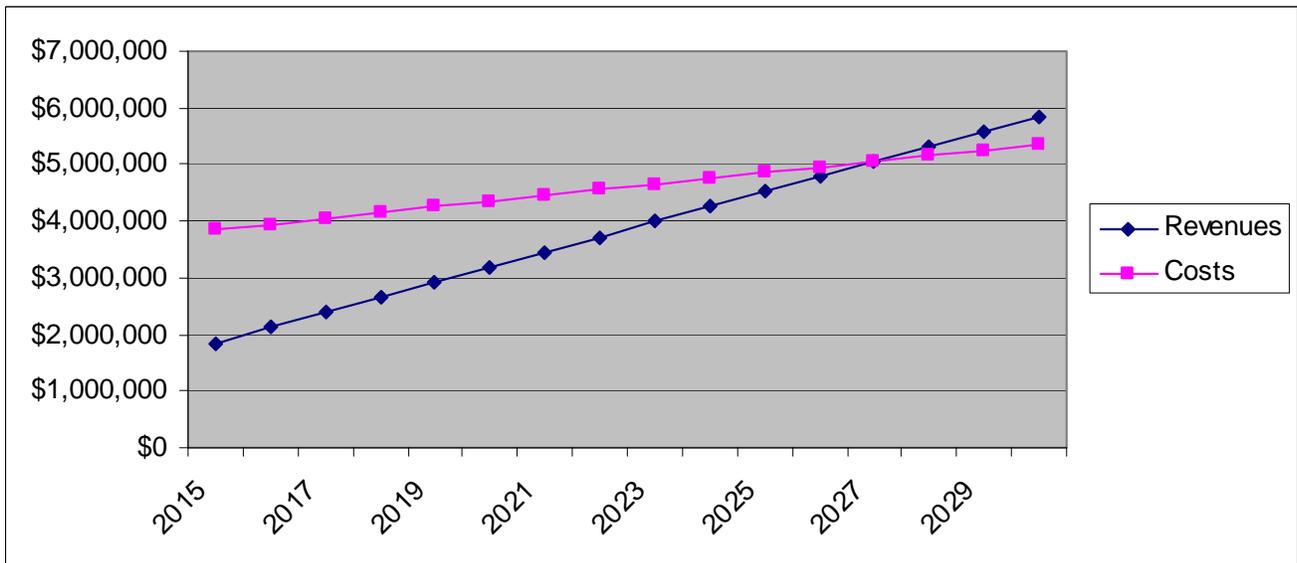


Figure 6-2 Package B2 Tolled Express Lane Annual Cash Flow Assessment



6.5 SUMMARY OF FUNDING SHORTFALL

The analysis of current funding conditions presented in this chapter identifies a significant shortfall in funding for both construction and annual O&M costs for both transportation improvement packages that are being considered. Projected funding shortfalls are as follows:

- ▶ Known existing capital cost-related funding sources are estimated to cover only 14 percent of Package A capital costs and 16 percent of Package B capital costs.
- ▶ Transit farebox revenues are anticipated to cover only 11 percent of Package A annual transit O&M costs and only 30 percent of Package B annual transit O&M costs.
- ▶ Tolled express lane toll revenues have the potential of generating sufficient income to cover up to 87 percent of additional highway-related annual O&M costs for Package B (by 2030). Potential toll revenues for Package B2 are anticipated to exceed additional highway-related annual O&M costs for Package B2 (by 2030).

Since there are insufficient funds available to construct either of the two build packages and because the project included in the final decision must be capable of being financed, it is likely that the project in the Record of Decision will be a logical first phase of the preferred alternative. In this manner, the preferred alternative would be broken into a series of projects and phased with a series of Records of Decision, each of which would have a source of funding and could be constructed and utilized independently.

The availability of transportation funding is increasingly problematic for communities across the country. New funding strategies for transportation are being discussed at the national, state, and local level. Traditional funding mechanisms no longer provide the level of funding required to maintain the existing transportation system or build new projects being planned to meet increasing demands.

The US Congress is currently debating the issue, as is the State of Colorado. Governor Ritter has formed the Colorado Transportation Finance and Implementation Panel, a blue ribbon task force that is leading a statewide conversation about the future of Colorado's transportation system. The panel's mission includes examining Colorado's transportation funding mechanisms and the process by which transportation projects are prioritized. The panel will also identify possible long-term, sustainable revenue sources. Two of Colorado's primary transportation revenue streams, the gas tax and Highway Users Trust Fund (HUTF), are not keeping up with rising maintenance and construction costs.

State and federal transportation funding has been relatively stagnant over the last several years, while construction costs have escalated substantially. The cost for construction has increased approximately 40 percent between 2002 and 2006 alone. Maintenance costs are also increasing, taking a larger portion of the transportation dollar to preserve the existing infrastructure.

Traditional sources of transportation funding for highways have depended upon highway trust funds established by Congress and the states to collect taxes on gasoline and other motor fuels. Nationally, it has been estimated by the US Department of Transportation (USDOT) that the purchasing power of the gas tax is about one-third less than it was in the 1960s. In Colorado, HUTF was worth only about 30 percent of its original value in 1992, the last time gas taxes were increased.

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- 1 In Colorado, the HUTF provides approximately 40 percent of state funds for highway
2 improvements. General fund revenues also are available from year to year to supplement
3 transportation funding. Federal funds are apportioned to the state and some discretionary
4 funding from federal sources is obtained by CDOT for specific projects. In 2006, federal
5 funds made up approximately 30 percent of the state's transportation budget.
- 6 Traditional sources of transit funding come from federal funding, regional sales taxes, and
7 farebox revenues from patrons. Federal funds, including a mix of federal gas tax and
8 general fund moneys, are provided to transit agencies on a formula basis for rolling stock
9 and some operating expenses. These projects need to be cost effective; that is, with
10 relatively high ridership and relatively low costs.
- 11 The information provided in this document reflects the funding sources presently available.
12 Future revenue sources could come from both highway and transit programs and would
13 need to be programmed through the normal DRCOG and NFRMPO planning process.