



Interstate 80 Tolling Feasibility
Study, Phase 2

Final Report

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Executive Summary

Due to the high proportion of cross-State trucking operations on I-80 and the severe roadway wear caused by trucks, the Wyoming Department of Transportation (WYDOT) is falling behind in maintaining the condition of the roadway. Federal funding and unsustainable supplements from other State sources are simply inadequate to pay for the maintenance of I-80.

Interstate tolling is restricted by FHWA except under certain programs which are generally competitive and otherwise limiting in the number and types of projects that qualify. Solving congestion issues is usually the reason tolling is implemented, but in the case of I-80 in Wyoming, tolling is being studied as a means to pay for roadway maintenance and possible expansion.

This feasibility study builds off the previous (Phase 1) study completed in October 2008, and includes a more detailed overview of the capital needs of the corridor, various tolling technologies and revenue collection processes, financial scenarios, and the results of a public information effort. A brief summary of the key findings and conclusions of the full study are presented below.

Traffic Growth Will Resume with Trucks Representing More than Half of Total Traffic

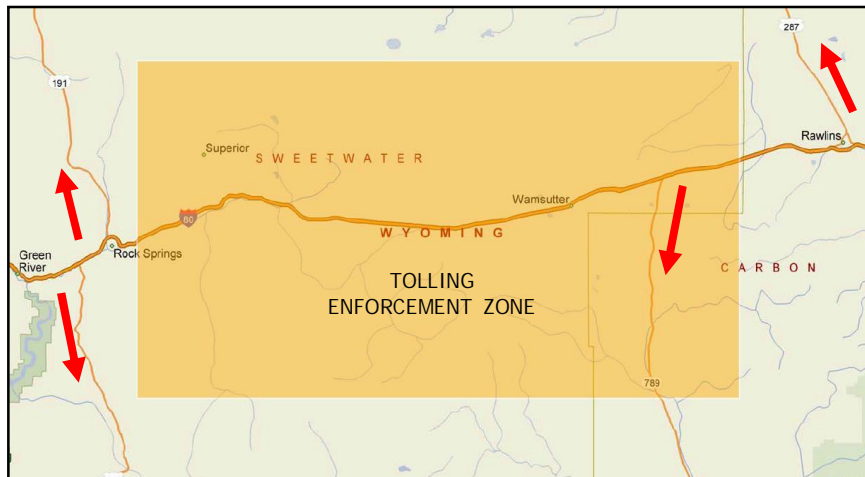
Although there was a slight decline in traffic on I-80 in 2008 and 2009, presumably due to the national economic downturn, traffic on I-80 has increased steadily over the past 30 years. Average traffic counts from the most recent month available (April) showed an 8.2 percent decrease between 2007 and 2008 and an additional 5.5 percent decrease between 2008 and 2009. Average daily traffic (ADT) is expected to total about 12,000 vehicles in 2009, down from 13,400 in 2007.

Consistent with the 30-year trend, traffic growth is expected to return in 2010 and a growth rate averaging 2 percent per year is expected between 2010 and 2030, resulting in an ADT level of 18,400 in 2030. The distribution of traffic between cars and trucks is expected to be maintained at approximately 50/50 with a slightly higher truck growth rate, especially after 2020. This traffic growth trend will increase the need for maintenance funding to rehabilitate the I-80 corridor.

The Tolling Concept Focuses on a Single Tolling Point Along I-80

Several scenarios were studied that vary the tolling approach and the time when tolling would begin (i.e. before or after construction). The Base Case assumption is that the entire length of I-80 in Wyoming would be expanded from two to three lanes in each direction. The Base Case assumes it is built in five segments which would be financed individually at the time construction of each respective segment begins.

Exhibit ES1: Conceptual Tolling Enforcement Zone (Base Case)



Tolling (and debt repayment) would begin at the time each individual segment is completed, but at lower initial toll rates that reflect only the phases of work completed. In 2025, when the project is fully completed, the full toll rate would be collected and the full revenue potential of the facility would be realized.

To minimize costs and geographically segregate the tolling operation from major population centers, the Base Case assumes that a single tolling point in the center of

the State would be used. It would be located somewhere in the span between Rawlins and Rock Springs, which is largely unpopulated. The Base Case incorporates a tolling enforcement zone to reduce or eliminate truck diversion around the tolling point using local roads.

Within this zone, denoted by the orange shaded area in Exhibit ES1, trucks would be restricted to Interstates, US Highways, or certain Wyoming State Routes. These limitations could be imposed by weight restrictions on local roads. While alternative routes will exist, these options are not likely to be considered cost effective by truckers versus paying the toll.

Two project build scenarios with limited capital programs were also reviewed, including a 'no build' scenario where I-80 is not expanded, and a 'safety improvements' scenario where only the safety improvements recommended in a 2008 WYDOT study were built. These scenarios are detailed in Section 9.

Electronic tolling is assumed to be used on the I-80 facility with no manual cash collections at toll booths. This approach is now commonly deployed on new toll facilities, and the technology options are expected to be further advanced by the time the I-80 toll facility could be implemented. Current technologies include transponders, license plate photography, character recognition, vehicle class recognition, and the use of flexible payment options (payment by toll system account, internet, cell phone, rest stop kiosk, or mail). An all-electronic system will reduce the operating cost of the facility by eliminating the need for manned toll booths. It will improve the efficiency of the tolling point by keeping traffic moving at highway speeds and improve safety by eliminating the need for drivers to slow down and change lanes as they approach the tolling point.

Local, State, and Federal Funding Impacts¹

An analysis of impacts to other Federal funding that would likely result from tolling revealed that Federal funding levels, due to certain provisions in the current Federal highway bill (SAFETEA-LU), would remain largely unchanged. Federal funding received by Wyoming for interstate maintenance would no longer be available for use on I-80, but these funds could be used on other interstates in Wyoming or transferred to other roadway funding programs.

State gasoline taxes would be negatively impacted by lower fuel sales resulting from out-of-state toll diversion, and due to the trickle down of these revenues to counties and cities, local budgets would also be impacted. The State would most likely attempt to compensate local governments by supplementing their revenues by the estimated amount lost due to tolling.

PB's analysis of gas tax impacts indicates that, statewide, about \$1 million in gasoline and vehicle fees would be lost in the first year of tolling due to diversion of vehicles to out-of-state routes. This annual loss would grow to \$6.3 million by 2025, equating to a drop of between 4 and 5 percent. In total, the 23 Wyoming counties share 27.5 percent of State gasoline and 20 percent of diesel tax receipts, while municipalities receive 5 percent of diesel and 15 percent of State gasoline taxes. Therefore, county and city allocations would be reduced by approximately \$1.1 and \$0.5 million annually, respectively, in 2025.

State sales tax would decline by \$0.8 million in the first year of tolling operations due to diversion to out-of-state routes. This loss to the State would expand to \$5.2 million in 2025, equating to a 1.2 percent decline. Local general purpose, local specific, and local lodging taxes would also see some declines.

Certain long-term job gains would be dampened due to toll diversion limiting economic growth in the corridor. Over time, 1,700 jobs would be foregone, mainly in industries serving traffic on I-80, including convenience stores, restaurants, vehicle parts suppliers, vehicle repair shops, hotels, trailer parks, and lodging businesses.

During construction, the State could be expected to gain over 4,100 new workers, mainly in the construction and engineering sectors, but also in many other industries, resulting from induced spending by people working directly on the project.

¹ Economic impacts discussed in this section reflect diversion at the revenue maximizing toll rate (Base Case) described below.

Public Outreach

A public information dissemination and collection campaign was held as part of the analysis to provide the public with accurate information about the Study and gather public comments on the tolling concepts. Five public meetings were held in cities and towns across the I-80 corridor in June of 2009, including Cheyenne, Laramie, Rawlins, Rock Springs, and Evanston. Responding to sentiment that northern residents of the State were not easily able to attend the meetings held in the I-80 corridor, two additional meetings were held in July in Casper and Gillette.

The meetings generally consisted of a short presentation on the Study's background and the tolling concepts being evaluated, followed by a question and answer session between WYDOT and Study staff and the meeting attendees. Survey forms and other feedback tools were presented to attendees to maximize the avenues through which people could provide comments and access project information.

The majority of the comments and letters expressed concern over the concept of tolling I-80 and the effects tolling would have on local economies. The most common reasons people cited for being opposed to the tolling concept were:

- o The public is already charged a fuel tax to pay for transportation infrastructure. Charging a toll on I-80 in addition to a fuel tax amounts to double taxation.
- o Interstate maintenance needs should be funded by the Federal government, not by the states.
- o Trucks that use I-80 will not be able to afford a toll and thus will divert to alternate routes.
- o Wyoming residents who use I-80 to travel to work would face undue hardship by paying a toll. This cost should not be borne by individual passenger vehicles, since trucks cause 99 percent of the damage on I-80.
- o Trucks should pay the toll (not passenger vehicles) since they cause most of the roadway damage.
- o The cost of tolls will be passed on to consumers through rising costs of consumer products, imposing an additional cost to Wyoming residents above the cost of the highway itself.
- o Tourism to Wyoming will be severely impacted if a toll is levied on passenger vehicles.

Expansion Concept Cost

The cost to maintain the roadway could easily be covered by toll revenues on a pay-as-you-go basis, though an expansion concept where the roadway would be expanded to three lanes in each direction is also being considered (the Base Case). While congestion is not foreseen to be an issue on I-80, safety will be improved under the expansion scenario. This expansion would necessitate the issuance of toll

revenue bonds to pay for initial construction of the facility.

Exhibit ES2: Current Year (2009) Project Cost Estimate

Pavement	\$ 1,956,400,000	
Structures	\$ 619,000,000	
Earthwork	\$ 107,520,000	
R/W	\$ 115,775,000	
Miscellaneous	\$ 9,315,000	
Sub Total	\$ 2,808,010,000	
Cost Contingency	\$ 140,400,500	5%
Total Construction	\$ 2,948,410,500	
Project Engineering	\$ 294,841,050	10%
Construction Engineering	\$ 294,841,050	10%
Total Project Cost	\$ 3,538,092,600	

A revised cost estimate was calculated as part of the current phase of study, improving an initial cost estimate that was part of the Phase 1 Study. At that time, a very cursory estimate, totaling \$2.1 billion, was made using unit cost inputs from WYDOT for the average costs of highway construction. A more detailed analysis of the corridor was conducted for the current phase of study, using video of the corridor to estimate needs for pavement replacement, earthwork, right of way acquisition, and structures replacement. This more detailed analysis yielded a total project cost of \$3.54 billion as

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illustrated in Exhibit ES2. The project concept contemplated assumes that construction would take place between 2015 and 2025. Escalating this current year cost to the construction period contemplated increases the year of expenditure cost to \$5.96 billion.

Traffic and Revenue

Base Case toll rates, associated traffic, and revenue are shown in Exhibit ES3. Both 2008 and 2025 toll rates are shown, assuming a 2.5 percent annual inflation rate between 2008 and 2025. The Base Case 2025 revenue maximizing toll rate is \$198 per truck and \$19 per passenger vehicle, corresponding to a 2008 toll rate of \$130 for a truck and \$13 for a car. These toll rates would be expected to generate \$493 million in revenues in 2025, the first year of project completion.

In 2008 dollar terms, the Phase 2 toll revenue maximizing rate (\$130) is 12 percent higher than the \$116 rate highlighted as the revenue maximizing rate in the Phase 1 Study. This increase is a result of shifts in underlying revenue and diversion assumptions, including the cost of fuel and certain characteristics of competing routes (for instance, the time to divert around I-80 in Wyoming using I-70 in Colorado was increased due to truck traffic speeds known to be lower on I-70 than previously estimated). At the toll revenue maximizing rate, 32 percent of trucks and 40 percent of cars are expected to divert around the toll facility via a variety of in-state and out-of-state routes.

Exhibit ES3: Base Case Tolloed Truck and Passenger Traffic and Revenue, 2025 (million \$)

Truck						Passenger Car					
2008 Toll Rate	2025 Toll Rate	Diversion	AADTT	AAD Tolloed Trucks	Revenue	2008 Toll Rate	2025 Toll Rate	Diversion	AADT	AAD Tolloed Cars	Revenue
\$30	\$46	4%	8,969	8,969	\$149.4	\$3.0	\$4.56	5%	7,770	7,770	\$12.9
\$40	\$61	9%	8,518	8,518	\$189.2	\$4.0	\$6.09	11%	7,277	7,277	\$16.2
\$50	\$76	13%	8,162	8,162	\$226.6	\$5.0	\$7.61	16%	6,886	6,886	\$19.1
\$60	\$91	18%	7,632	7,632	\$254.3	\$6.0	\$9.13	23%	6,306	6,306	\$21.0
\$70	\$107	23%	7,234	7,234	\$281.2	\$7.0	\$10.65	28%	5,870	5,870	\$22.8
\$80	\$122	27%	6,859	6,859	\$304.8	\$8.0	\$12.17	33%	5,460	5,460	\$24.3
\$90	\$137	29%	6,663	6,663	\$333.0	\$9.0	\$13.69	36%	5,245	5,245	\$26.2
\$100	\$152	31%	6,472	6,472	\$359.5	\$10.0	\$15.22	39%	5,036	5,036	\$28.0
\$110	\$167	31%	6,472	6,472	\$395.4	\$11.0	\$16.74	39%	5,036	5,036	\$30.8
\$120	\$183	32%	6,349	6,349	\$423.1	\$12.0	\$18.26	40%	4,901	4,901	\$32.7
\$130	\$198	32%	6,341	6,341	\$457.8	\$13.0	\$19.78	40%	4,892	4,892	\$35.3
\$140	\$213	36%	5,965	5,965	\$463.8	\$14.0	\$21.30	45%	4,481	4,481	\$34.8
\$150	\$228	44%	5,220	5,220	\$434.9	\$15.0	\$22.82	55%	3,665	3,665	\$30.5
\$160	\$243	45%	5,194	5,194	\$461.5	\$16.0	\$24.35	56%	3,636	3,636	\$32.3
\$170	\$259	45%	5,139	5,139	\$485.2	\$17.0	\$25.87	56%	3,576	3,576	\$33.8
\$180	\$274	51%	4,612	4,612	\$461.1	\$18.0	\$27.39	63%	3,000	3,000	\$30.0
\$190	\$289	57%	4,014	4,014	\$423.6	\$19.0	\$28.91	71%	2,345	2,345	\$24.7
\$200	\$304	58%	3,933	3,933	\$436.9	\$20.0	\$30.43	72%	2,256	2,256	\$25.1
\$210	\$320	61%	3,697	3,697	\$431.2	\$21.0	\$31.95	75%	2,050	2,050	\$23.9
\$220	\$335	64%	3,379	3,379	\$412.9	\$22.0	\$33.48	75%	2,050	2,050	\$25.1
\$230	\$350	80%	1,889	1,889	\$241.3	\$23.0	\$35.00	75%	2,050	2,050	\$26.2
\$240	\$365	81%	1,753	1,753	\$233.7	\$24.0	\$36.52	75%	2,050	2,050	\$27.3

Source: PB Analysis

Toll rates required to support the 'no build' scenario (paying for O&M only) were estimated at between \$30 and \$35 per truck and between \$3.00 and \$3.50 per car. Toll rates required to support the 'safety improvements' scenario (paying for O&M plus \$350 to \$400 million in capital costs) were estimated at between \$45 and \$50 dollars for trucks and between \$4.50 and \$5.00 for cars.

Financial Conclusions

Several toll revenue scenarios and financial options were explored to uncover an approach to paying for the project where bond proceeds from toll revenue bonds exceeded costs (both capital costs and ongoing operations and maintenance costs). While each approach produces a robust bonding capacity in excess of that produced in the Phase 1 Study, the utilization of both Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) financing assistance, as well as some form of State bond enhancement appears to be needed given the current configuration of the project, associated construction costs, and timing.

The Phase 1 Study concluded that the project was financially feasible based on a bonding capacity of approximately \$3.2 billion compared to a year of expenditure project cost of \$2.8 billion. Upward revisions to the cost estimate (from \$2.2 billion to \$3.5 billion in 2009 dollar terms) and delaying the

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project from a 2010 start to a 2015 start resulted in the year of expenditure cost increasing to nearly \$6.0 billion, more than double that which was previously estimated. While the revenue forecasts increased, the traffic and resulting revenue growth rates were not high enough to balance out cost increases and escalation.

Exhibit ES4 shows the debt service coverage assumptions used in the Base Case and variations based on the above described alternative financing options developed for this analysis. The bonding capacity for each scenario was compared to the overall escalated project cost of \$5,956.6 million to determine the financial feasibility of the project under each scenario.

Exhibit ES4: Financial Feasibility Scenario Assumptions and Bonding Capacity

Scenario	Overall Coverage Requirement	Bonding Capacity	Project Surplus / (Shortfall)
Base Case	2.0x	\$3,379.6M	(\$2,577.0)M
Base Case with TIFIA	1.67x	\$3,796.2M	(\$2,160.5)M
State Backstop	1.75x	\$4,237.5M	(\$1,719.2)M
State Backstop with TIFIA	1.42x	\$5,595.5M	(\$361.2)M

The exhibit shows that using certain financial tools (backstopping and the TIFIA program), the project is very close to financially feasible. The \$361 million shortfall that remains under the last scenario is substantial on its own but represents only a 6 percent funding gap when compared to the total project cost. The operating and financial models used to develop these estimates are very sensitive and this shortfall could change due to small shifts in costs, revenues, interest rates, required coverage, or other factors that must be monitored and re-estimated in the future if tolling is pursued.

The gap in the Base Case project could be eliminated through value engineering, phasing of the project, accelerating the project, or through a State lending program which could eliminate \$200 to \$300 million in interest costs alone. Alternatively, the size and scope of the capital expansion and safety improvement aspects of the project could be reduced such that they are more easily attainable with a lower toll rate structure that is more amenable to the traveling public and requires less outside credit enhancement.

Introduction

1.1 Consulting Engagement

In the fall of 2008, PB completed a Phase 1 tolling study for WYDOT, examining the feasibility of tolling I-80. This study looked at the functional and financial aspects of the facility within a conceptual framework and provided an overview of organizational issues including public-private partnership approaches and common structures of public organizations operating toll roads in the U.S. The study results and conclusions were captured in a report titled "Interstate-80 Tolling Feasibility Study," dated October 1, 2008, which was presented to the Joint Interim Transportation, Highways and Military Affairs Committee of the Wyoming State Legislature at its October 2008 meeting. The main findings from the Phase 1 study were:

1. Tolling of cars and trucks on I-80 appears to generate enough revenue to repay approximately \$3.0 billion in bonds that could be issued to make improvements to the roadway, including widening the road to 3 lanes and maintaining the roadway in perpetuity without Federal assistance.
2. In order to impose tolls on I-80, WYDOT would need to apply for Federal approval to toll on an existing, free interstate under one of the Federal interstate tolling pilot programs. The two programs most likely to accommodate the proposed tolling approach are the Interstate Reconstruction and Rehabilitation Pilot and the Express Lanes Pilot.
3. The State of Wyoming currently does not have laws to guide the creation of a tolling authority or the operation of a facility. Legislation would need to be drafted and put into law prior to any tolling approach being implemented on I-80.
4. Additional analysis of the project concept is required to better understand the potential cost of the roadway improvements and ongoing operation, the revenue potential and financial feasibility of the project, and the potential impacts to the State from imposing tolls on I-80.

This Phase 2 study was requested by the Wyoming Legislature as a continuation of the Phase 1 work. The goal of Phase 2 is to refine portions of the analysis performed in Phase 1, conduct scenario analysis, present the project to the public, and provide additional information on tolling technology that could be used to implement the project. The specific scope items of the Phase 2 study and abridged descriptions for each are listed in the following bullets:

1. Refine the roadway concept: Improve the description and cost estimate of the roadway improvement (specifically the addition of one lane in each direction) and identify safety improvements that expansion and tolling may provide.
2. Refine the tolling concept: Analyze staging for tolling implementation and review the number and location of tolling points needed to optimize revenue while minimizing operations costs and inconvenience to the public.
3. Fiscal and other impacts analysis: Assess the impacts to Federal and State tax revenues and costs that could arise from tolling.
4. Federal funding impacts: Quantify and outline changes to Federal interstate maintenance funding received by the State and potential impacts to other Federal highway funding allocations under a tolling scenario.
5. Refine financing scenarios: Review all financing assumptions in light of the current economic downturn and revisions to credit criteria that will impact the project if financed.
6. Public outreach: Present tolling concepts, including information gathered in the first phase of study, to the public through outreach and educational meetings.

7. Review of tolling technology: Provide information on the most recent developments in tolling technology and potential implementation strategies for using these technologies on I-80, especially as they pertain to trucks, through-traffic, and possible interfacing with ports of entry and gasoline use tracking systems.

1.2 Phase 2 Methodology

The Phase 2 study is being carried out by the same team that performed Phase 1, with some additional support from technical experts in highway design, construction economics and tolling technology. The team has solicited input and validation from WYDOT, FHWA, and other PB technical experts whenever possible to maintain reasonableness in all assumptions despite some inferences and estimates being unavoidable.

1.3 Corridor Description

The I-80 corridor in Wyoming is approximately 400 miles long, and spans the entire length of the State from its eastern border with Nebraska to its western border with Utah. The Interstate passes through some of the State's largest cities including Cheyenne, Laramie, and Rock Springs and crosses the North Platte and Green rivers. Exhibits 1a and 1b present I-80 eastern and western section maps, together accounting for the entire 400-mile corridor.

Exhibit 1a: Interstate 80 Corridor Map (Eastern Section)

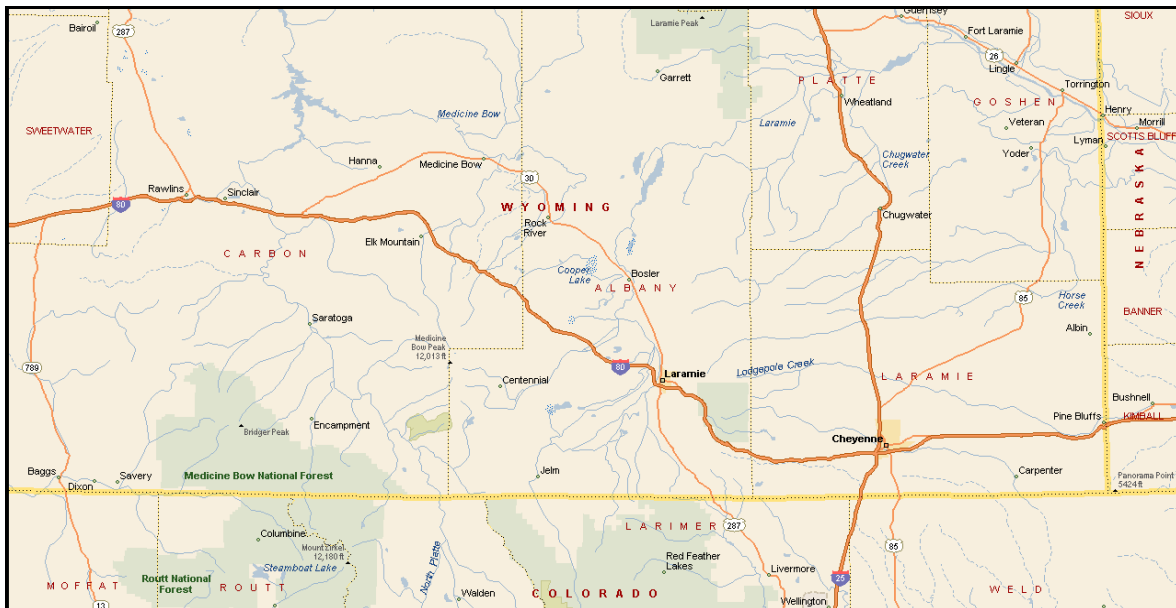


Exhibit 1b: Interstate 80 Corridor Map (Western Section)



The I-80 freeway is a key component of Wyoming's principal arterial system. The terrain of the I-80 corridor varies from rolling to mountainous. The typical lane configuration is a rural four lane divided highway, with an occasional third lane on steeper grades serving as a climbing lane to otherwise accommodate the speed differential between truck and car traffic.

The posted speed for the I-80 corridor is generally 75 miles per hour. The posted speed is reduced during certain times of the year due to environmental conditions. The corridor is a full access controlled facility. Access is controlled with interchanges located at collector roads, minor arterials and principal arterials such as US and State Highways and Interstate 25 (I-25).

Corridor Performance and Traffic

WYDOT provided actual historic traffic data by segment for the entire span of I-80 in Wyoming which was analyzed in depth as part of the Phase 1 study. Traffic levels vary by highway segment, ranging in average daily traffic (ADT) from approximately 21,000 vehicles to 8,000 vehicles per day (both directions). The facility averaged 6,460 vehicles per day among all 216 eastbound and westbound segments in 2007, for an annual average bi-directional total of 12,920 vehicles per day.

Exhibit 2 presents historical traffic data for I-80. Traffic in the I-80 corridor (on an average per segment basis) has increased from approximately 3,680 total vehicles per day in 1970 to 13,390 vehicles per day in 2007, an average annual growth rate of 3.5 percent. During the same time period, heavy trucks' representation in this total increased from 20 to 49 percent, growing annually at a rate of 6.0 percent.

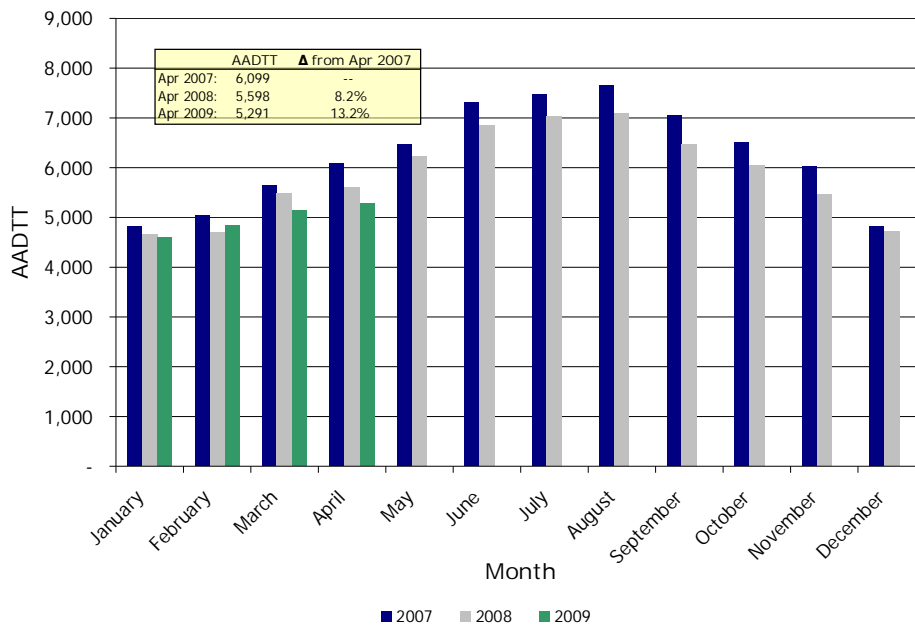
Exhibit 2: Historical Traffic Data for I-80
(average per segment data shown)

Traffic	1970	1980	1990	2000	2007
Cars	2,935	3,962	4,842	5,764	6,805
Trucks	747	2,482	3,257	6,170	6,588
Total	3,682	6,444	8,099	11,934	13,393
Percent of Total					
Cars	80%	61%	60%	48%	51%
Trucks	20%	39%	40%	52%	49%
Total	100%	100%	100%	100%	100%
Growth					
10-year Increment		1970-1980	1980-1990	1990-2000	2000-2007
Cars		1,027	880	922	1,041
Trucks		1,735	775	2,913	418
Total		2,762	1,655	3,835	1,459
Percent Growth					
Cars		3%	2%	2%	2%
Trucks		13%	3%	7%	1%
Total		6%	2%	4%	2%

Source: WYDOT, FHWA, PB Analysis.

However, due to the effects of the recent economic downturn on global production and trade, I-80 truck traffic has declined markedly since 2007 and continues to worsen. The latest average truck counts from April 2009 show a 13.2 percent absolute decline from April 2007 levels. In addition, truck traffic counts from April 2009 were the lowest April recording since 2003.

Exhibit 3: Monthly I-80 Truck Traffic Counts, January 2007 through April 2009



Source: WYDOT, PB Analysis.

This pattern is also matched in passenger traffic, as car volumes on I-80 have fallen 13.7 percent in absolute terms from April 2007 to April 2009.

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In 2009, it is expected that both truck and passenger vehicle traffic will decline from 2008 levels as the economic contraction continues through the fourth quarter. The economy is expected to stabilize in 2010, with economic production and trade forecast to reach positive growth. Truck and passenger volumes on I-80 are projected to expand 3.5 and 2.8 percent, respectively.

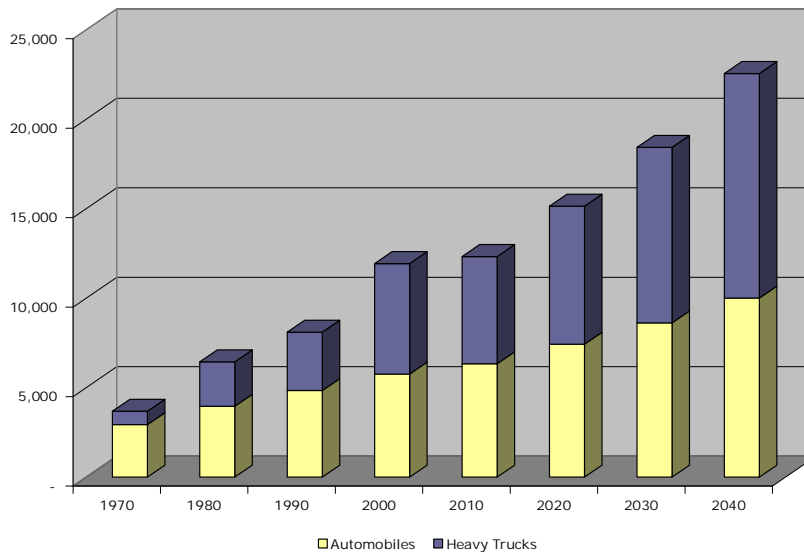
Once the economy fully recovers from the current downturn by 2015, it is expected that truck traffic will continue to steadily rise each year on I-80, though at a slower pace relative to past trends. Future US GDP growth is expected to slow relative to its long-term average, which will likely limit truck growth on I-80 to approximately 2.5 percent per year, a substantial decrease from past growth rates. Therefore, it is expected that the truck share of total traffic will rise more slowly throughout the forecast period relative to the past, reaching 56 percent of total traffic by 2040.

Exhibit 4: Forecast Traffic Data for I-80
(average per segment data shown)

Traffic	2007	2008	2009	2010	2015	2020	2030	2040
Cars	6,805	6,549	6,163	6,333	6,904	7,429	8,621	10,005
Trucks	6,588	6,175	5,792	5,993	6,852	7,713	9,808	12,548
Total	13,393	12,724	11,955	12,327	13,756	15,142	18,429	22,554
Percent of Total								
Cars	51%	51%	52%	51%	50%	49%	47%	44%
Trucks	49%	49%	48%	49%	50%	51%	53%	56%
Total	100%	100%	100%	100%	100%	100%	100%	100%
Growth								
Increment	2000-2007	2007-2008	2008-2009	2009-2010	2010-2015	2015-2020	2020-2030	2030-2040
Cars	1,041	(256)	(386)	170	570	525	1,193	1,384
Trucks	418	(413)	(383)	201	859	861	2,095	2,740
Total	1,459	(669)	(769)	372	1,429	1,386	3,288	4,124
Percent Growth								
Cars	2.4%	-3.8%	-5.9%	2.8%	1.7%	1.5%	1.5%	1.5%
Trucks	0.9%	-6.3%	-6.2%	3.5%	2.7%	2.4%	2.4%	2.5%
Total	2%	-5%	-6%	3%	2%	2%	2%	2%

Source: WYDOT, PB Analysis.

Exhibit 5: Historical and Forecast Traffic Data for I-80



Source: WYDOT, PB Analysis.

It has been well documented that heavy trucks contribute far more damage to a roadway than passenger cars. Using AASHTO design guide data, WYDOT staff calculated that one fully loaded 80,000 pound truck inflicts the same amount of damage to a roadway as 4,000 passenger vehicles. Restated, the roadway damage caused by the above noted 6,440 heavy trucks on I-80 equates to that of another 26 million passenger vehicles on the roadway per day. Clearly, due to the high level of truck traffic, I-80 has a disproportionately large maintenance cost burden to shoulder. Given that the vast majority of trucks on I-80 represent through trips with origins and destinations outside of the State, it is reasonable that Wyoming would evaluate means to collect additional revenue from these Interstate users to account for their share of roadway damage and related maintenance costs.

Average congestion levels on I-80 are low compared to many Interstates due to the relatively small population centers served within Wyoming. Despite the fact that the proportion of trucks is much higher on I-80 in Wyoming than most other Interstates, time delays due to congestion, even in the most populated areas near Laramie and Cheyenne, are not common. The Transportation Research Board (TRB) outlines standards for congestion on all types of roadways and ranks the roadways "level of service" (LOS) based on performance measures such as density of traffic, flow rate and speed, ranging from LOS A (best: free-flow) to LOS E (worst: traffic flow breakdown).

LOS A for a basic two-lane freeway is generally achieved at a flow rate of 820 vehicles (passenger cars / hour / lane) or less for a 75 mph speed limit segment. The corresponding LOS E flow rate would be 2,400 vehicles or more. The PB Team calculated the average flow rate on the I-80 freeway for 2007 using traffic data provided by WYDOT and applying the TRB methodology. Using a truck-to-passenger car equivalency factor of 2.5, an average flow rate of 570 vehicles was calculated, putting I-80 within the LOS A category, indicating that free-flow traffic at posted speeds is normal². On a per segment basis, the flow rate ranged from a high of 930 vehicles to a low of 385 vehicles with the highest congestion levels being witnessed in the Green River area.

The LOS on I-80 in 2037 was calculated as LOS C, with an average flow rate of 1,206 vehicles. While this level of traffic is substantially higher than today, it does not present a dire need for capacity expansion. The lack of congestion on I-80 will, as outlined in the following section, make several tolling approaches that include capacity expansion less applicable.

² The LOS calculation was not refined to a time-of-day level of detail. WYDOT indicated that traffic congestion was very infrequent, even in the peak direction during the peak hour in the most populated areas of Laramie and Cheyenne.

2 The Roadway Concept

The Phase 1 Study looked only briefly at roadway capital costs, providing a very high level estimate of the Project's cost under various scenarios. The Phase 1 Study suggested that expanding the roadway to three lanes in each direction would cost approximately \$2.1 billion in 2009 dollars, with a total estimated year of expenditure cost of \$2.8 billion assuming a 10-year build beginning in 2010 and 5 percent escalation per annum.

As part of the Phase 2 Study, a more detailed cost analysis was performed. Actual road conditions were examined using video data recorded by WYDOT in August and September of 2008 for the entire length of I-80 in Wyoming, both east and west-bound. In conjunction with additional data provided by WYDOT, including pavement age, material, lane configurations, and median widths, the corridor was organized into discrete segments to refine the construction costs. A Base Case scenario cost estimate was then developed, consisting of expanding the roadway to three lanes in each direction and rebuilding portions of the existing roadway that will be in need of rehabilitation.

2.1 Costing Methodology

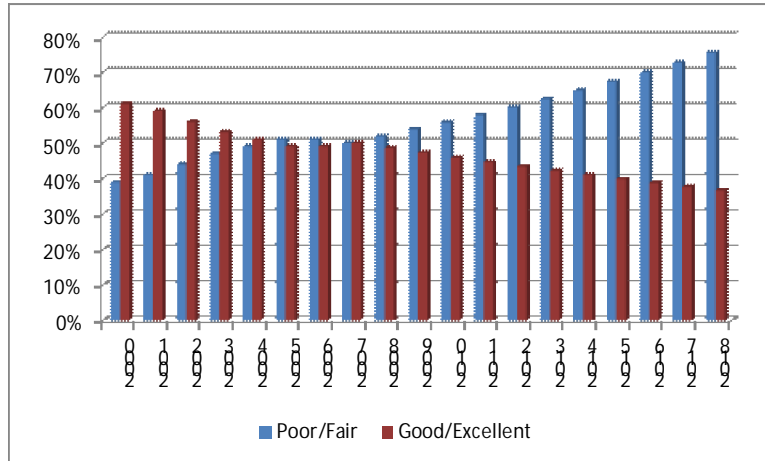
This analysis was performed by, first, dividing the roadway into segments. The segments vary in length, from as short as 3 miles to as long as 75 miles, and were formed primarily based on major changes in the roadway material and/or condition, the existing right-of-way width, or the need for large amounts of cut or fill material.

WYDOT provided initial per-mile construction costs for six different proposed typical sections. The six typical sections offered were alternatives for improvements ranging from simple overlays and/or widening for existing pavement in good condition, to full-depth / full-width reconstruction for existing pavement in need of replacement. The initial cost estimates ranged from \$1.7 million per mile of roadway to \$3.8 million per mile of roadway.

Using the collection of segments from the visual analysis, a cost for pavement reconstruction / rehabilitation per mile for each segment was developed based on the condition of the existing roadway and the typical section expected to be used for the pavement in that given segment. In the analysis, PB used the per-mile cost estimates from WYDOT, applied appropriately to the differing levels of existing pavement conditions.

Exhibit 6 shows the breakdown of historical pavement conditions along the corridor based WYDOT analysis of good / excellent vs. poor / fair pavement. The exhibit shows that currently, about half of the pavement is in good or excellent condition. Upon extending the trends that occurred between 2000 and 2008, the exhibit shows that a significant majority of the roadway will fall into the poor / fair category within ten years.

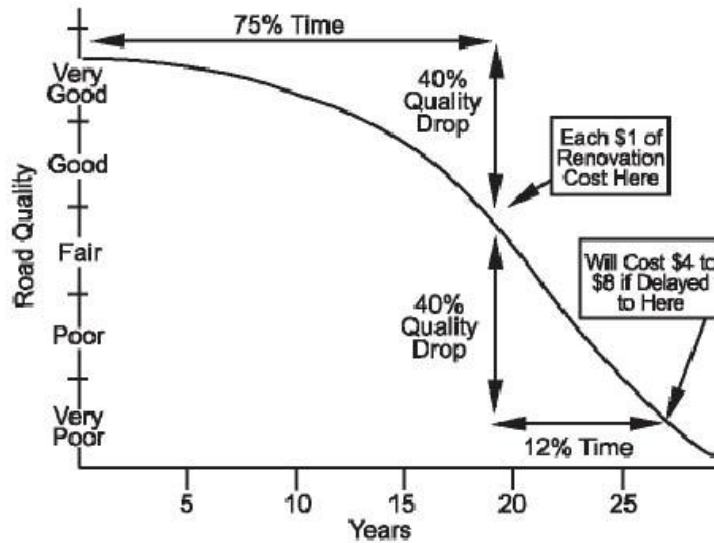
Exhibit 6: Historical and Future Pavement Conditions, 2000 to 2018



Source: WYDOT, PB Analysis

An independent analysis conducted by WYDOT and presented in their FY 2009 Operating Budget Presentation showed similar results.³ Under current funding levels, the State's highways will continue to see increased rates of pavement degradation and it is possible that in another 10 years, 70 to 80 percent of I-80 will fall into fair to poor condition. Exhibit 7, included in WYDOT's Operating Budget presentation for FY 2009, shows the relationship between pavement quality and time, illustrating the expected increase in cost of construction as I-80 ages. Timely maintenance is the key to getting the maximum life from pavements. For every dollar not spent on timely preventive maintenance, \$4 to \$8 will be needed for complete reconstruction a few years later.

Exhibit 7: Pavement Deterioration vs. Time



Source: WYDOT

A critical step in determining the project's construction cost is the expected condition of the pavement at the time of construction. The Phase 2 Study assumes a 10-year build timeframe beginning in 2015. Between now and then the existing pavement can be expected to degrade in a fashion similar to the illustration in Exhibit 6, above.

³ <http://dot.state.wy.us/wydot/administration/budget>

In addition to pavement condition and type, the video data obtained from WYDOT provided insight into the number, type, and size of many structures along the corridor, as well as possible locations requiring additional structures or retaining walls. It is envisioned that some structures could be modified to accommodate the additional lanes, while others would need to be replaced. Finally, the corridor was examined to determine areas where right-of-way will likely need to be acquired to accommodate the roadway widening, as well as locations of significant fill or excavation.

2.2 Capital Cost Estimate

All of these major work items were combined into a matrix based on the roadway segments discussed above. Assumed unit costs were applied for each type of work (pavement, structures, right-of-way, and earthwork), and the costs were totaled and averaged over each segment's length to generate a total estimated cost as well as an average per-mile cost for each segment of the corridor. The estimated total current year cost of the project is approximately \$3.5 billion (2009 dollars), including 5 percent contingency, 10 percent Project Engineering, and 10 percent Construction Engineering costs. Exhibit 8 shows the aggregated cost for each major portion of the construction cost estimate in 2009 dollar terms along with soft costs for project engineering.

Exhibit 8: Current Year (2009) Project Cost Estimate

Pavement	\$	1,956,400,000	
Structures	\$	619,000,000	
Earthwork	\$	107,520,000	
R/W	\$	115,775,000	
Miscellaneous	\$	9,315,000	
Sub Total	\$	2,808,010,000	
Cost Contingency	\$	140,400,500	5%
Total Construction	\$	2,948,410,500	
Project Engineering	\$	294,841,050	10%
Construction Engineering	\$	294,841,050	10%
Total Project Cost	\$	3,538,092,600	

Source: PB Analysis

The current approach for project implementation is an accelerated schedule where construction would begin in 2015 and go on for 10 years such that five toll revenue bond issues would fund the project through completion in 2025. Escalating this cost to year of expenditure dollars yields a total cost of \$5.96 billion as noted in Exhibit 9, assuming an equal annual spend of 10 percent of the total cost each year between 2015 and 2025.

Exhibit 9: Total Year of Expenditure Project Cost

2009 Cost:	\$	3,538,092,600
2015 Cost:	\$	4,741,382,000
2015 Year Cost:	\$	474,138,000
2016 Year Cost:	\$	497,845,000
2017 Year Cost:	\$	522,737,000
2018 Year Cost:	\$	548,874,000
2019 Year Cost:	\$	576,318,000
2020 Year Cost:	\$	605,134,000
2021 Year Cost:	\$	635,391,000
2022 Year Cost:	\$	667,161,000
2023 Year Cost:	\$	700,519,000
2024 Year Cost:	\$	735,545,000
TOTAL YOE COST	\$	5,963,662,000

Source: PB Analysis

2.3 Safety Improvements

Tolling under the Base Case expansion scenario is expected to provide enhancements in roadway performance and reliability, and will also enhance the overall safety of I-80 in Wyoming. According to WYDOT statistics, traffic safety has declined over the past five years on I-80 and statewide. Between 2004 and 2008 the number of crashes on I-80 increased from 1,778 to 2,414 with crashes involving heavy trucks increasing from 735 to 1,243. The increasing frequency of crashes reflects higher traffic volumes but the rate of crashes per million vehicle-miles traveled increased by 25% during this time period confirming the decline in safety.

Widening I-80 to three lanes in each direction will enhance safety in the following ways:

- **Traffic flow relief:** While traffic congestion is not a major issue on I-80 in Wyoming, certain areas, especially inclines, can become congested when heavy trucks are forced to slow down to climb hills. A third lane will provide more passing capacity for cars and trucks so that these areas do not become congested.
- **Increased Highway Patrol presence:** There are 72 Wyoming Highway Patrol troopers assigned to I-80 today. This equals about one patrol for every 11 miles of directional interstate. The Base Case operating budget has \$2.2 million budgeted annually for additional Highway Patrol funding to enforce toll payment and maintain the safety of the roadway. This additional police presence, amounting to approximately 20 additional officers, will help keep highway speeds at safe levels and result in lower response times to incidents on the roadway. The 20 WYDOT courtesy patrols budgeted for in the Base Case will also assist with incident response.
- **Emergency vehicle access:** In the case of an emergency incident, traffic can back up on the highway quickly and block emergency vehicle access to the scene. Under a scenario where three lanes are available, there is a lower probability that emergency personnel will be blocked from immediately reaching the incident because more room will be available for other vehicles to move aside.
- **Construction:** Roadway maintenance and rehabilitation projects are a reality that cannot be avoided and when these projects take place there are times when traffic must be shifted to the other side of the highway to face oncoming vehicles separated by a movable barrier. This creates a dangerous situation because the margin of error for drivers is greatly reduced. If there were three lanes in each direction, there would be fewer construction projects requiring traffic to share one side of the interstate with oncoming traffic, thus improving safety and maintaining traffic flow in both directions.

Aside from potential general safety improvements from widening the roadway, WYDOT performed a study in 2008 to identify specific capital improvements needed on I-80 that would enhance safety.⁴ These improvements included adding truck passing lanes in certain areas, building snow fences, and adding variable message and speed limit signs, among other things. The total cost of these improvements has been estimated at between \$350 and \$400 million in year of expenditure dollars. Section 9.3 further discusses this 'safety improvements' scenario as a build option and the associated toll rates required to cover the costs of these improvements.

⁴ "Recommended Interstate 80 Safety Improvements to Reduce Fatal and Serious Injury Crashes," August 1, 2008, Wyoming Department of Transportation.

3 The Tolling Concept

Despite its 400-mile length, I-80 in Wyoming is a somewhat simple roadway from a traffic analysis perspective due to the relatively few access points and small local populations being served. On a national scale, Wyoming and neighboring states form a 'bridge' allowing truck traffic to flow between west coast port cities and the Midwest. I-80 provides access to other perpendicular highways in Wyoming including I-25, US 287, US 191, and US 189 which lead to northern and central parts of the State, but the majority of truck traffic on I-80 is part of a larger east-west trip.

On a local level, I-80 provides connections between several more heavily populated areas, including Evanston, Green River, Rock Springs, Rawlins, Laramie, and Cheyenne. Despite being spread out along the Corridor, daily commutes do occur between these places. Current passenger traffic is generally light and is not expected to grow to congested levels in the foreseeable future. Due to the high proportion of truck traffic on I-80 and the rolling terrain, instances of temporarily slowed traffic commonly occur when trucks occupy both lanes going up an incline. This does not constitute congestion in the traditional sense, but does have a light impact on the flow of traffic in certain portions of the Corridor.

Given the relatively light level of traffic and high proportion of through truck traffic, there are several tolling approaches that could be tested on I-80 to maximize revenue or target specific vehicle classes or trip types. Generally, the more tolling points there are along the roadway, the more trips there are to collect tolls from, though at a higher cost of operations and up-front capital investment in tolling equipment. Approaches that target a certain segment of vehicles traveling on the roadway can be achieved by varying the locations of tolling points or toll rates.

The intent of this report section is to suggest cost-effective and efficient tolling technology and approaches that can be deployed to focus on the I-80 user groups that cause most of the roadway damage, mainly cross-state trucking operations.

3.1 Tolling Point Locations

To minimize costs, and to geographically segregate the tolling operation from major population centers, the Base Case assumes that a single tolling point in the center of the State would be used. It would be located somewhere in the middle of the span between Rawlins and Rock Springs, which is largely unpopulated. The Base Case incorporates a tolling enforcement zone to reduce or eliminate truck diversion around the tolling point using local roads.

Within this zone, denoted by the orange shaded area in Exhibit 10, trucks would be restricted to Interstates, US Highways or Wyoming State Routes. These limitations could be imposed by weight restrictions on local roads and/or a WYDOT administered program where trucks used for local business in the restricted areas would be required to apply for and post (in a visible area on the truck) a special permit to drive on local roads within the tolling

Exhibit 10: Conceptual Tolling Enforcement Zone (Base Case)



enforcement zone.

Such a program would allow trucks to divert around the tolling point using either US 191 if coming from the west or either US 287 or WY 789 if coming from the east (red arrows). These diversion options are not likely to be considered cost effective by truckers, especially in winter months when these roads could be much more treacherous than I-80. However, this option would be available for truck drivers who preferred not to pay the toll, and this approach would keep truckers from diverting around the tolling point by using local roads.

Additional enforcement by State Highway Patrol would be required to manage the tolling enforcement zone. The Base Case operating budget includes funding for additional State Highway Patrol officers who would be hired to enforce toll payment and improve overall safety on the facility. Approximately 20 additional full time officers have been budgeted for in the Base Case in addition to 20 courtesy patrols who will assist in responding to incidents on the roadway.

The tolling enforcement zone approach developed as part of the Base Case is not expected to be effective in keeping passenger cars from diverting around the tolling point by using local roads. However, passenger cars traveling long distances to or from out-of-state, would not likely know an efficient route by which to divert around the tolling point. Further, in keeping with the spirit of the tolling approach goals (capturing tolls from truck and other out-of-state traffic), such diversion would not severely impact revenues. Even if a large percentage of cars were to divert around the tolling point, there would be a relatively small impact on the combined truck and passenger car revenue stream because the passenger car toll rate has been intentionally set low.

The Base Case tolling approach continues to be a viable option for tolling on I-80, but two other scenarios have been developed in an attempt to increase revenues, more equitably collect tolls based on trip lengths, and possibly take advantage of existing technology and infrastructure at Ports of Entry, thereby lowering certain up-front costs. The two scenarios evaluated are as follows. These are evaluated in more detail below.

- 1) Alternate 1: Tolling points at I-80 ports of entry only (westbound in Cheyenne and eastbound in Evanston) – This scenario would target all through trips on I-80 and all incoming or import traffic. Truck trips that carry imports to the State and may divert before they get to the Base Case tolling point, either by using I-25 or US 287 westbound or by using US 189 or US 191 eastbound to reach their final destinations, would be tolled in this Scenario if they entered the State via I-80.
- 2) Alternate 2: Tolling points at I-80 ports of entry (westbound in Cheyenne and eastbound in Evanston) and mid-point tolling on I-80 through Wyoming – This scenario combines the Base Case and Scenario 1, attempting to capture all through and import trips, as well as export trips that pass through the Base Case tolling location on I-80.

3.2 Tolling Technology

With recent advancements in toll collection technology, stopping or slowing down for the purpose of paying tolls with cash is quickly becoming obsolete and most new toll facilities are being implemented as cashless facilities. Various Electronic Toll Collection (ETC) methods have been used and are being developed to facilitate this transition from manual or “stop-pay-go” tolling to tolling at free-flow speeds. ETC is safer, as it does not require vehicles to slow down or change lanes, and provides for more efficient transportation movement. This section explores some of the technologies that could be viable for I-80 as well as potential tie-ins to other Intelligent Transportation System (ITS) deployments.

Electronic toll collection technology is evolving and significant improvements in the form and viability of current technologies are expected prior to implementation of any toll approach in Wyoming. There are various operational and technological factors that play a role in determining the most viable and cost effective toll collection method for a given facility, including:

- o Congestion levels

- Peak versus non-peak toll rate variability
- Vehicle class toll rate differentiation
- Availability of infrastructure

The following sections explore some existing and emerging toll technologies that were reviewed in order to determine the most suitable option for toll implementation on I-80.

Electronic Toll Collection Technologies in Practice

Electronic toll collection has many advantages over manual collection systems in terms of better traffic flow, increased time savings, higher fuel economy, less congestion and related environmental damage, and driver safety. In addition, a significant portion of the initial and ongoing costs associated with the electronic systems are offset by the reduced manpower requirement as compared to a manual cash collection system.

There are three main components of electronic toll systems. These components can meet the goals of most tolling approaches but the combination depends on the required flexibility and other factors listed above. The three components are:

- Automatic Vehicle Identification (AVI) can be accomplished through vehicle-to-roadside communication (transponders), or through license plate recognition.
- Automatic Vehicle Classification (AVC) is part of vehicle recognition. AVC technologies installed on the roadway can determine a vehicle's class by its physical attributes (number of axles, number of trailers, etc.). Typically, overhead sensors, treadles, or loops are used to determine the vehicle class⁵.
- Video Tolling / Enforcement Systems (VES) can be used in combination with AVI and AVC as a means for enforcing violation protection or as an alternative "pay-by-plate" option for drivers not purchasing transponders. It can also be used as a standalone system or in conjunction with a self-reporting system where drivers self-report by paying the toll charges by phoning into the toll service center, paying via the internet, or paying by cash or credit at kiosks located at roadway rest stops.

A discussion on some of the mature tolling technologies that fall into these broad groups follows.

Vehicle to Roadside Communication (Transponders): Transponders have become one of the most common forms of toll collection technology. A Radio-Frequency Identification (RFID) chip is embedded in a unit called the electronic tag (transponder), which is typically mounted on the windshield of the vehicle. This tag communicates with the roadside reader, usually mounted on a gantry, to identify vehicle ownership. Upon establishing ownership, toll cost can be deducted from the corresponding account. The system also has the capability of alerting for tag mis-reads and violations, however, for violations enforcement (beyond billing through the mail) automatic license plate recognition technology or highway patrol would be needed.

Transponders are generally classified according to power source. At the ends of the continuum of transponder types, there are active and passive transponders with semi-active and semi-passive transponders combining features of each.

- Active tags usually have "read" as well as "write" capabilities, i.e. they can transmit as well as store information (such as the last time the transponder was read etc.). They are, however, more expensive and physically larger, as they need circuitry and a battery to operate.

⁵ Treadles and Loops are vehicle detecting / classifying devices embedded in the toll lane. Loops are used to detect an approaching vehicle to alert the collection system of an impending transaction while treadles count axles of vehicles passing over them, hence assisting with vehicle classification.

- Passive tags do not use an internal power source, are less expensive, and more compact, but can store only a small amount of data. They are also available in the form of windshield sticker tags, often used in tolling pilot programs to test concepts prior to full deployment.

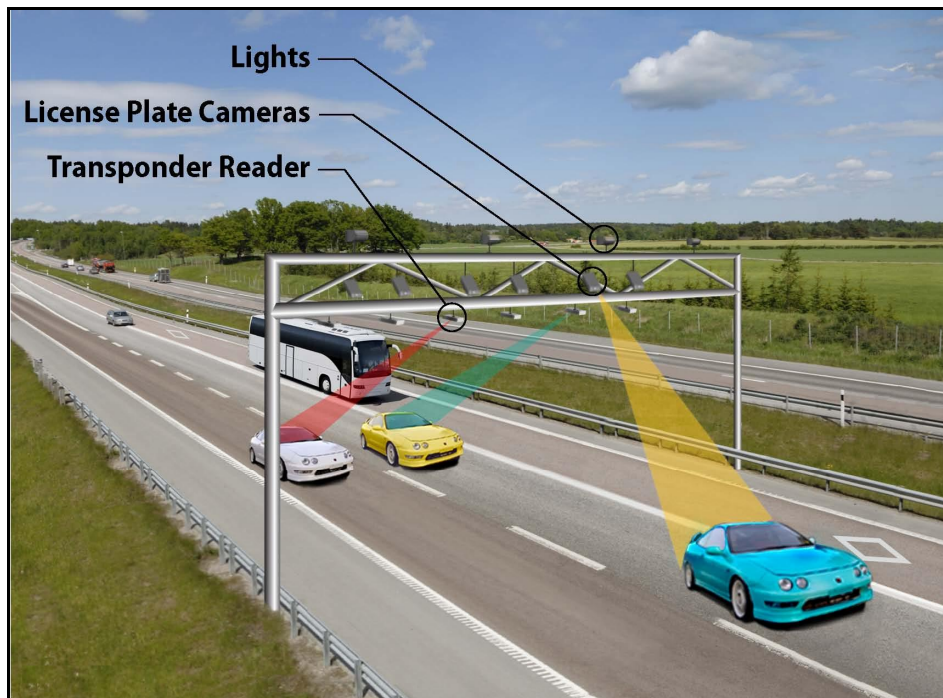
In certain states, policy considerations have suggested that vehicles that generate reduced emissions should pay reduced tolls. While discounting tolls for low emission vehicles is no longer the trend (due to the proliferation of such vehicles), this use of RFID transponders can easily be applied to other segments of toll road users, such as senior citizens, students, or local residents to the area where a tolling point is located. Transponders that charge variable (lower) rates commonly address inequity issues that can occur when tolling roads that do not have viable alternative routes.

If a driver passes under a tolling point without a valid transponder read, then one of the following could occur:

- A “Pay-by-Plate” transaction is initiated based on license plate recognition (use of video tolling is explained further below), or
- The registered owner of the vehicle is identified using license plate recognition from their license plate and sent a bill by mail for the toll plus collection charges, or
- Police waiting after the tolling point could be notified electronically of the mis-read and manually enforce toll collection by pulling vehicles over, or
- No further action is taken due to an illegible license plate image and inability to enforce the toll.

In situations where a license plate is recognized but the customer does not initiate payment on their own, additional collection costs are usually incurred to cover the costs of sending invoices, sending notices of infraction, and handling the appeal processes, among other transactional expenses. These additional costs are usually passed on to the violator in the form of fees. A typical gantry system containing transponder and video collection technologies is illustrated in Exhibit 11.

Exhibit 11: Electronic Toll Collection Transponder Detection Apparatus



Video Tolling: Video tolling, also known as license plate identification / recognition, captures license plate images as vehicles cross the tolling point. Overhead cameras mounted on gantries take a picture of the license plate as vehicles pass under, and Optical Character Recognition (OCR) software is used to read a picture of the plate. Used in conjunction with an ETC system, it can help to identify violators, i.e. vehicles that do not have a valid transponder or account and tag mis-reads. Additional collection efforts with related charges similar to those discussed above could be imposed.

In Toronto, 407ETR employs a sophisticated electronic toll collection system where tolls are based on the distance travelled, using a combination of transponders and video enforcement. Two types of transponders are in use – one for regular vehicles and the other for vehicles over five tons. Transponders are a property of 407ETR and are leased to drivers for a small fee.

There are examples where video tolling has been used exclusively as a means of enforcing electronic toll collection. The London congestion charging program is such an example where closed circuit television (CCTV) style cameras are used to monitor vehicles driving into a pre-determined zone in the city center. Drivers entering or driving within the congestion zone may self-report and pay either on the web, through an SMS text message, by phone, or in person at designated pay stations, retail stores, or postal stations. Payment through the internet and at retail stores have been the most popular modes of payment, with web payment being the most frequent mode since 2005.⁶

There are shortcomings of the license plate recognition technology, primarily centered around capturing readable plates. Various factors such as image resolution, vehicle speeds, lighting, and non-standard plates can have an impact on the plate read rate. Some of these shortcomings have been overcome by technological advancements. Notable among them is the 3-dimensional license plate read system TollChecker used on German highways. This system works in conjunction with Global Positioning System (GPS) and Dedicated Short Range Communication (DSRC) to read license plates regardless of lane changes and speed of vehicles. TollChecker also identifies the class of the vehicle and ascertains whether it has to pay a toll and whether it has paid the correct toll.

In-road Sensors embedded in the road surface can determine the presence of a vehicle and register an axle count as a vehicle passes over them. Traffic Control and Reporting System (TRAC) is an example of state-of-art inductive loop detection with advanced signal processing. It is capable of:

- o Identifying vehicles in twenty three different classes
- o Accurately detecting single loop speeds
- o Measuring vehicle length and number of axles
- o Providing point, toll segment, and toll regional views of traffic flow
- o Providing web access to all data

3.3 Emerging Tolling Technologies

Odometer Tolling

Odometer tolling can be used to implement a distance-based toll. A simplified GPS system or an odometer tag or electronic sensor installed in the vehicle can record miles traveled by the vehicle. Data regarding distance traveled can then be conveyed over short distances via radio frequency and the payment could be made at independent collection centers, a DMV, or service stations.

There are some examples of pilot projects in the U.S. One notable example is the Oregon Department of Transportation's (ODOT) Road User Fee Task Force (RUFTF), created by Oregon State Legislature as a means to raise revenue as a replacement for Oregon's gas tax. The program uses on-board mileage counting equipment that keeps track of the Vehicle Miles Traveled (VMT). A Federal requirement of the

⁶ *Infrequent Traveler in Electronic Toll Schemes – An International Overview*, IBTTA Fall Technology Workshop, November 2007.

pilot program was to test the ability to count miles in rush hour and congested zones, in order that such vehicles could be assessed a differential fee based on a measure of relative contribution to congestion. A vehicle traveling in rush hour in a congested zone could be charged a higher toll than one traveling during off-peak hours since the former travel is more onerous on the system.

A key public concern that has been raised in opposition of GPS-based system has been that of privacy with respect to the location and time of drivers being recorded and conveyed. However, the current technologies being considered for use in the program do not transmit data through cellular or satellite communications but through radio frequency signals which only travel much shorter distances than the former. Furthermore, the data collected only pertains to mileage information, not time and location information of the vehicle. Hence, with the current technology privacy issues are limited.

A similar concept, that of cell phone based tolling, has potential applications for a mileage-fee based toll system. A chip similar to those used in cellular phones can be installed in vehicles. With frequent communications between cellular towers and the chip, the miles traveled by the vehicle could be recorded and a commensurate toll assessed. Installing a chip in vehicles could potentially be less expensive and cumbersome as compared to installing a GPS unit capable of picking up satellite signals. Given the deployment of GPS capabilities in cell phones for 911 phone locating, this technology appears to be technically feasible. Currently there are no pilot projects based upon the cell phone tolling concept.

Satellite Tolling

Satellite tolling involves using a satellite-based vehicle identification system to determine exact vehicle location based on signals obtained from a satellite. Mobile communications technology is employed to compute toll charges. Telvent, a Spanish company, is developing a system based on satellite systems such as GPS. This is one of the most advanced forms of tolling in the world, and although no toll roads offer this system yet, it is being tested on trucks using highways in Germany.

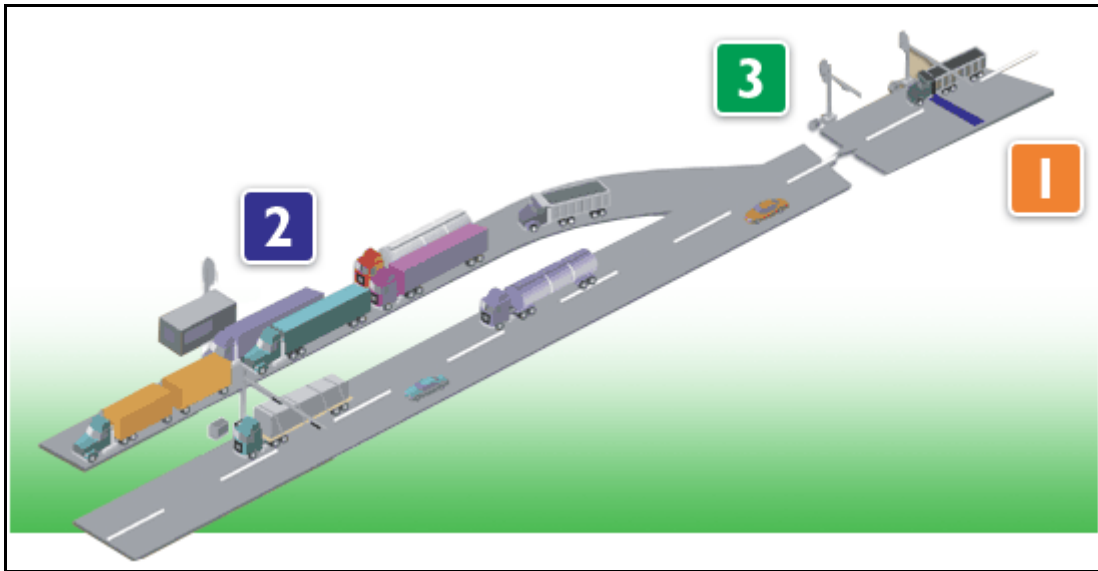
While satellite tolling would be the most accurate technology for implementing distance-based tolling, there are potential hurdles to its implementation. Most importantly there will be a significant phase-in period as all vehicles on the road today do not come equipped with on-board GPS units. By an estimate, it would take another 10 to 15 years for this technology to become ubiquitous. Until that time, and possibly even beyond it, a parallel option of manual payment will have to be maintained. Also, the public perception with regard to maintenance of privacy associated with any distance based tolling system is a potential hurdle to the implementation of GPS tolling.

Semi-Autonomous Toll systems with Minimal Infrastructure (Pre-Pass)

PrePass is an Automated Vehicle Identification system that is used to pre-screen commercial vehicles at designated weigh stations, port-of-entry facilities, or agricultural interdiction facilities. It is generally accompanied by a weigh-in-motion detector to ascertain that the truck's configuration, axle and gross vehicle weights are within acceptable limits. Cleared vehicles are allowed to "bypass" a weighing facility while traveling at highway speed as the transponder emits a green light and an audible signal to indicate clearance. A red light emitting from the transponder signals the driver to pull into the weigh station for regular processing.

Wyoming is a PrePass state providing weigh-station bypass services at the two State entry points along I-80: east of Cheyenne for westbound traffic and west of Evanston for eastbound traffic. Exhibit 12 shows a typical PrePass facility layout at a port of entry.

Exhibit 12: PrePass Typical Facility Footprint



Source: PrePass, www.prepass.com

Notes:

1. Trucks enrolled in PrePass are detected automatically using an electronic reader mounted on overhead gantry.
2. The scale-house handles "manual" customers and houses systems to validate accounts read at position #1.
3. The second boom indicates whether a truck is clear to bypass the manual weigh station.

PrePass trucks that receive a green light in Wyoming must still enter an open weigh station if they are pulling an oversize/overweight load or a livestock load.

PrePass can also be integrated with toll collection technology, currently known as PrePass Plus. PrePass Plus has been implemented in conjunction with the *E-ZPass* system in the Northeast and enables vehicles to carry just one transponder that works at both PrePass and *E-ZPass* (toll) sites. Each PrePass Plus transponder is connected to a PrePass Plus account from which the appropriate toll amount is automatically debited when the vehicle passes the tolling point. PrePass later sends a post-paid invoice for the sum of the total charges incurred by the vehicle.

Since this tolling technology is integrated with existing PrePass equipment and software, the costs for implementing are less than other transponder systems that would involve setting up independent gantries, zone controllers and other equipment. Additionally, using PrePass also helps address problems of interoperability as vehicles are not required to carry separate tags for toll as well as PrePass.

3.4 Interoperability

While electronic toll tags are being used in various parts of the U.S., interoperability issues between tags from different regions remain. This is primarily because different systems use different frequencies to transmit data. Hence, a tolling tag from one toll system may not operate in another region with a different tolling system. Exhibit 13 shows the different electronic tolling systems in place in the U.S.

Exhibit 13: Electronic Tolling Systems Used in the U.S.



Source: TransCore

These technology variations have an impact on users, particularly long-haul truckers which may pass through multiple zones using different tolling systems. Additionally, people living in boundary regions between two different technologies also face issues with interoperability. Currently, the only solution for such users is to keep multiple tags at hand while driving.

There are several proposals for integrating the various prevalent technologies. While some of these proposals would require lengthy and complex reconfigurations, others are less disruptive and relatively simple to implement. Some technologies which can help overcome the issues of interoperability are:

- Replace existing array of disparate technologies with a new technology (currently known as 5.9-GHz DSRC). This replacement would involve changing tolling hardware in a large number of existing systems as well as replacement of all tolling tags in operation that are not compatible with the new technology. The use of this technology for tolling operations, however, will require further development and would need to be phased-in over a period of time as systems and drivers get accustomed to this change.
- Multiprotocol systems. Various integrators have designed Multi-protocol systems which have the capacity to read tags from different systems. There are also multiprotocol tags that have the capability of passing through different toll systems. Such a system could be implemented in a relatively short-term until a more permanent solution such as a common technology is implemented.
- Sticker-based systems are easy to switch to at a relatively low cost and offer a viable option to support interoperability. Most recently, Kansas and Oklahoma migrated to using sticker tags.
- Integration of toll collection system with existing ITS infrastructure (such as PrePass). As discussed above, integration of toll collection with PrePass systems offers the possibility to preclude the need to introduce another technology or build new infrastructure from

scratch for toll collection purposes. PrePass currently has a near nation-wide network of weigh-station bypass intercepts and commercial vehicles that carry a PrePass tag on board typically bypass the weigh stations at highway speeds.

As presented in the above sections, several different tolling technologies are either currently available or are evolving rapidly. Some of the upcoming toll technologies such as Odometer and GPS-based tolling, also have significantly different system requirements and features as compared to the more-prevalent technologies. It is quite likely that some of these new technologies will develop into more viable options that could be used on I-80 if tolling is implemented.

4 Refinement of Traffic and Revenue Analysis

The estimate of truck diversion resulting from tolling on I-80 has been refined and updated since the Phase 1 analysis completed in the fall of 2008. The major focus of the Phase 2 tolling scenario analysis was refining the oil price assumptions due to the economic downturn and improving the assumptions surrounding the major diversion routes from the previous analysis.

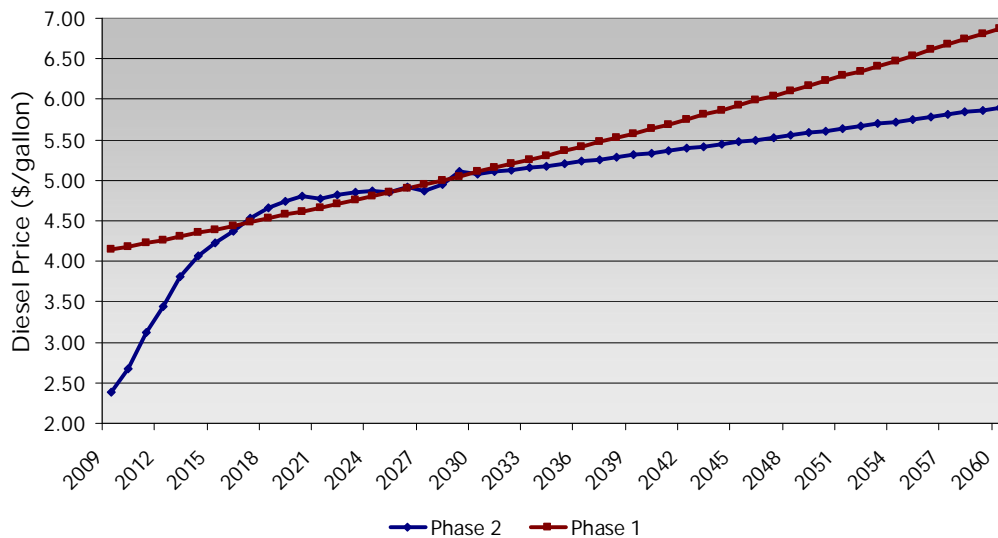
4.1 Fuel Price Revision

In the Phase 1 analysis, the price of diesel fuel in 2009 was assumed to average \$4.18, which was roughly equivalent to the average diesel fuel price from the first eight months of 2008, and prices were assumed to grow at 1 percent annually throughout the forecast period. At that time, projections from the Energy Information Administration (EIA), the International Monetary Fund (IMF), Global Insight, and others were predicated on the assumption that oil prices would continue to remain high for the foreseeable future. Since that time, however, global economic production has slowed much faster and deeper than expected, and in 2009 the IMF expects world economic growth to contract 1.3 percent – the first annual decrease in global GDP since World War II.

Because of the global downturn in economic production, prices for all major commodities, including oil and its derivatives, have decreased substantially. As a result, the updated EIA forecast from June 2009 predicts that US diesel fuel prices will average \$2.37 per gallon in 2009, a marked decrease from the Phase 1 forecast of \$4.18/gallon. The updated EIA forecast also expects diesel prices to remain below \$4 per gallon until 2014, once the economy fully recovers from the effects of the current downturn.

The updated EIA baseline diesel fuel price forecast from June 2009 was adopted as the revised fuel price in the Base Case Phase 2 analysis. As shown in Exhibit 14, fuel prices in the Phase 2 Base Case forecast are lower than Phase 1 in the short and long term, but remain close to Phase 1 between 2015 and 2030.

Exhibit 14: PB Phase 2 and Phase 1 Fuel Price Forecasts



Source: US Energy Information Administration, PB Analysis

The revised fuel price forecasts will likely cause higher annual diversion rates after 2030, where the Phase 2 forecast begins to diverge downward from the Phase 1 forecast. Lower fuel prices mean that

truck drivers will find longer alternate routes to I-80 less costly, and will therefore have a higher incentive to divert from I-80 if the facility is tolled.

The downward revision to near-term fuel prices will not impact truck diversion and I-80 toll revenues because tolling under the Base Case is not expected to begin until 2017. Additionally, truck diversion rates in the Phase 2 analysis between 2017 and 2030 should remain the same as those in Phase 1 due to the similar forecasts in this period.

4.2 Major Diversion Route Assumption Revisions

In Phase 1, a truck diversion rate of 46 percent was estimated for 2010 based on a toll rate of \$116. For the Phase 2 study, the major alternate routes driving the previously estimated diversion rate were analyzed in more detail, and the assumptions surrounding the major alternate corridors were improved.

The major diversion routes from the Phase 1 study are shown in Exhibit 15 below. Nearly 40 percent of the daily truck diversion was found to occur on the US-6 to I-70 route from/to Salt Lake City through Denver to/from points east. Thus, the assumptions underlying this trade route were analyzed first.

Exhibit 15: Major Diversion Routes from I-80 in Wyoming

Diversion Route	# Diverted Trucks Per Day	% of Total Truck Diversion
US-6 to I-70	782	39%
I-94 to I-90	332	17%
I-5 to I-40	144	7%
I-15 to I-70	144	7%
I-5 to I-10	127	6%
I-25 to I-90	89	4%
I-15 to I-94	44	2%
Others	330	17%
TOTAL	1992	100%

Source: PB analysis

Two major travel time assumptions were revised surrounding the US-6 to I-70 route upon further analysis:

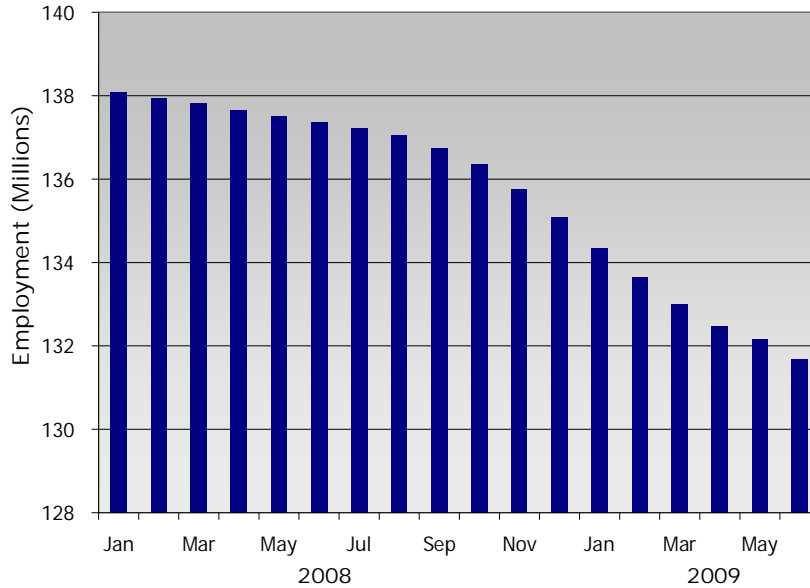
- First, the estimate of average travel speeds for trucks on the 165 mile stretch of the I-15/US-6 corridor from Salt Lake City to I-70 was revised downward to take into account certain characteristics of the corridor. The previous analysis assumed that trucks could average close to the 55 mph speed limit on the entire stretch of US-6. However, because much of the corridor is one lane in each direction, the FHWA Freight Analysis Framework (FAF) highway link database estimated that truck speeds were actually averaging close to 40 miles per hour on the corridor in 2002 due to frequent congestion. This translates into over 60 minutes of additional travel time on the alternate route than previously estimated, which was factored into the revised analysis.
- Second, the estimate of travel speeds on I-70 from the Utah border to Denver were also found to be too high in the previous analysis, which assumed truckers could maintain a 65 mph pace on the entire segment. However, much of I-70 through central Colorado features steep grades, tight turns, and high elevations, making it very difficult for trucks to maintain speeds above 60 mph. The FAF highway link database indicated that speeds averaged just above 50 mph for much of the I-70 corridor east of Grand Junction. Thus, average truck speeds on I-70 were reduced roughly 20 percent below those used in the 2008 study to 50 mph, adding an additional 60 minutes of travel time to this alternate corridor.

With these two adjustments in place, the US-6 to I-70 and I-15 to I-70 diversion routes become much less attractive, and the overall diversion rate decreases throughout the forecast period.

4.3 Revised I-80 Traffic Forecasts

Since the Phase 1 Study was completed in October 2008, the US economy has deteriorated significantly. From October 2008 through June 2009, the nation has shed nearly 5 million jobs, consumer confidence has fallen to its lowest levels since 1980, and US real GDP contracted at a 5.9 percent annual rate from 2008Q3 through 2009Q1. These nationwide economic statistics are matched around the world, as foreign economies have also contracted sharply. US non-farm employment is used to illustrate the US economic downturn in Exhibit 16.

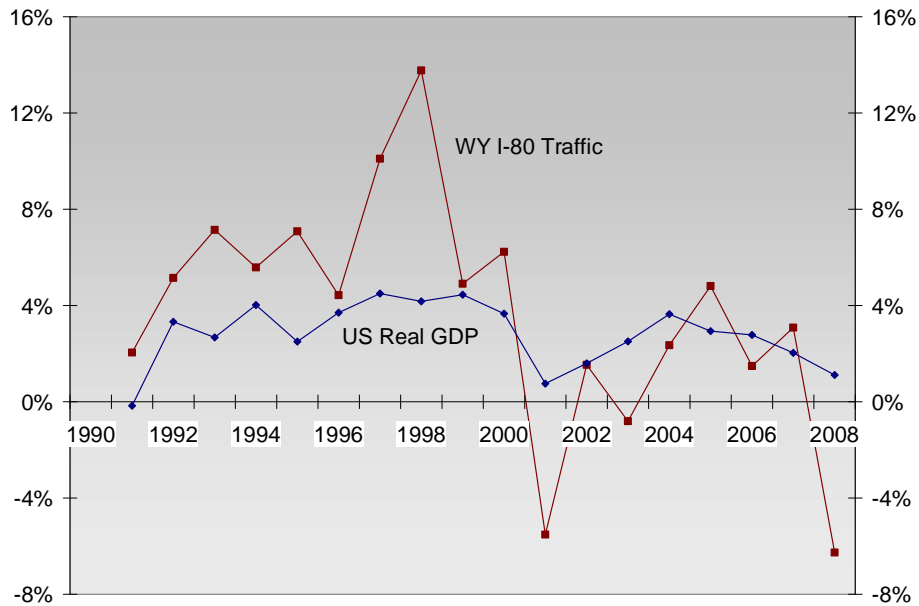
Exhibit 16: US Non-Farm Employment



Source: Bureau of Labor Statistics

These economic indicators are highly correlated with goods movement flows throughout the country on all modes of transportation, including trucks. As shown in Exhibit 17, US GDP has historically been a major driver of I-80 truck traffic in Wyoming.

Exhibit 17: Average Wyoming I-80 One-Way Truck Traffic Growth (Left Axis) and US Real GDP Growth (Right Axis)



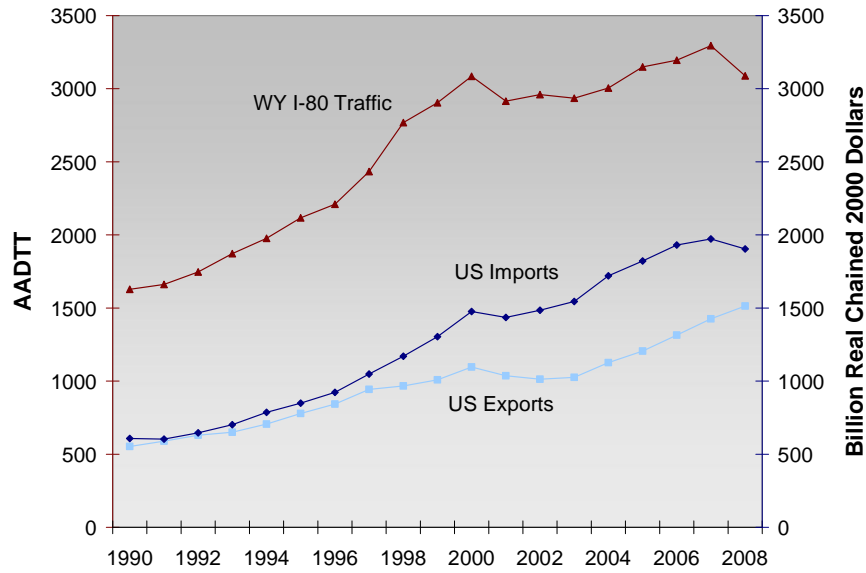
Source: Wyoming Department of Transportation, US Bureau of Economic Analysis

Therefore, as GDP has decreased significantly from September 2008 through March 2009, truck traffic on I-80 has also fallen. As shown in the exhibit above, annual average daily truck traffic on the corridor averaged 6,175 trucks in 2008, a decrease of 6.3 percent from 2007 volumes. This marks the largest one-year decrease in truck volumes on I-80 since 1982. Declines in I-80 traffic are also expected to continue in 2009 as GDP continues to worsen.

To determine how the current economic downturn would continue to affect I-80 traffic flows, and to update the long-term traffic forecasts with the latest macroeconomic assumptions, a regression analysis was performed for the Phase 2 study. The historical relationship between I-80 truck flows and US imports was estimated, and that relationship was applied to the forecast of US imports underlying the EIA baseline macroeconomic forecast.

US imports was chosen as the driver variable to predict historical and future I-80 traffic because US imports have dominated goods movement flows over the last ten years, especially from movements originating in Northeast Asia and moving through West Coast ports such as Los Angeles/Long Beach, Oakland/San Francisco, and Tacoma/Seattle. As shown in Exhibit 18, US imports have moved almost perfectly in sync with I-80 traffic flows over roughly the last 20 years.

Exhibit 18: Average Wyoming I-80 One-Way Truck Traffic and US Trade



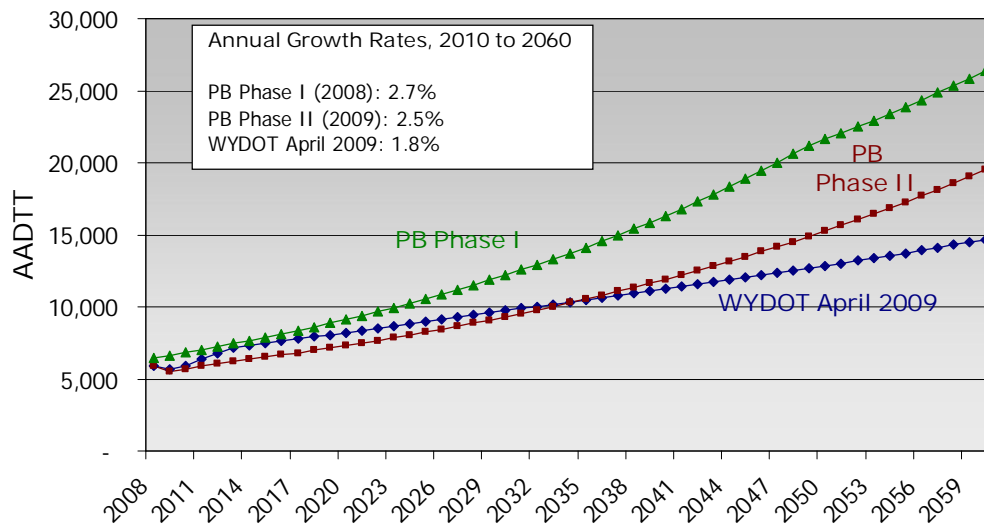
Source: Wyoming Department of Transportation, US Census Bureau

US GDP was not selected as the driver variable because the correlation between GDP and I-80 traffic is weaker than US imports. The majority of US GDP is comprised of service production, which does not impact I-80 truck flows.

The US imports forecast was taken from the EIA to ensure consistency of macroeconomic assumptions across both the traffic forecasts and fuel price forecasts. In turn, the EIA forecast, like the FAF forecasts underlying the Phase 1 study, rely on Global Insight for macroeconomic projections.

The updated I-80 truck traffic forecast, based on the results of the regression analysis, are shown in Exhibit 19 and compared with the April 2009 truck forecast from WYDOT and the Phase 1 Study forecast from 2008.

Exhibit 19: Revised Wyoming I-80 Truck Traffic Forecast vs. WYDOT and Phase 1 Forecasts



Source: PB Analysis

The Phase 2 truck forecast for I-80 builds in the 2008 decline in truck traffic and a further decline of 6.2 percent in 2009 due to a continued softness in US import demand. Positive truck traffic growth is expected to resume in 2010, and truck growth is expected to rise at a strong 3 percent pace from 2010 to 2013 as the economy recovers. From 2013 to 2060, annual growth rates of 2.5 percent are expected, slightly lower than the 2.7 percent annual growth rate used in the Phase 1 analysis from 2008.

The Phase 1 traffic forecast, which was based on projections from the FHWA FAF database performed in 2005, did not include a decline in I-80 truck flows due to the current economic downturn. Moreover, long-run growth projections were slightly more optimistic at the time the FAF forecast was created than those currently held by the EIA (and Global Insight). These two differences lead to a large downward revision in future truck traffic flows expected on I-80 throughout the forecast horizon, especially in the outer years of the forecast.

The WYDOT truck traffic forecast from April 2009, like the Phase 2 forecast, builds in a decline in 2009 traffic due to the economic downturn. However, WYDOT expects that the economic recovery will be very strong, with annual growth rates of 6.6 percent expected in truck traffic from 2010 to 2013. After the recovery in 2013, WYDOT expects that long-run growth from 2013 to 2060 will be 1.5 percent, much lower than the 3.6 percent growth experienced from 1990 to 2008⁷.

Using either the WYDOT or Phase 2 forecast for the revised analysis results in a significant decline in annual revenues vis-à-vis the Phase 1 forecast. Exhibit 20 below shows the difference between the Phase 1, Phase 2, and WYDOT forecasts at 10 year intervals. In 2020, the Phase 2 study predicts truck traffic is 20 percent lower than the Phase 1 forecast; the variance between the two forecasts increases to 27 percent in 2040 and 26 percent in 2060. The WYDOT forecast is only 10 percent lower in 2020 due to its more aggressive economic growth in the early half of the decade, but the forecast is 31 percent lower by 2040 and 44 percent lower in 2060.

Exhibit 20: Comparison of Phase 1, Phase 2, and WYDOT April 2009 Truck Traffic Forecasts, Selected Years

Forecast	2010	2020	2030	2040	2050	2060
Phase I	6,825	9,126	12,204	16,321	21,629	26,365
Phase II	5,695	7,329	9,320	11,923	15,255	19,516
WYDOT April 2009	5,921	8,218	9,731	11,243	12,849	14,684
Phase II difference from Phase I	-17%	-20%	-24%	-27%	-29%	-26%
WYDOT difference from Phase I	-13%	-10%	-20%	-31%	-41%	-44%

Source: PB Analysis

As truck traffic is one of the two drivers of revenues (the other being the toll rate charged), these declines will lead to 1-for-1 declines in annual revenues. In other words, a 20 percent decline in truck traffic in 2020 from the Phase 1 forecast will result in a 20 percent decline in revenues vis-à-vis the Phase 1 study, all else equal.

The Phase 2 forecasts were used for the Base Case forecast, with the more conservative WYDOT April 2009 forecasts serving as a downside scenario.

4.4 Updated Base Case Revenue Forecast

In the Phase 1 study, it was assumed that the expansion of I-80 would not be necessary to institute tolling, and therefore toll revenue collection could begin in 2010. Thus, in the final Phase 1 report, all revenue curves presented the revenue that could be earned in 2010, the assumed first full year of tolling.

In the Phase 2 study, as previously mentioned, it is assumed that I-80 will be expanded to three lanes in each direction, which will delay when tolling will become feasible. The Phase 2 Base Case revenue

⁷ WYDOT forecasts only extend to 2043; thus, the forecast from 2043 to 2060 was based on the five year growth rate from 2038 to 2043.

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forecast assumes that construction will begin on I-80 in 2015 and that all tolling facilities will be completed and ready to begin toll collection in 2017. However, because the highway expansion is not expected to be completed until 2025, an eight-year ramp-up in tolls is assumed to be the most politically acceptable tolling approach.

Thus, the Base Case forecast assumes that from 2017 to 2024, drivers would be charged a percentage of the revenue-maximizing toll rate based on the percentage of construction that had been completed. The truck toll schedule used in the baseline revenue forecast is shown in Exhibit 21 below.

Exhibit 21: Baseline Toll Schedule (Nominal \$)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenue max. toll	\$137	\$140	\$143	\$147	\$151	\$155	\$158	\$162	\$166	\$171	\$175	\$179	\$184	\$188	\$193	\$198
Ramp-up factor	0%	0%	0%	0%	0%	0%	0%	20%	20%	40%	40%	60%	60%	80%	80%	100%
Toll rate charged	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$32	\$33	\$68	\$70	\$108	\$110	\$151	\$154	\$198

Source: PB Analysis

The Phase 2 Base Case forecast maintains the same assumption as the Phase 1 study regarding the number and location of tolling facilities on I-80: there would be only one facility constructed in the middle of the I-80 corridor, west of Rawlins and the WY-789 junction. This assumption was relaxed to analyze the impact of alternate tolling schemes on toll revenues in the Alternate Tolling Assumptions section below.

Using the assumed toll schedule and single tolling facility location, new revenue curves were produced for 2025, which would be the first year full revenue-maximizing toll fees are charged. The Base Case toll rate and revenue schedules for 2025 are presented in Exhibits 22a and 22b. The toll rates are shown in 2025 nominal dollars and are based on a set of toll rates in 2008 dollars in \$10 increments, from \$30 to \$240, grown at an assumed 2.5 percent annual inflation rate from 2008 to 2025. Exhibit 23 shows that the Base Case revenue-maximizing toll rate is \$198/truck and \$19/passenger vehicle, which would generate \$493 million in revenues in 2025.

Exhibit 22a: Base Case Tolloed Truck and Passenger Traffic and Revenue, 2025 (million \$)

Truck						Passenger Car					
2008 Toll Rate	2025 Toll Rate	Diversion	AADTT	AAD Tolloed Trucks	Revenue	2008 Toll Rate	2025 Toll Rate	Diversion	AADT	AAD Tolloed Cars	Revenue
\$30	\$46	4%	8,969	8,969	\$149.4	\$3.0	\$4.56	5%	7,770	7,770	\$12.9
\$40	\$61	9%	8,518	8,518	\$189.2	\$4.0	\$6.09	11%	7,277	7,277	\$16.2
\$50	\$76	13%	8,162	8,162	\$226.6	\$5.0	\$7.61	16%	6,886	6,886	\$19.1
\$60	\$91	18%	7,632	7,632	\$254.3	\$6.0	\$9.13	23%	6,306	6,306	\$21.0
\$70	\$107	23%	7,234	7,234	\$281.2	\$7.0	\$10.65	28%	5,870	5,870	\$22.8
\$80	\$122	27%	6,859	6,859	\$304.8	\$8.0	\$12.17	33%	5,460	5,460	\$24.3
\$90	\$137	29%	6,663	6,663	\$333.0	\$9.0	\$13.69	36%	5,245	5,245	\$26.2
\$100	\$152	31%	6,472	6,472	\$359.5	\$10.0	\$15.22	39%	5,036	5,036	\$28.0
\$110	\$167	31%	6,472	6,472	\$395.4	\$11.0	\$16.74	39%	5,036	5,036	\$30.8
\$120	\$183	32%	6,349	6,349	\$423.1	\$12.0	\$18.26	40%	4,901	4,901	\$32.7
\$130	\$198	32%	6,341	6,341	\$457.8	\$13.0	\$19.78	40%	4,892	4,892	\$35.3
\$140	\$213	36%	5,965	5,965	\$463.8	\$14.0	\$21.30	45%	4,481	4,481	\$34.8
\$150	\$228	44%	5,220	5,220	\$434.9	\$15.0	\$22.82	55%	3,665	3,665	\$30.5
\$160	\$243	45%	5,194	5,194	\$461.5	\$16.0	\$24.35	56%	3,636	3,636	\$32.3
\$170	\$259	45%	5,139	5,139	\$485.2	\$17.0	\$25.87	56%	3,576	3,576	\$33.8
\$180	\$274	51%	4,612	4,612	\$461.1	\$18.0	\$27.39	63%	3,000	3,000	\$30.0
\$190	\$289	57%	4,014	4,014	\$423.6	\$19.0	\$28.91	71%	2,345	2,345	\$24.7
\$200	\$304	58%	3,933	3,933	\$436.9	\$20.0	\$30.43	72%	2,256	2,256	\$25.1
\$210	\$320	61%	3,697	3,697	\$431.2	\$21.0	\$31.95	75%	2,050	2,050	\$23.9
\$220	\$335	64%	3,379	3,379	\$412.9	\$22.0	\$33.48	75%	2,050	2,050	\$25.1
\$230	\$350	80%	1,889	1,889	\$241.3	\$23.0	\$35.00	75%	2,050	2,050	\$26.2
\$240	\$365	81%	1,753	1,753	\$233.7	\$24.0	\$36.52	75%	2,050	2,050	\$27.3

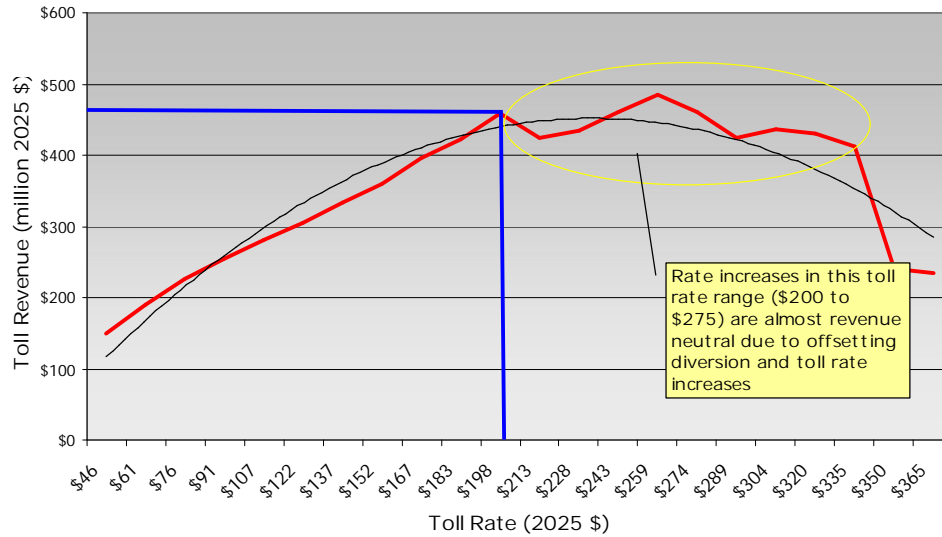
Source: PB Analysis

Exhibit 22b: Base Case Total Truck and Passenger Traffic and Revenue, 2025 (million \$)

2025 Truck Toll Rate	2025 Passenger Toll Rate	Total Traffic	Total Revenue
\$46	\$4.56	16,739	\$162.4
\$61	\$6.09	15,795	\$205.4
\$76	\$7.61	15,047	\$245.8
\$91	\$9.13	13,937	\$275.3
\$107	\$10.65	13,105	\$304.1
\$122	\$12.17	12,319	\$329.0
\$137	\$13.69	11,907	\$359.3
\$152	\$15.22	11,508	\$387.4
\$167	\$16.74	11,508	\$426.2
\$183	\$18.26	11,250	\$455.8
\$198	\$19.78	11,233	\$493.1
\$213	\$21.30	10,446	\$498.6
\$228	\$22.82	8,885	\$465.4
\$243	\$24.35	8,830	\$493.8
\$259	\$25.87	8,715	\$518.9
\$274	\$27.39	7,612	\$491.1
\$289	\$28.91	6,358	\$448.3
\$304	\$30.43	6,190	\$462.0
\$320	\$31.95	5,747	\$455.1
\$335	\$33.48	5,430	\$438.0
\$350	\$35.00	3,939	\$267.5
\$365	\$36.52	3,804	\$261.1

Source: PB Analysis

Exhibit 23: Base Case Truck Toll Revenue Curve, 2025



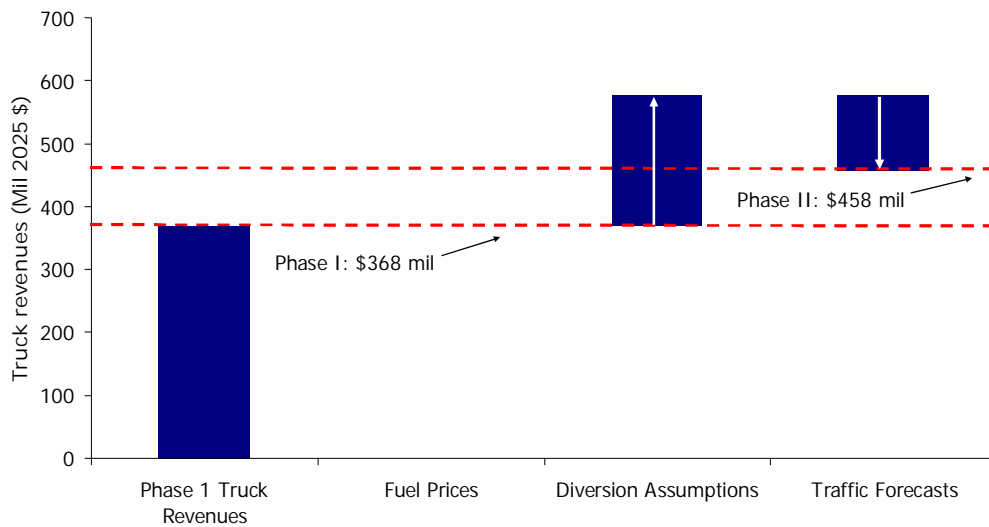
Source: PB Analysis

As shown in the revenue curve above, revenues earned at truck toll rates between \$200 and \$275 are nearly equivalent to those earned at the \$198 level due to corresponding diversion and toll rate increases. Although certain truck toll rates above \$200 could earn slightly more revenue than those realized at the \$198 level, the variability in revenues above the \$200 rate (shown by the difference between the red line and the black trend line) highlights the greater uncertainty that these peaks in revenue could be realized. Thus, \$198 is most likely to be the revenue-maximizing toll rate for trucks.

It is important to note that the revenue maximizing toll rate in 2025 is \$198, or \$130 in 2008 dollars. This toll rate is higher than the \$116 rate which was highlighted as the revenue maximizing rate in the Phase 1 study. The reason that the revenue maximizing rate can be higher in real terms in 2025 than in 2010 is because rising fuel costs and congestion are expected to make several alternate routes to I-80 less competitive in future years, even with toll rates rising with inflation each year. In other words, small real annual increases in toll rates would maximize revenues over the 2010 to 2025 forecast period, because the cost of diversion for some trucks is rising faster than inflation.

Exhibit 24 shows the effects of the revised fuel price forecasts, diversion assumptions, and traffic forecasts on the 2025 revenue forecast. The revision to the fuel price forecast does not have any impact on 2025 revenues, since the fuel prices have only been marked down in the short and long term. The revised diversion assumptions have a large positive impact on total revenues, though the lower traffic forecasts cut the positive impact in half. In total, these updated assumptions lead to a \$90 million upward revision to 2025 toll revenues.

Exhibit 24: Effects of Each Revised Tolling Assumption on Truck Toll Revenues



Source: PB Analysis

4.5 Alternate Tolling Scenarios

Toll Locations

As mentioned above, the Base Case forecast assumes that one tolling facility will be built in the center of the State, west of Rawlins and the WY-789 junction. This section analyses the effects of two alternate tolling configurations on total revenues:

- o Scenario 1: Two toll facilities on the I-80 corridor - one at the Utah border and one at the Nebraska border, tolling inbound traffic only
- o Scenario 2: Three toll facilities on the I-80 corridor – a combination of the Base Case assumption and Scenario 1

For Scenario 1, each of the toll facilities were assumed to charge the same rate, which would be 100 percent of the Base Case toll rate. For Scenario 2, three scenarios were run:

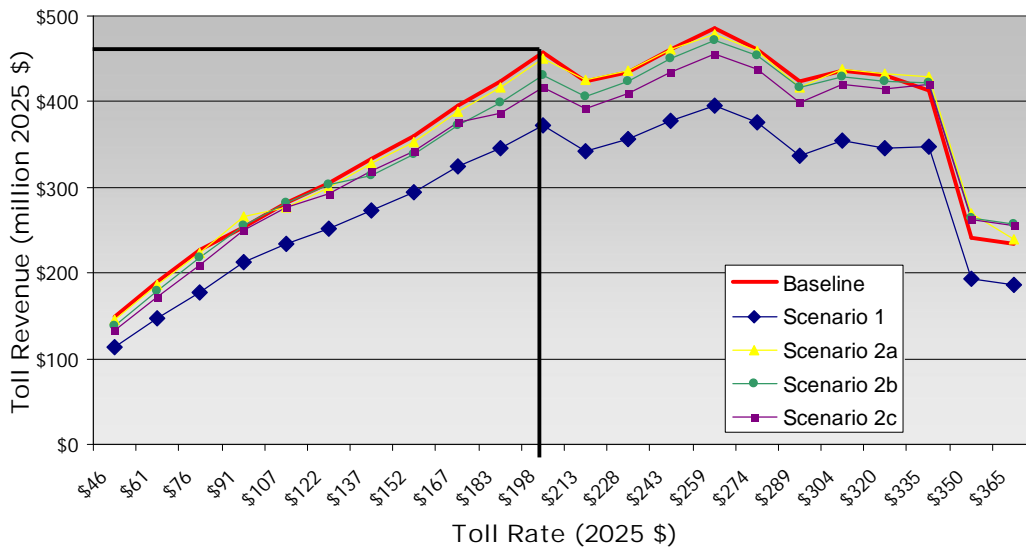
- o Scenario 2a: Nebraska border – 10 percent of Base Case toll; Rawlins – 90 percent of Base Case toll; Utah border – 10 percent of Base Case toll

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- Scenario 2b: Nebraska border – 33 percent of Base Case toll; Rawlins – 67 percent of Base Case toll; Utah border – 33 percent of Base Case toll
- Scenario 2c: Nebraska border – 50 percent of Base Case toll; Rawlins – 50 percent of Base Case toll; Utah border – 50 percent of Base Case toll

The results of the scenario analysis are shown in Exhibit 25. The Base Case tolling configuration proved to be revenue maximizing versus other potential configurations. Scenario 2a generated just \$7.5 million less in revenues than the Base Case configuration, proving to be the most competitive alternative in terms of revenue generation. Tolling scenarios 2b and 2c proved to generate less revenue than scenario 1, with Scenario 2c faring worse than Scenario 2b. Scenario 1 generated the least revenues of all tolling alternatives, earning \$75 million less than the Base Case configuration at a toll rate of \$198.

Exhibit 25: Tolling Point Location Revenue Curve Scenarios

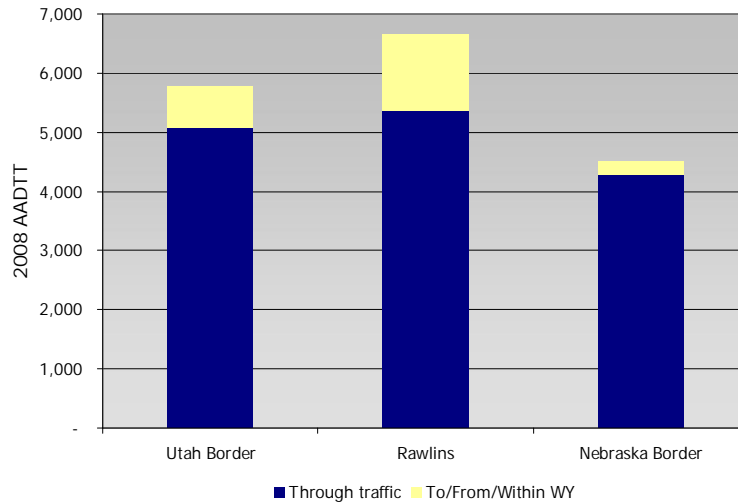


Source: PB Analysis

Under all tolling configurations discussed above, the revenue earned from through traffic is exactly the same, since the overall toll rate is the same under each tolling configuration. Therefore, scenarios 2a and 2b generate less revenue than the single tolling configuration in the center of the State due to the nature of Wyoming-specific traffic flows on I-80.

Exhibit 26 below shows 2008 truck traffic flows in both directions at the Utah border, west of Rawlins, and at the Nebraska border, broken down by through traffic and flows to/from/within the State. Average annual daily truck traffic is higher in the center of the State than at both borders because there are large quantities of trucks that carry goods within the State or from/to locations west of Rawlins to/from Fort Collins, Denver, Colorado Springs, and other locations that utilize I-25 to enter/exit Wyoming. These truck flows are represented by the yellow portion of the bar in Rawlins, which is larger than the yellow portions of the bars at either border.

Exhibit 26: 2008 Truck Traffic Flows at Selected I-80 Locations



Source: Wyoming Department of Transportation, PB Analysis

A large portion of the truck flows moving through Rawlins but not crossing either border do not have a competitive alternate route, and thus are very likely to utilize I-80 even if a \$130 (2008\$) toll is charged. Thus, charging less than 100 percent of the revenue maximizing toll rate at the Rawlins toll facility would result in a loss of revenue earned from these trucks.

These losses in revenue would be partially offset by capturing toll revenues from trucks that cross either State border but do not pass through Rawlins. However, because there are fewer trucks at the borders than are passing through Rawlins, both alternate tolling configurations cannot match the revenues earned from a single tolling facility in the middle of the State. As shown in Exhibit 22, the tolling configuration that generates the lowest level of revenues is Scenario 1, which only tolls inbound trucks that cross either State border. This configuration would not capture any of the truck traffic captive to I-80 that moves to/from the western half of the State from/to the eastern half of the State, Colorado, or other locations south of Wyoming utilizing I-25.

This analysis supports the Phase 1 findings that the Base Case tolling configuration would produce the most revenue with the lowest corresponding capital and operations cost. However, it is important to recognize that the reason the Base Case tolling configuration would maximize revenues is because a larger quantity of Wyoming-specific traffic would be tolled. If WYDOT would prefer to minimize the impact of tolling on local businesses and residents, it would need to consider the benefits of the additional toll revenues against the potential costs to the State and local economy. This issue will be discussed in more detail in Section 6.

Toll Ramp Up

As previously mentioned, the Base Case revenue forecast assumes that full tolling on I-80 will not be instituted until 2025, after an eight year ramp-up period where a fraction of the revenue maximizing toll rate would be charged.

An alternate scenario was run to determine how much additional revenue could be generated if full tolling began in 2017 instead of 2025. The result of this alternate scenario is shown in Exhibit 27. Over the 2017 to 2024 period, an additional \$1.1 billion in nominal dollars could be raised if full tolling begins in 2017, which could cover a share of the capital costs of the highway expansion.

Exhibit 27: Forecasted Toll Revenues under the Base Case and Alternate Toll Ramp-Up Scenarios

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	TOTAL
Baseline Forecast	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$87	\$91	\$191	\$201	\$306	\$308	\$411	\$406	\$493	\$2,496
Alternate Ramp-Up	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$317	\$333	\$350	\$367	\$389	\$412	\$437	\$464	\$493	\$3,564
Additional Revenues	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$230	\$242	\$158	\$166	\$83	\$104	\$26	\$58	\$0	\$1,068

Source: PB Analysis

4.6 Sensitivity Analysis

The revenue forecast presented above is based on a set of assumptions, all of which carry varying degrees of uncertainty. To determine the responsiveness of the revenue forecast to changes in key assumptions, a sensitivity analysis was performed with three of the most uncertain and volatile assumptions: truck drivers' value of time, fuel prices, and future I-80 truck traffic. This analysis is intended to shed light on the upside and downside risks to the forecast to assist WYDOT in assessing the feasibility of tolling I-80.

Upside Sensitivities

Value of Time Estimates

There are myriad studies and reports on truck drivers' value of time (VOT), a metric which economists use to understand how the trucking industry makes routing decisions to move goods from producers and intermediate distribution centers to final destinations. The Base Case forecast was developed using VOT parameters suggested by USDOT, which specified truck drivers' value of time as equal to 100 percent of their hourly wage + benefits⁸. For the Base Case, operational costs such as vehicle maintenance, tires, and other depreciation were also included in the VOT estimate. Fuel costs were added to the VOT estimates based on the latest diesel prices, truck fuel economy estimates from the Vehicle Inventory and Use Survey, and facility-specific estimates of truck speed.

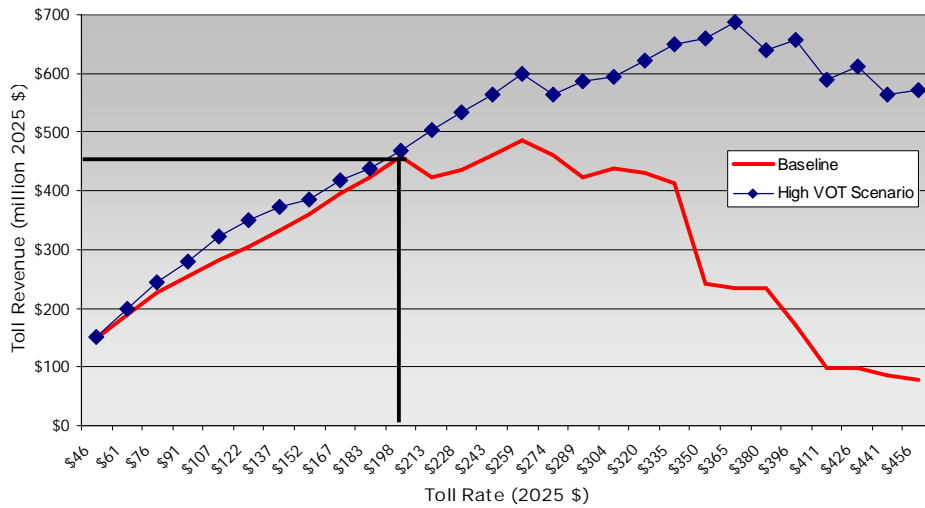
Another reputable study that presents a higher value of time for truck drivers is the American Transportation Research Institute's report on the Operational Costs of Trucking, published in December 2008⁹. In this report, estimates of truck wages and benefits are nearly identical to those used in the Base Case, but marginal operating costs also include truck lease and purchase payments, insurance, and licensing, which the study describes as "semi-marginal costs". Including these costs in the value of time calculation results in an additional \$15/hour to the value of time estimate used in the Base Case forecast, which increases the costs of diverting from I-80 to longer routes.

When this higher estimate of truck driver value of time is used, the effects on annual revenues are substantial. As a point of comparison, the 2025 revenue curves under the Base Case forecast and high VOT scenario are shown in Exhibit 28. The toll revenue maximizing toll rate of \$198 would not result in a much lower diversion rate using the high VOT scenario – in fact, revenues are only \$10 million above the Base Case at the \$198 toll rate in the high VOT scenario. Rather, a higher VOT would allow much higher toll rates to be charged to maximize revenues. The exhibit below shows that, using the high VOT assumption, the revenue maximizing toll rate would jump from \$198 to \$365, or nearly \$1/mile, with 2025 revenues reaching \$687 million.

⁸ Source: "Revised Departmental Guidance: Valuation of Travel Time in Economic Analysis". USDOT, February 2003. http://ostpxweb.dot.gov/policy/Data/VOTrevision1_2-11-03.pdf

⁹ Source: "An Analysis of the Operational Costs of Trucking". American Transportation Research Institute, December 2008.

Exhibit 28: Base Case Revenue Forecast and Upside VOT Scenario Revenues



Source: PB Analysis

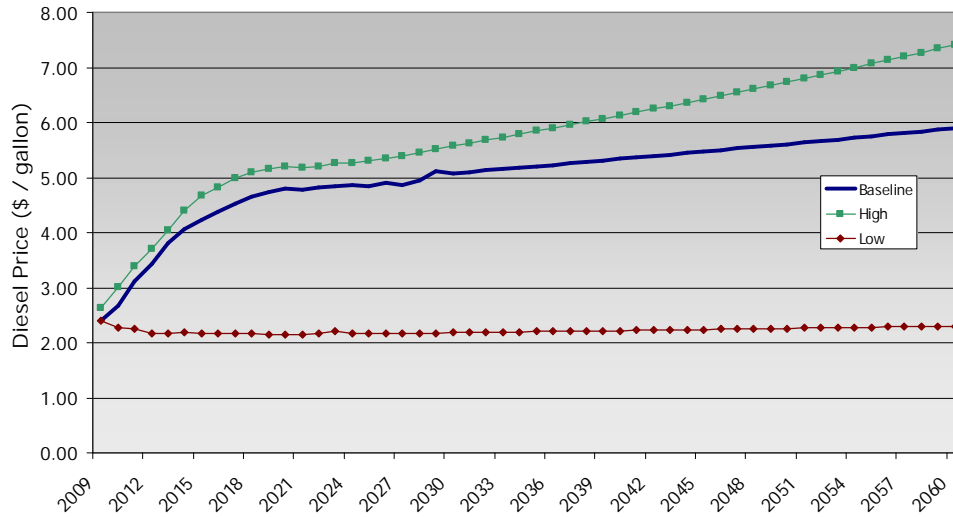
Fuel Prices

Fuel prices are among the most difficult of all economic variables to forecast. Prices of diesel fuel and gasoline depend on the pace of future global GDP growth, the relative demand for petroleum products versus other alternative energies, political decisions or other shocks (natural disasters, strikes) that affect oil supplies, future oil drilling technology advances, and new energy supply discoveries. Each of these drivers is individually difficult to forecast, and predicting the outcomes of all drivers is even more challenging. Moreover, there is additional complexity in forecasting energy prices today given the uncertainty regarding the pace and extent of the global economic recovery.

In light of the current economic uncertainty, the US Energy and Information Administration (EIA) released high and low fuel price scenarios in addition to its Base Case fuel price forecast in April 2009. These scenarios show how high fuel prices could rise in cases of lower future supply and higher demand, and vice versa. As shown in Exhibit 29, the high fuel price scenario assumes that diesel prices would exceed \$5/gallon by 2018 whereas the Base Case forecast assumes this level in 2029. Under a high scenario, diesel prices would reach \$7.50/gallon by 2060, while the Base Case forecast remains under \$6/gallon.

On the other hand, the low forecast assumes that diesel prices will remain close to \$2/gallon throughout the forecast period, a trend that seems unlikely even in the middle of the current economic downturn.

Exhibit 29: EIA Baseline, High, and Low Fuel Price Scenarios

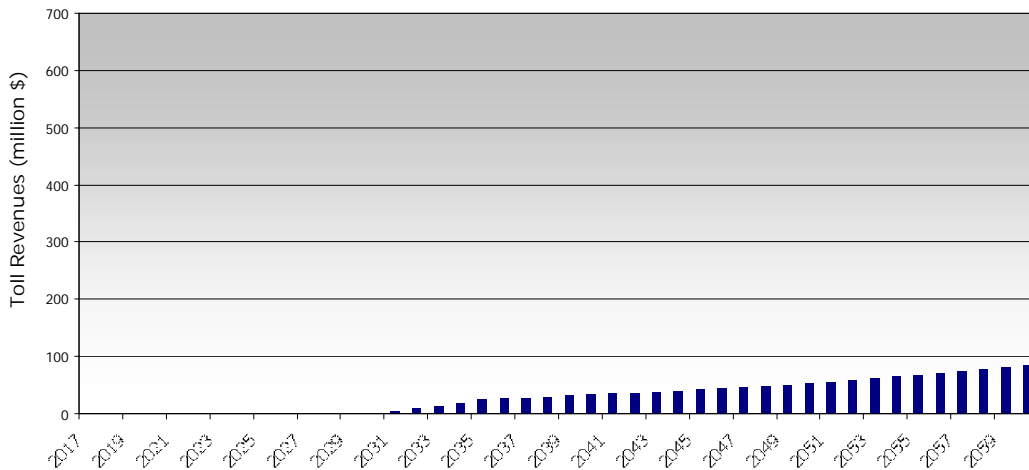


Source: US Energy Information Administration, PB Analysis

The high fuel price scenario was used to determine the sensitivity of I-80 revenues to a more rapid increase in oil prices. Because an increase in fuel costs creates a disincentive for truck drivers to choose longer, more circuitous routes to move goods from origins to destinations, higher fuel prices would likely reduce I-80 diversion and boost potential I-80 toll revenues.

The results of the fuel price sensitivity analysis are shown in Exhibit 30 below. Because the high price scenario closely resembles the Base Case forecast through 2030, there is no positive impact on revenues under the high price scenario from 2017 to 2030. However, once the high price forecast begins to diverge from the Base Case forecast after 2030, a steadily increasing stream of revenues above the Base Case would be achieved, with additional annual revenues under a high price scenario nearing \$100 million by 2060.

Exhibit 30: Difference in Annual Toll Revenues using the High Price and Base Case Fuel Price Forecasts (High fuel price – Base Case fuel price)



Source: PB Analysis

Note: The scale is selected as such for purposes of comparison with Exhibit 31.

Downside Sensitivities

Truck Traffic Forecasts

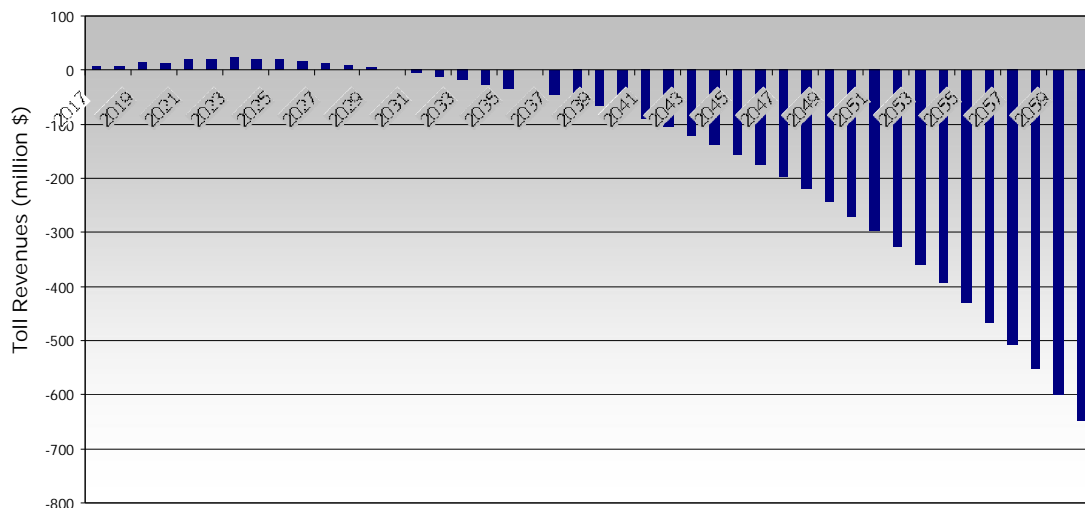
One major uncertainty underlying the Base Case forecast is the rate of growth of truck traffic on I-80 in future years. Future traffic will be driven by several factors that are difficult to predict, including the pace of future US and international economic growth, the sourcing of goods demanded by US consumers (itself dependent on exchange rates, fuel prices, and other variables), and the routing decisions made by shippers to move goods from producers to consumers.

The Base Case traffic forecast was based on a historical regression analysis that determined the impact of the increases in US imports on the growth of I-80 truck traffic over the last 20 years. This historical relationship was applied to a forecast of US imports produced by the EIA in April 2009, which ensured consistency between the macroeconomic assumptions underlying the fuel price forecast and the traffic forecast.

The WYDOT has its own long-term truck traffic forecast, which is an extrapolation of past traffic trends. The WYDOT forecast predicts a very strong resurgence in truck traffic growth in the near term (2009 to 2013), then a leveling off of long term growth (post 2020) to levels below those witnessed historically.

If the WYDOT traffic forecast was substituted for the Base Case traffic forecast, the impact on annual revenues would resemble the depiction in Exhibit 31. From 2017 to 2030, the WYDOT forecast would provide between \$0 and \$20 million in additional revenues relative to the Base Case forecast each year. However, WYDOT's low long-term growth rates would have an increasingly negative impact on revenues, with revenues totaling over \$700 million less than the Base Case forecast by 2060.

Exhibit 31: Comparison of Annual Traffic Forecasts and Resulting Toll Revenues (WYDOT forecast – Base Case forecast)



Source: PB Analysis

5 Multi-State Corridor Coalitions

Various highway corridors across the United States are advocated for by multi-state cooperatives known as “Corridor Coalitions.” These Coalitions often involve the coordination of adjacent states in order to carry out their duties, as many prominent highway/freight routes travel through more than one state, and in some cases, more than one country. As a result, coalitions of state and local representatives, as well as state departments of transportation, occasionally band together in order to form corridor-wide governing bodies for prominent highway routes.

Many Corridor Coalitions exist in the United States, however for the purposes of the I-80 analysis, only those involving multi-state arrangements were highlighted. Selected Corridor Coalitions in the U.S., especially those associated with vital freight routes, were also identified using the Federal Highway Administration’s (FHWA) Freight Management and Operations Website¹⁰. Among those researched and most relevant to the I-80 tolling study are the following:

- I-95 Corridor Coalition
- National I-10 Freight Corridor Coalition
- I-69 Mid-Continent Coalition
- West Coast Corridor Coalition
- CANAMEX Corridor Coalition

The following sections discuss specific examples of Corridor Coalitions, as well as their formation, goals, benefits, and drawbacks.

Formation

Corridor Coalitions are often formed by transportation officials when a specific common opportunity or threat is identified. Methods of organizing the Coalitions have ranged from the appointment of DOT representatives from member states to informal working groups later established as formal entities. For example, one representative from each state department of transportation from Maryland, New York, Pennsylvania, Tennessee, Virginia and West Virginia was selected to be part of the I-81 Corridor Coalition. This differs from the method used in forming the I-95 Corridor Coalition, which involves state transportation officials, public safety officers, tolling authority members, and other volunteers from the 16 member states from as far north as Canada, to the southern terminus in Florida. Few Coalitions are based on any type of outside voting, but rather a need identified from within the existing community of transportation officials.

Purpose and Goals

Once a Coalition has been formed, it is necessary for the representatives to agree on goals or mission statements that will govern the activities of the group going forward. Selected examples of Coalition goals from the above organizations are listed below:

- Secure funding for the construction or rehabilitation of road segments
- Draw additional state and Federal funding for road improvements
- Encourage joint effort and effective cooperation among state, regional and local governments and the private sector
- Advocate for financing options to fund transportation system improvements serving the interests of the Coalition, including both additional funding and regulator changes
- Manage major highway incidents that impact travel across jurisdictional boundaries

¹⁰ http://ops.fhwa.dot.gov/freight/corridor_coal.htm

A major impetus to form many of the above Coalitions has been the perceived need to lobby the Federal government on behalf of a corridor or a significant project taking place within a corridor. Since Federal transportation funding is partially released on a competitive basis, or earmarked for specific projects, it is necessary for organizations to make sure their needs are identified and advocated for when funding is being divided among the list of all possible recipients.

Another major source of funding identified and examined by Corridor Coalitions has been the securing of private investment along important highway corridors. The West Coast Corridor Coalition, for example, lists one of its goals as, “[to] encourage joint effort and effective cooperation among west coast state, regional and local governments and the private sector.” While Federal funding is a vital part of the funding picture, it is also necessary for many projects to have an organization in place to leverage private investment for future work.

In certain instances, a regional Coalition is formed in order to meet the needs of a specific highway project. This is the case for the Continental One Trade Corridor, which was formed with the express purpose of completing a 1,500 mile trade route between Toronto and Miami. The Continental One Trade Corridor is an alliance of business, community, and government leaders dedicated to the oversight of the initial project's completion, as well as its continued success. The group has been responsible for activities ranging from raising money from the private sector, to hiring lobbyists in Washington D.C. to make sure the project is well represented. Another Corridor Coalition formed to carry out a specific project was CANAMEX, a joint project of Arizona, Nevada, Idaho, Utah and Montana. While Arizona is the leader of this effort, the Coalition involves representatives from the United States, Mexico, and Canada. The goal of this organization is to complete a continuous four-lane highway from Canada to Mexico.

Most relevant to the I-80 study is a Coalition that was formed, at least partially, to regulate policy or lobby in favor of tolling on a road segment. The I-95 Corridor Coalition includes tolling authorities among its leadership, and has been active in shaping tolling projects along the I-95 corridor. One example of this is the push by the I-95 Coalition for more interoperability among the states in terms of tolling collection. Related to this is the group's interest in moving the corridor toward electronic tolling collection. The group has been active in carrying out pilot programs and other studies in order to advance their tolling policies for I-95.

Costs and Benefits

Corridor Coalitions can be beneficial in that they allow the coordination of resources among all states/regions adjacent to a corridor, rather than disjointed policymaking in each jurisdiction. The forming of Coalitions also makes lobbying more effective, as the collective voice of multiple corridor supporters is more likely to be heard than that of an individual lobbyist. Furthermore, the setting of unified goals for an entire corridor helps ensure a cooperative approach to policymaking and project delivery.

While Coalitions can be beneficial as seen above, they can be unwieldy for many of the same reasons. Individual representatives from each state or region along the corridor most likely will not have the same policy goals, making coordination and the initial setting of a work plan difficult. This is a serious detriment if one or more decisions to be made about the corridor plan are of a time-sensitive nature.

Application for I-80 Project

In order to more effectively address funding issues on I-80, Wyoming and neighboring states sharing the same I-80 challenges may benefit from forming a multi-state Corridor Coalition. The coalition could be formed with the goals of coordinating tolling policy, implementation of a unified tolling approach, and requesting Federal approvals to toll jointly. If tolling is not pursued, a goal of the coalition could simply be lobbying for increased Federal funding to be directed toward the improvement of I-80, as has been done in many of the coalitions discussed earlier. The national significance of I-80 as a freight corridor could be highlighted in a bid for special funding, earmarks, or other financial support.

In brief discussions with both Nebraska and Iowa department of transportation personnel regarding the I-80 toll study being performed by WYDOT, enthusiasm was shown for continued communication on I-80

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traffic and funding issues. Nebraska and Iowa share Wyoming's challenges in that much of the freight traffic that converges in Salt Lake City (heading east) and Chicago (heading west) travels through these states on I-80. While they clearly understand that a need exists, it does not appear that Nebraska or Iowa have developed specific plans that can be deployed to address I-80 roadway degradation.

Nebraska - Over the past 15 years, Nebraska has focused on improving the section of I-80 between Lincoln and Omaha, as this is the most congested I-80 segment in the state. Nebraska reconstructed this 60-mile stretch to a 6-lane cross section to accommodate traffic demand and replaced the old, worn out interstate with a completely new roadway (base and surface) that can be maintained over the next 20 to 30 years. Nebraska's next challenge is addressing the outdated 400-mile section of the roadway between Lincoln and the Wyoming border. This section meets traffic capacity demands but is in need of major rehabilitation or replacement, similar to I-80 in Wyoming. Very preliminary estimates by Nebraska DOT indicate that replacing this stretch of I-80 will cost approximately \$1 billion.

Nebraska officials have not held major discussions on the specific mechanism that will be used to fund the remaining improvements to I-80. While it will certainly be a major undertaking, the DOT will undertake the reconstruction incrementally over several years. Nebraska maintains a highway trust fund that combines Federal and state funding and was used to pay for much of the recent I-80 improvements.

Iowa - Iowa has taken approaches similar to those of Nebraska in rehabilitating and widening portions of I-80 in the major metropolitan areas where congestion issues exist. Iowa has also been studying its system needs in anticipation of major investments in its roadway infrastructure. In 2006 Iowa performed a roadway system analysis to estimate what deficiencies existed both on and off the interstates and the related costs of addressing these items. It concluded that several billion dollars in investments were needed on I-80 to upgrade the pavement and replace sections that do not meet standards.

A portion of the analysis performed by the Iowa Department of Transportation dealt with funding mechanisms for the roadway work being contemplated. The department inventoried current funding mechanisms and surveyed other states to list mechanisms the legislature could consider to fill the potential funding gap. Tolling was discussed but the department determined that it would be difficult to implement because there are so many parallel routes that traffic could easily divert to. The study resulted in Iowa changing their registration fee structure in 2008 to generate more funding for roadways, though this will not suffice to pay for needed I-80 improvements. Gasoline tax increases were also discussed but the governor decided that such increases would be inappropriate during an economic recession. Gasoline tax increases may be revisited in the future.

In brief discussions with both Nebraska and Iowa department of transportation personnel regarding the I-80 toll study being performed by WYDOT, enthusiasm was shown for continued communication on I-80 traffic and funding issues, though tolling was not under consideration by either state. Under a non-tolled approach, both states expressed support of the idea that a formal corridor coalition could create a unified voice highlighting the states' needs on I-80 due to its national importance as a freight corridor. Lobbying efforts targeted at the Federal government to get more funding for the upkeep of I-80 under a non-tolled approach could be more productive if coordinated among several states.

6 Fiscal and Other Impacts Analysis

While previous sections discussed the potential revenues that could be generated through tolling I-80, this chapter analyzes the potential impacts of tolling on other public and private sector revenues in Wyoming. The chapter will individually address the following:

- Effects of tolling on gasoline, sales, and income tax revenues at the State, city and county levels
- Private industry employment, output, and income impacts
- Changes to Federal funding for interstate maintenance or other transportation programs
- Economic impacts of I-80 expansion to three lanes

Throughout this chapter, it is important to keep in mind that any negative revenue or tax impacts described are relative to the scenario where I-80 remains a free road. That is, if I-80 were tolled, revenue streams such as fuel taxes may be lower than those realized in a no-toll scenario, but in absolute nominal terms, such revenues will continue to increase each year even if I-80 is tolled. Therefore, each fiscal impact discussed below can be thought of as the opportunity cost of tolling I-80, or the cost of forgone public and private income in choosing the tolling option.

6.1 State Revenue Impacts

While increasing volumes of truck traffic may increase the cost of maintaining I-80, they also bring benefits to the State in terms of higher fuel taxes, vehicle fees, and increased demand for goods and services along the I-80 corridor, which generates sales tax revenue. This section discusses the tax revenues that could be forgone by the State of Wyoming if I-80 tolling were implemented.

State Fuel Taxes and Vehicle Fees

Levying a toll on I-80 would cause some passenger vehicles and trucks to divert to alternate routes outside of the State. Because gasoline taxes and vehicle fees are computed based on the number of vehicle miles traveled within the State of Wyoming, any vehicles that divert out-of-state will cause the State to receive less fuel and truck tax revenues relative to a no-toll scenario. Diversion rates shown in the following tables portray out of State diversion, thus are considerably lower than the overall I-80 diversion rates shown above.

Exhibit 32 shows the 2008 fuel and vehicle tax¹¹ receipts for the State of Wyoming in the top row, with the change in revenues shown at each potential toll rate (and corresponding out-of-state diversion rate). The revenue-maximizing 2025 toll rate, highlighted in yellow, would cause 21 percent of the I-80 traffic to divert out-of-state. If this diversion occurred in 2008, State gas tax receipts would have been 6.3 million dollars below realized 2008 revenues, or roughly 4.2 percent lower.

Exhibit 32: Impact of Various Diversion Rates on State Gas Tax Receipts

Toll 2025	Out of State Diversion		Fuel Taxes	Vehicle Fees	TOTAL
	2025	2025			
\$0	0%		\$58.0	\$46.5	\$149.9
\$46	3%		-\$0.7	-\$0.3	-\$1.0
\$61	6%		-\$1.2	-\$0.5	-\$1.8
\$76	8%		-\$1.7	-\$0.8	-\$2.5
\$91	8%		-\$1.7	-\$0.8	-\$2.5
\$107	12%		-\$2.6	-\$1.2	-\$3.7
\$122	17%		-\$3.4	-\$1.5	-\$4.9
\$137	19%		-\$3.8	-\$1.7	-\$5.5
\$152	21%		-\$4.2	-\$1.9	-\$6.1
\$167	21%		-\$4.2	-\$1.9	-\$6.1
\$183	21%		-\$4.3	-\$2.0	-\$6.3
\$198	21%		-\$4.4	-\$2.0	-\$6.3
\$213	31%		-\$6.3	-\$2.8	-\$9.2
\$228	33%		-\$6.8	-\$3.1	-\$9.9
\$243	34%		-\$6.9	-\$3.1	-\$10.0
\$259	34%		-\$7.0	-\$3.1	-\$10.1
\$274	40%		-\$8.1	-\$3.7	-\$11.8
\$289	46%		-\$9.5	-\$4.3	-\$13.7
\$304	46%		-\$9.5	-\$4.3	-\$13.8
\$320	49%		-\$10.0	-\$4.5	-\$14.5
\$335	50%		-\$10.3	-\$4.6	-\$14.9
\$350	66%		-\$13.6	-\$6.1	-\$19.6
\$365	67%		-\$13.8	-\$6.2	-\$20.1

Source: Federal Highway Administration, USDOT; PB Analysis

¹¹ Includes commercial vehicle registration, license, and other fees.

This decline was computed by applying the 19.9 percent historical I-80 share of total State VMT with the out-of-state diversion rate.

This analysis suggests that if I-80 were tolled, annual State fuel tax revenues would be roughly 4 to 5 percent below potential no-build revenues once full tolling begins in 2025. When looking at fuel tax and vehicle fee disbursements to WYDOT alone, tolling would result in roughly a 3 to 4 percent decline in receipts relative to a no-toll scenario starting in 2025. Between 2017 and 2025, sales tax revenues would also be lower if I-80 were tolled, though the difference between the two scenarios is smaller than in 2025 due to the gradual ramp-up in toll rates.

State Sales Taxes

Trucks and passenger vehicles using I-80 also benefit businesses along the highway by stopping to purchase food, temporary lodging, vehicle supplies, and other convenience items. Sales of many food and retail products in Wyoming are taxed by the State at a 4 percent rate, and contribute roughly 20 percent of the State's general fund.

Exhibit 33: Impact of Various Toll and Out of State Diversion Rates on State Sales Tax Receipts

Toll 2025	Out of State Diversion 2025	State Sales Taxes
\$0	0%	\$446.6
\$46	3%	-\$0.8
\$61	6%	-\$1.4
\$76	8%	-\$2.0
\$91	8%	-\$2.0
\$107	12%	-\$3.0
\$122	17%	-\$4.0
\$137	19%	-\$4.5
\$152	21%	-\$5.0
\$167	21%	-\$5.0
\$183	21%	-\$5.2
\$198	21%	-\$5.2
\$213	31%	-\$6.2
\$228	33%	-\$8.1
\$243	34%	-\$8.2
\$259	34%	-\$8.3
\$274	40%	-\$9.7
\$289	46%	-\$11.2
\$304	46%	-\$11.3
\$320	49%	-\$11.9
\$335	50%	-\$12.2
\$350	66%	-\$16.1
\$365	67%	-\$16.5

Source: PB Analysis; Minnesota Implan Group, Inc.

The impact of tolling on the State sales tax base was attempted to be estimated using a regression analysis, where historical I-80 truck traffic was used as a driver of county-level retail sales taxes along with personal income. However, truck traffic did not prove to be a significant driver of historical retail sales tax income, which suggests that declining truck volumes may not significantly impact sales taxes in the five counties through which I-80 passes.

A second analysis was performed to estimate the average value of taxable goods each truck driver consumes while traveling on I-80. The Internal Revenue Service states that transportation workers could claim a per diem allowance of \$52 in 2008¹². This allowance equals roughly 8 cents per mile for truck drivers traveling 600 miles per day. In addition, truck drivers also must purchase needed repairs and vehicle parts, which is estimated to cost truck drivers an additional \$12 cents per mile¹³.

Assuming all truck drivers spend 20 cents per mile on the I-80 corridor, the level of out-of-state truck diversion under the revenue maximizing toll rate would decrease demand along I-80 by \$43 million per year in 2008 dollars. Assuming all purchases are taxable, this decline in demand translates into \$1.7 million less in real sales tax receipts per year¹⁴.

Adding in the effects of out of State passenger diversion as well, total direct losses in demand are estimated to equal \$81.0 million and lost sales tax revenue equal \$3.2 million per year. These annual direct losses amount to roughly 1.7 percent of total FY2009 sales taxes in Uinta, Sweetwater, Carbon, Albany, and Laramie counties. The low percentage decline in sales tax revenues due to diversion confirms the

¹² Source: "Travel, Entertainment, Gift and Car Expenses for Use in Preparing 2008 Tax Returns." Internal Revenue Service, February 2009. <http://www.irs.gov/pub/irs-pdf/p463.pdf>

¹³ Source: "An Analysis of the Operational Costs of Trucking". American Transportation Research Institute, December 2008.

¹⁴ Many convenience store food items that are not regarded as for immediate consumption (such as packaged foods and beverages not heated nor sold with cutlery) are not taxable; therefore, this measure of forgone sales tax revenues is likely to be slightly overestimated.

assumption that truck and out of state passenger trips do not contribute a significant share of sales taxes in the five aforementioned counties.

A direct decline in demand for retail goods and vehicle supplies along the I-80 corridor would also indirectly impact other industries that supply intermediate products to such retailers. Also, lower direct demand for products along I-80 would decrease labor income in industries gaining from truckers and out of State passengers. Lower levels of labor income in certain affected industries would also mean workers would have less discretionary income to spend in the local economy.

The total direct, indirect, and induced reduction in output due to lower truck and passenger vehicle demand is estimated to be \$146.7 million in 2008 dollars among all industries in Wyoming. As shown in Exhibit 33, this forgone output would cause 5.2 million (1.2 percent) of real potential State sales tax revenues to be forgone each year if I-80 were tolled.

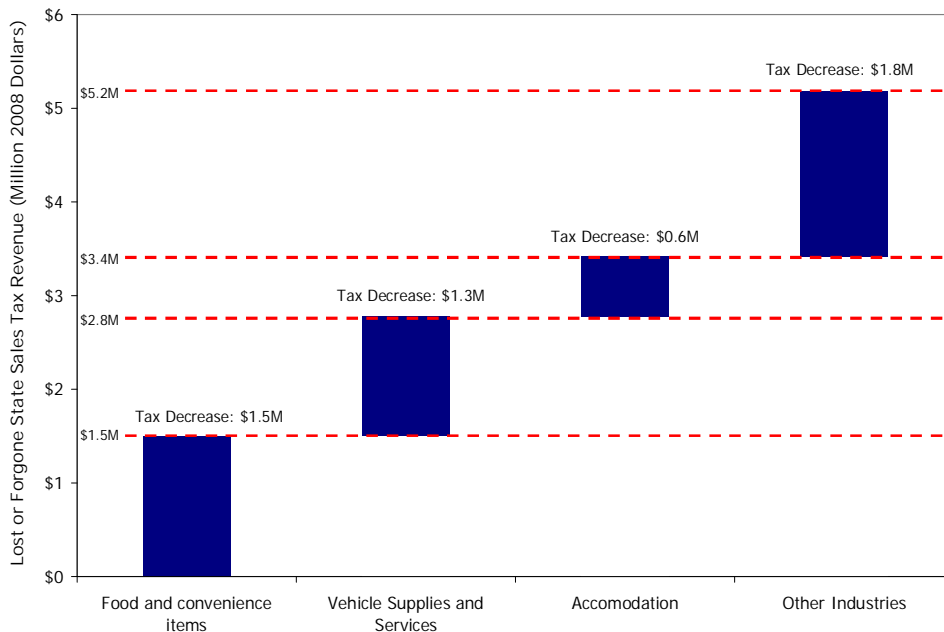
The State sales taxes forgone by each industry under the revenue maximizing toll rate are shown in Exhibit 34. A more detailed discussion regarding the impact of reduced demand for goods and services along I-80 on individual industries will follow in Section 6.5.

Other State Income

Although decreased demand for retail products along the I-80 corridor would impact income growth in counties along the highway. This would not impact State revenues because Wyoming does not levy a corporate or personal income tax. Other major sources of State revenues, which include investment income, mineral severance taxes, and property taxes, would likely not be substantially impacted by lower I-80 traffic volumes under a toll scenario.

Cigarette tax receipts, like sales taxes, would be lower in a tolling scenario by roughly the same percentage as the sales tax impacts, though cigarette tax revenues are small - \$20 million in cigarette taxes was levied in FY 2008, only 1 percent of total State revenues.

Exhibit 34: Impact of Revenue Maximizing Toll Rate on State Sales Taxes by Industry



Source: PB Analysis; Minnesota Implan Group, Inc.

6.2 Local Revenue Impacts

City and County Fuel Tax Receipts

In total, the 23 Wyoming counties share 27.5 percent of State gasoline and 20 percent of diesel tax receipts, while municipalities receive 5 percent of diesel and 15 percent of State gasoline taxes. Therefore, the truck and passenger diversion to out of State alternate routes would lower the fuel tax revenues of all cities and counties in the State. The total impact of lower fuel taxes to Wyoming counties and cities is shown at various 2025 toll rates in Exhibit 35. At the revenue maximizing toll rate, county and city allocations would be reduced by \$1.1 and \$0.5 million annually, respectively.

In principle, it would not be fair for cities and counties to forego tax revenue collections under a tolling scenario implemented by, and mainly benefitting the State. Thus, it would be expected that the State would offset these foregone fuel tax revenues with other disbursements from its general fund or another source to prevent any harm to individual counties and cities. If this situation were to materialize, then any loss in fuel tax revenues to cities and counties would

Exhibit 36: Impact of Various Toll and Out of State Diversion Rates on County Sales and Lodging Tax Receipts

Toll 2025	Out of State Diversion 2025	County General Purpose Sales Taxes	County Specific Purpose Sales Taxes	County Lodging Taxes
\$0	0%	\$198.6		\$7.7
\$46	3%	-\$0.2	-\$0.1	-\$0.1
\$61	6%	-\$0.4	-\$0.2	-\$0.1
\$76	8%	-\$0.5	-\$0.3	-\$0.2
\$91	8%	-\$0.5	-\$0.3	-\$0.2
\$107	12%	-\$0.8	-\$0.4	-\$0.3
\$122	17%	-\$1.0	-\$0.5	-\$0.4
\$137	19%	-\$1.1	-\$0.6	-\$0.4
\$152	21%	-\$1.3	-\$0.6	-\$0.5
\$167	21%	-\$1.3	-\$0.6	-\$0.5
\$183	21%	-\$1.3	-\$0.6	-\$0.5
\$198	21%	-\$1.3	-\$0.6	-\$0.5
\$213	31%	-\$1.5	-\$0.8	-\$0.6
\$228	33%	-\$2.0	-\$1.0	-\$0.8
\$243	34%	-\$2.0	-\$1.0	-\$0.8
\$259	34%	-\$2.1	-\$1.0	-\$0.8
\$274	40%	-\$2.4	-\$1.2	-\$0.9
\$289	46%	-\$2.8	-\$1.4	-\$1.0
\$304	46%	-\$2.8	-\$1.4	-\$1.0
\$320	49%	-\$3.0	-\$1.5	-\$1.1
\$335	50%	-\$3.1	-\$1.5	-\$1.1
\$350	66%	-\$4.0	-\$2.0	-\$1.5
\$365	67%	-\$4.1	-\$2.1	-\$1.5

Source: PB Analysis; Minnesota Implan Group, Inc.

Exhibit 35: Impact of Various Toll and Out-of-State Diversion Rates on City and County Fuel Tax Receipts

Toll 2025	Out of State Diversion 2025	Counties	Cities
\$0	0%	\$25.0	\$11.0
\$46	3%	-\$0.2	-\$0.1
\$61	6%	-\$0.3	-\$0.1
\$76	8%	-\$0.4	-\$0.2
\$91	8%	-\$0.4	-\$0.2
\$107	12%	-\$0.6	-\$0.3
\$122	17%	-\$0.8	-\$0.4
\$137	19%	-\$0.9	-\$0.4
\$152	21%	-\$1.0	-\$0.4
\$167	21%	-\$1.0	-\$0.4
\$183	21%	-\$1.1	-\$0.5
\$198	21%	-\$1.1	-\$0.5
\$213	31%	-\$1.5	-\$0.7
\$228	33%	-\$1.7	-\$0.7
\$243	34%	-\$1.7	-\$0.7
\$259	34%	-\$1.7	-\$0.7
\$274	40%	-\$2.0	-\$0.9
\$289	46%	-\$2.3	-\$1.0
\$304	46%	-\$2.3	-\$1.0
\$320	49%	-\$2.4	-\$1.1
\$335	50%	-\$2.5	-\$1.1
\$350	66%	-\$3.3	-\$1.4
\$365	67%	-\$3.4	-\$1.5

Source: Federal Highway Administration, USDOT; PB Analysis

ultimately translate into a reduction in State income. This principle will also apply to the other forgone tax revenues discussed below.

Other City and County Tax Receipts

Wyoming counties have the option of implementing up to a 1 percent sales tax for general purposes, and up to an additional 1 percent for specific capital improvement projects. Currently, 20 of 23 Wyoming counties have an additional 1 percent general purpose sales tax, and 10 of 23 have a 1 percent special purpose sales tax as well.

If tolling were instituted on I-80 at the revenue maximizing rate, it is estimated that \$1.3 million in real 2008 general purpose county sales tax revenues would be forgone each year, in addition to \$0.6 million in forgone special purpose funds.

In addition, counties have the option of levying a lodging tax of up to 4 percent for all transient accommodations fewer than 30 days in length. Currently 20 of 23 counties have a lodging tax between 2 and 4 percent. It is estimated that \$0.5 million in real 2008 lodging tax revenues would be forgone each year if I-80 were tolled.

Forgone county sales and lodging tax revenues at various toll and out-of-state diversion rates are shown in Exhibit 36.

6.3 Federal Funding Impacts

WYDOT relies on Federal Interstate Maintenance (IM) and National Highway System (NHS) program funds to finance needed maintenance and repairs on I-80. Funds for these two programs are appropriated each year from USDOT, which determines the level of funding each state will receive based on its share of total US interstate lane miles, vehicle miles traveled (VMT), and commercial vehicle contributions.

USDOT provides Federal funding for other transportation programs as well, such as Surface Transportation (STP), Highway Bridges (HB), Congestion Mitigation and Air Quality (CMAQ), and Highway Safety Improvement (HIS). The annual funding levels of each program are based on various algorithms, although unlike the IM and NHS programs, these algorithms do not incorporate the volume of truck traffic as a driver of funding.

If tolling were instituted on I-80, the level of commercial vehicle contributions would decline for the State of Wyoming if some trucks diverted to alternate routes outside of the State. To determine how truck diversion might impact Federal funding, the out of State diversion rate was computed for various toll rates. These diversion estimates were used to reduce the level of commercial vehicle contributions in the IM and NHS fund algorithms.

The impact of out-of-state truck diversion on IM and NHS funding is shown in Exhibit 37. The first row in the Exhibit shows the 2008 funding levels for each program, and all subsequent rows show the change in funding that would result at the various toll and diversion rates.

Exhibit 37: Impact of Various Toll and Out of State Diversion Rates on Federal Funding

Toll Parameters		Federal Funding Levels (million 2008 \$)								
Out of State Toll 2025	Diversion 2025	Base Interstate Maintenance (IM)		Base National Highway System (NHS)		Other Core Programs Equity Bonus		Other Equity Bonus and Research Funds	Total Federal Funding	
		IM Equity Bonus		NHS Equity Bonus						
\$0	0%	\$49.1	\$7.3	\$73.2	\$12.6	\$55.4	\$8.7	\$16.9	\$228.0	
\$46	3%	-\$0.23	\$0.04	-\$0.10	\$0.11	\$0.00	\$0.09	\$0.10	\$0.00	
\$61	6%	-\$0.40	\$0.06	-\$0.17	\$0.18	\$0.00	\$0.15	\$0.17	\$0.00	
\$76	8%	-\$0.56	\$0.08	-\$0.23	\$0.26	\$0.01	\$0.20	\$0.24	\$0.00	
\$91	8%	-\$0.56	\$0.08	-\$0.23	\$0.26	\$0.01	\$0.20	\$0.24	\$0.00	
\$107	12%	-\$0.84	\$0.13	-\$0.35	\$0.39	\$0.01	\$0.31	\$0.36	\$0.00	
\$122	17%	-\$1.11	\$0.17	-\$0.46	\$0.51	\$0.01	\$0.41	\$0.47	\$0.00	
\$137	19%	-\$1.26	\$0.19	-\$0.52	\$0.58	\$0.02	\$0.46	\$0.53	\$0.00	
\$152	21%	-\$1.39	\$0.21	-\$0.58	\$0.64	\$0.02	\$0.51	\$0.59	\$0.00	
\$167	21%	-\$1.39	\$0.21	-\$0.58	\$0.64	\$0.02	\$0.51	\$0.59	\$0.00	
\$183	21%	-\$1.43	\$0.21	-\$0.59	\$0.66	\$0.02	\$0.53	\$0.61	\$0.00	
\$198	21%	-\$1.43	\$0.21	-\$0.60	\$0.66	\$0.02	\$0.53	\$0.61	\$0.00	
\$213	31%	-\$2.08	\$0.30	-\$0.86	\$0.96	\$0.03	\$0.77	\$0.88	\$0.00	
\$228	33%	-\$2.24	\$0.32	-\$0.93	\$1.04	\$0.03	\$0.83	\$0.95	\$0.00	
\$243	34%	-\$2.26	\$0.33	-\$0.94	\$1.05	\$0.03	\$0.84	\$0.96	\$0.00	
\$259	34%	-\$2.30	\$0.33	-\$0.95	\$1.06	\$0.03	\$0.86	\$0.98	\$0.00	
\$274	40%	-\$2.68	\$0.38	-\$1.11	\$1.24	\$0.03	\$1.00	\$1.14	\$0.00	
\$289	46%	-\$3.11	\$0.44	-\$1.29	\$1.44	\$0.04	\$1.17	\$1.32	\$0.00	
\$304	46%	-\$3.13	\$0.44	-\$1.30	\$1.45	\$0.04	\$1.17	\$1.32	\$0.00	
\$320	49%	-\$3.30	\$0.46	-\$1.37	\$1.53	\$0.04	\$1.24	\$1.40	\$0.00	
\$335	50%	-\$3.39	\$0.47	-\$1.40	\$1.57	\$0.04	\$1.27	\$1.43	\$0.00	
\$350	66%	-\$4.46	\$0.60	-\$1.85	\$2.08	\$0.06	\$1.69	\$1.89	\$0.00	
\$365	67%	-\$4.56	\$0.61	-\$1.89	\$2.12	\$0.06	\$1.73	\$1.93	\$0.00	

Source: Federal Highway Administration, USDOT; PB Analysis

If the revenue maximizing toll rate, highlighted in yellow, were instituted in 2008, base IM and NHS funding would have declined \$1.43 million and \$0.60 million, or 2.9 and 0.8 percent, respectively. However, the increase in Equity Bonus program funding would have offset some of the losses in funding for these programs – IM Equity Bonus funding would have increased \$0.21 million, and NHS funding would have increased by \$0.66 million. Moreover, the funds lost in the IM program would be shifted to other core programs, such as Surface Transportation and Highway Bridges, through increased Equity Bonus funding. Due to the Equity Bonus program, total Federal funding levels would remain constant at all levels of tolling.

The Equity Bonus program, created as part of SAFETEA-LU, is designed to ensure that states receive a minimum level of Federal funding as determined by USDOT. Under the program, additional funds are allocated to each state so that its total Federal funding equals the greater of the two “hold harmless” provisions:

- 92 percent of the state’s contribution to the highway portion of the Highway Trust Fund
- The state’s share of total average annual apportionments during the six years of TEA-21, provided states meet certain criteria¹⁵

Under SAFETEA-LU, Wyoming currently receives Equity Bonus funds based on the second provision, which guarantees that total Federal funding for the state must equal 0.69 percent of the total target Federal funding program size, not including penalties. In 2008, total funding apportioned to all 50 states was \$34.7 billion, of which 0.69 percent is \$238 million; with penalties, the total 2008 apportionment for Wyoming equaled \$228 million. Thus, based on the hold harmless provisions of the Equity Bonus program under SAFETEA-LU, Wyoming would be guaranteed to receive its 0.69 share of total Federal funding across all states.

Equity Funds are allocated to each of the six “core” programs, which include IM, NHS, STP, HB, CMAQ, and HSI, according to each program’s share of total core funding. Therefore, if IM and NHS funding decreased due to lower I-80 VMT, the shares of these two programs would decrease, and a larger share of the Equity Bonus funds would shift to the other four core programs. This explains why funding increases for the other core programs in Exhibit 37 above.

The bottom line regarding the impact of tolling on Federal funding is that, if the Equity Bonus program is included in future Federal transportation funding legislation, Wyoming will not face an overall decline in Federal funding. A small share of IM and NHS funds would be shifted to other programs if tolling were implemented, but for the most part funding for these two programs would remain constant. However, if the rules of the Equity Bonus program are changed in the future, or the program is eliminated, Wyoming could lose a significant percentage of IM and NHS funding.

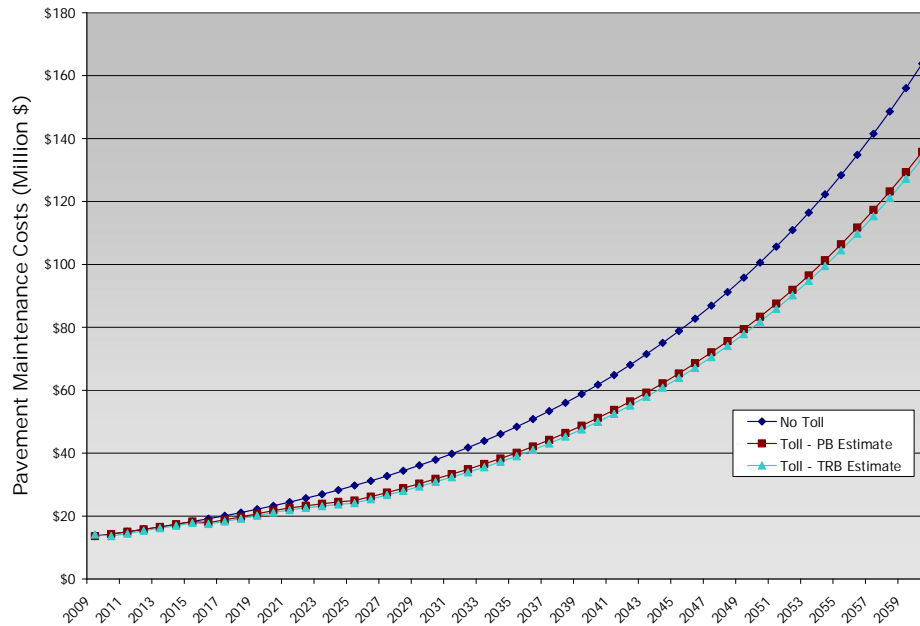
6.4 Roadway Maintenance Outlays

If trucks diverted from I-80 in future years due to tolling, WYDOT would realize one major benefit – a reduction in annual I-80 maintenance expenses due to less wear on the highway.

Exhibit 38 shows an estimate of the decrease in pavement maintenance costs per year due to lower truck and passenger traffic relative to a no-toll scenario. The decline in maintenance outlays was based on the conservative assumption that every 1 percent reduction in traffic would result in a 0.5 percent reduction in pavement maintenance costs. Under the revenue maximizing toll rate, 2025 pavement maintenance costs would be roughly \$25 million, \$5 million (16 percent) below the \$30 million cost incurred under a no-toll scenario.

¹⁵ States must meet a minimum of one of the following criteria: 1) population density < 40 persons per square mile; 2) federal land ownership > 1.25 percent; 3) population < 1 million persons; 4) median household income < \$35,000; 5) 2002 fatalities per VMT > 1; 6) indexed state motor fuel tax > 150 percent of federal fuel excise tax.

Exhibit 38: Impact of Revenue Maximizing Toll Rate on I-80 Pavement Maintenance Costs



Source: PB Analysis; Transportation Research Board

This estimate of the cost savings associated with tolling is supported by a 1990 Transportation Research Board (TRB) Study¹⁶, which computed the annual roadway maintenance cost of each incremental truck and passenger vehicle on California State Highways. After updating the cost estimates to 2009 dollars, the study concluded that one additional truck on the highway costs roughly \$5.94 in maintenance costs per mile per year, and one additional passenger vehicle costs 6.5 cents per mile per year. Using the 2025 truck and passenger vehicle forecasts, as well as the out-of-state diversion rate of 21 percent, the TRB study cost estimates would conclude that annual maintenance costs in 2025 would decline 19 percent, close to the PB estimate of 16 percent. Thus, the PB estimate of a 16 percent annual reduction in pavement maintenance outlays could be regarded as slightly conservative.

6.5 Local Business Impacts

As described in the State sales tax impacts section, vehicles diverting out-of-state under an I-80 toll scenario would reduce the demand for various products along the interstate, which could cause a negative ripple effect throughout the economy. The costs of this decreased demand on individual industries throughout the State will be discussed in this section.

To determine the economic effects of lower demand for goods and services along I-80 on each industry, an analysis was performed using input-output multipliers from IMPLAN¹⁷. Input-output models capture the inter-industry linkages of a regional economy and estimate economic multipliers, which quantify the effects of changes in final demand on employment, earnings, and economic output within a specified county, region, or state. In this case, economic multipliers can be applied to the decrease in demand along I-80 for certain goods and services to estimate three types of impacts: 1) direct; 2) indirect; and 3) induced impacts. Each impact is defined as follows:

¹⁶ Gibby, R; Kitamura, R; Zhao, R. "Evaluation of Truck Impacts on Pavement Maintenance Costs". Transportation Research Board, Issue 1262, p.48-56. Abstract available online at: <http://pubsindex.trb.org/document/view/default.asp?bid=348192>.

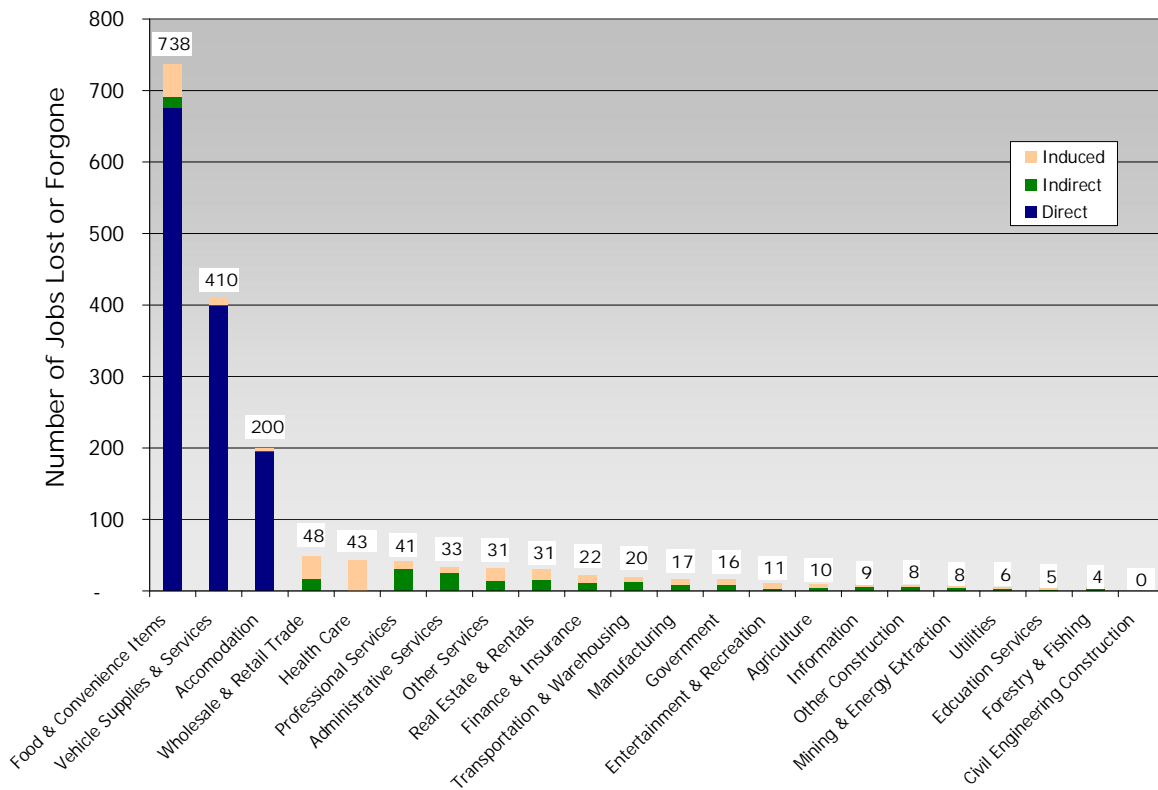
¹⁷ IMPLAN is a widely-used input-output model application produced by the Minnesota Implan Group, Inc. The application uses detailed input-output tables at the county, state, and national levels to estimate inter-industry relationships and economic multipliers.

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- Direct impacts would represent decreased spending on food and other convenience items, vehicle supplies and services, and lodging along I-80 by truck drivers and passengers who divert to out of State routes.
- Indirect impacts result from businesses supplying fewer goods and services to the food and convenience items, vehicles supplies and services, and accommodations industries due to lower demand. Suppliers of these industries will also reduce production and work force if necessary to adjust to the lower demand for their intermediate goods and services.
- Induced impacts stem from the reduction in incomes faced by workers affected by the reduced direct and indirect production in Wyoming. A decrease in demand across various industries will likely lead to reduced employment and earnings, and workers in these industries will therefore have less disposable income to spend at local retail shops, restaurants, and other places of commerce, further reducing economic activity.

The effects of truck and passenger diversion on employment in Wyoming are shown in Exhibit 39. In 2025, it is estimated that the State would lose or forgo the creation of 1,712 jobs, or roughly 0.5 percent of the employed work force in Wyoming, due to less I-80 traffic than that expected if the interstate remains a free road.

Exhibit 39: Impact of Revenue Maximizing Toll Rate on Industry Employment in Wyoming



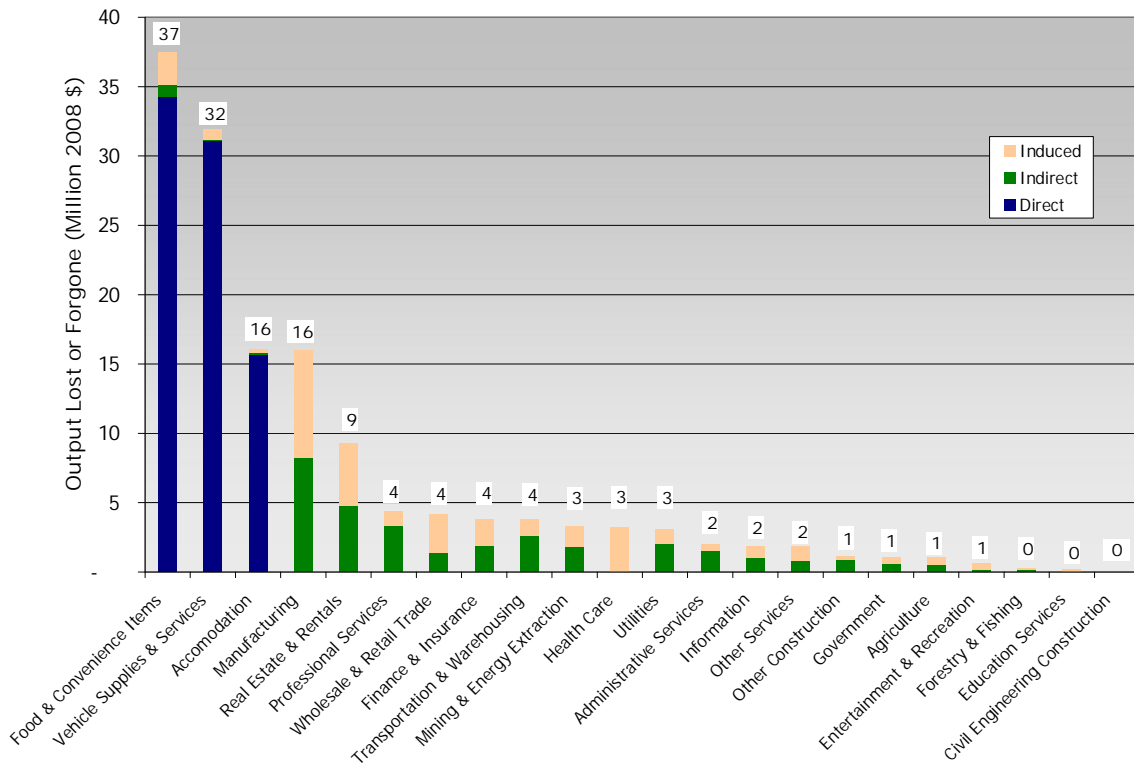
Source: PB Analysis; Minnesota Implan Group, Inc.

As expected, the majority of the job loss (1,269 jobs or 74 percent) would occur in the industries directly experiencing a decline in demand along I-80: convenience stores, restaurants, vehicle parts suppliers, vehicle repair shops, hotels, trailer parks, and other lodging businesses. These jobs lost directly due to lower traffic on I-80 are represented by the blue bars in Exhibit 39.

Nearly 200 indirect jobs and 246 induced jobs would be lost or forgone across all industries in Wyoming in addition to the direct job losses. Industries experiencing the largest decline in indirect employment include: professional services (31 jobs), administrative services (26 jobs), wholesale & retail trade (17 jobs) and food and convenience items (17 jobs). Workers who face lower incomes or unemployment due to the decreased direct demand would induce the largest job losses in the food and convenience items (46 jobs), health care (43 jobs), and wholesale & retail trade (32 jobs) industries.

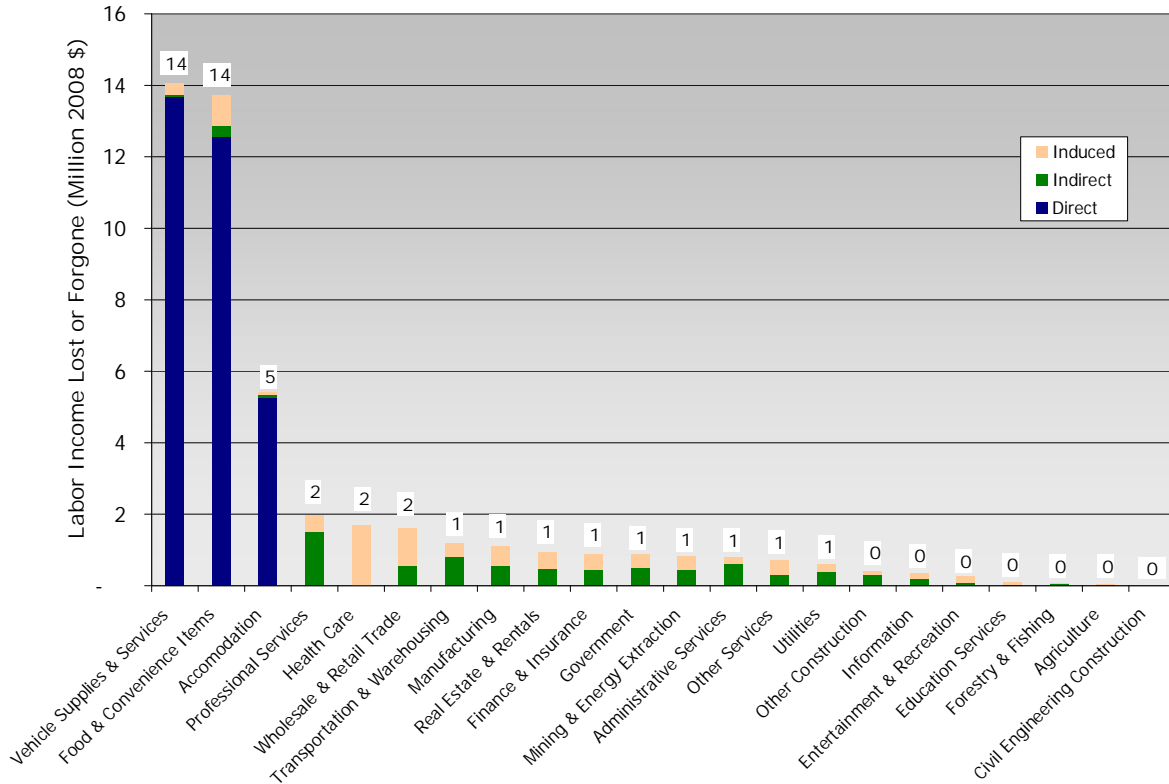
The effects of reduced I-80 traffic under the revenue maximizing toll rate on industry-specific output and labor income are shown in Exhibits 40 and 41. Production across all industries would be reduced by \$146.7 million in 2008 dollars relative to a no-toll scenario, and labor income would be \$47.6 million lower. In addition to the aforementioned industries, firms dedicated to manufacturing and real estate & rentals will experience the largest declines in production, and health care workers will face the largest decline in labor income.

Exhibit 40: Impact of Revenue Maximizing Toll Rate on Industry Output in Wyoming



Source: PB Analysis; Minnesota Implan Group, Inc.

Exhibit 41: Impact of Revenue Maximizing Toll Rate on Industry Labor Income in Wyoming



Source: PB Analysis; Minnesota Implan Group, Inc.

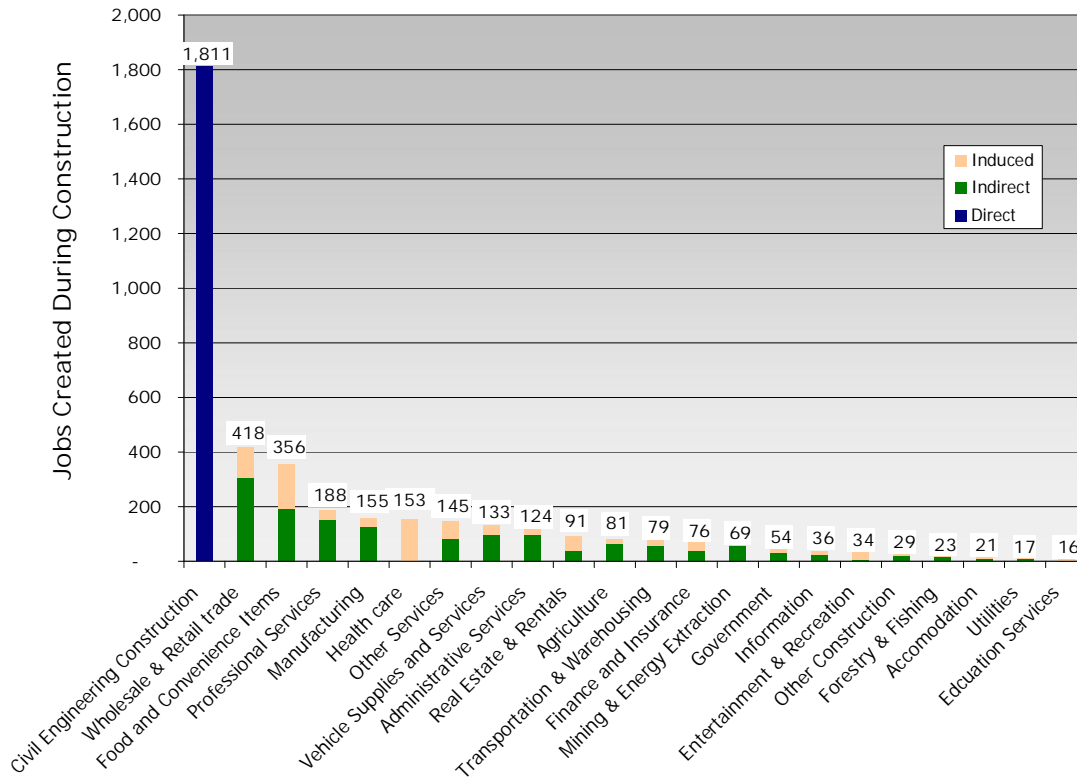
6.6 Construction Impacts

The physical expansion of Interstate 80, were it to occur, would generate a one-time economic benefit to the State of Wyoming in the form of new jobs, output, and labor earnings. Civil engineers would need to be hired to complete the design, planning, and management of the project, while hundreds of construction workers would be needed to build the new third lane in both directions. In addition, other industries would need to expand production to supply goods and services to workers planning, designing, and executing the work, which means the project would provide broad-based benefits throughout the State economy.

To estimate the economic impacts of the I-80 expansion project, the estimated annual construction cost was assumed to represent an increase in demand for civil engineering construction services in Wyoming. The cost of each contract was applied to economic multipliers for the civil engineering construction industry from IMPLAN to determine the short-term benefits generated by the project.

Shown in Exhibit 42 below is the anticipated number of jobs that will be created and sustained in each industry through each year of the expansion project. The blue bars show the number of direct jobs in the civil engineering construction industry to be created in Wyoming, and the green and tan bars show the indirect and induced jobs created in other industries as a result of the project.

Exhibit 42: Impact of I-80 Expansion on Job Creation by Industry



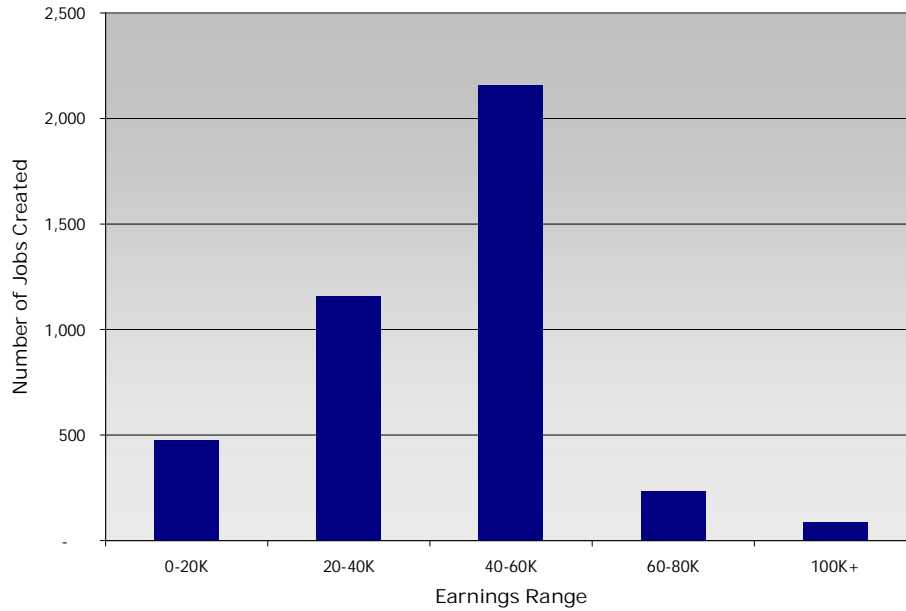
Source: PB Analysis; Minnesota Implan Group, Inc.

In total, it is estimated that 4,110 full-time jobs would be created by the expansion project. Assuming that construction costs are equally spent each year of the expansion project, the jobs would all be created in 2015 and continue through 2024, after which they would be terminated. About 44 percent of the jobs created would be direct jobs in the civil engineering industry (1,811 jobs), while 35 percent would be indirect jobs (1,424 jobs) and 21 percent would be induced jobs (875 jobs) created in other industries.

The industries that are expected to see the largest number of indirect jobs created in Wyoming include wholesale & retail trade (305 jobs), food and convenience items (192 jobs), professional services (153 jobs), manufacturing (127 jobs), vehicle supplies and services (99 jobs), and administrative services (97 jobs). Workers re-spending their additional earnings in the State will induce the most job creation in the food and convenience items (163 jobs), health care (153 jobs), and wholesale & retail trade (113 jobs) industries.

It is also important to analyze the quality of the jobs that would be created by the I-80 expansion project, which can be most easily measured by the number of jobs created at various levels of compensation. Exhibit 43 shows that the majority of jobs generated by the project would receive compensation between \$40,000 and \$60,000 per year, indicating that the project would generate well-paying jobs for the middle class that would help stimulate the regional economy.

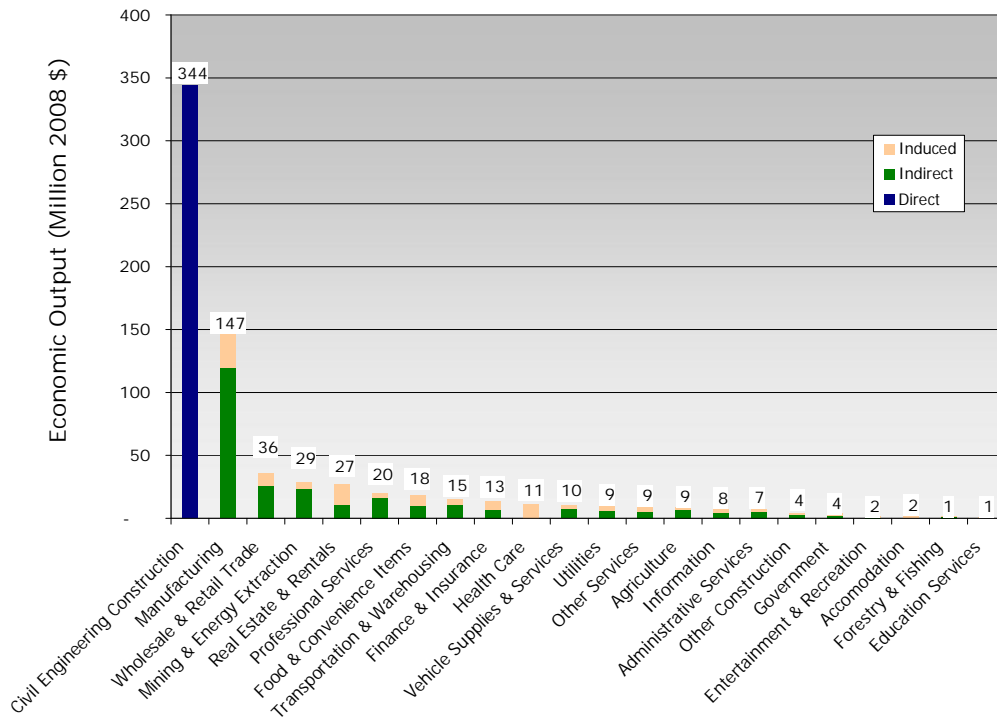
Exhibit 43: Breakdown of Job Creation by Earnings Range



Source: PB Analysis; Minnesota Implan Group, Inc.

The amount of short-term economic activity generated by the replacement project is shown in Exhibit 44. In total, the project would generate \$727 million in real economic output (measured in 2008 dollars) each year from 2015 to 2024.

Exhibit 44: Breakdown of Output Creation by Industry and Type of Impact



Source: PB Analysis; Minnesota Implan Group, Inc.

This economic activity would also carry positive tax benefits for the State, county and municipal governments, including higher sales, use, lodging, mineral severance, and property taxes. Though it is difficult to accurately estimate gains in the level of each additional tax revenue stream, IMPLAN estimates that total gains in State and local tax revenues could be roughly \$16 million per year during the ten-year expansion project.

6.7 Total Fiscal Impacts by Year

To summarize the findings from this chapter, tolling I-80 would create negative impacts to the following stakeholders and revenue streams:

- State of Wyoming: annual fuel taxes, vehicle fees, sales taxes, and cigarette taxes
- Wyoming County and City Governments: annual fuel taxes, sales taxes, and lodging taxes
- Private Industry: annual labor income, employment, and economic output once tolling begins

The positive impacts of tolling the interstate, aside from the potential toll revenues generated, include the following:

- State of Wyoming (WYDOT): Lower annual pavement maintenance costs, one-time sales tax increases during construction years
- Wyoming County and City Governments: one-time increases in sales and lodging taxes during construction years
- Private Industry: one-time increase in labor income, employment, and economic output during construction years.

The total fiscal impacts by stakeholder under the revenue maximizing toll rate in the Base Case scenario are shown in Exhibit 45. The effects of tolling on overall Federal funding will be neutral assuming current regulations are extended, although a small level of funding would shift from the Interstate Maintenance (IM) program to other Federal programs. Tolling impacts on State and local tax revenues are expected to be positive during the construction period from 2015 to 2024, and then negative throughout the rest of the forecast period. The impacts on the private sector also would be positive during the construction period and then turn negative beginning in 2025 due to less traffic and demand for goods and services along the I-80 corridor.

**Exhibit 45: Summary of Fiscal and Other Impacts, Selected Years
(All Numbers Shown are in Million 2008 Dollars)**

Impact Driver	Impact Type	2015	2020	2025
Truck and Passenger Diversion	Federal IM Funding	0.0	-0.7	-1.2
	Other Federal Funding	0.0	0.7	1.2
	Total Federal Impact	0.0	0.0	0.0
Truck and Passenger Diversion	State Fuel Taxes	0.0	-2.6	-4.4
	State Vehicle Fees	0.0	-1.2	-2.0
	State Sales Taxes	0.0	-3.0	-5.2
	Local Sales Taxes	0.0	-1.2	-1.9
	Local Lodging Taxes	0.0	-0.3	-0.5
	WYDOT Roadway Maintenance Outlays	0.0	1.1	3.2
Project Construction	State and Local Taxes	16.0	16.0	0.0
	Total State and Local Impact	16.0	8.8	-10.8
Truck and Passenger Diversion	Business Output	0.0	-83.8	-146.7
Project Construction	Business Output	727.0	727.0	0.0
	Total Business Impact	727.0	643.2	-146.7

Source: PB Analysis; Federal Highway Administration, USDOT; Minnesota Implan Group, Inc.

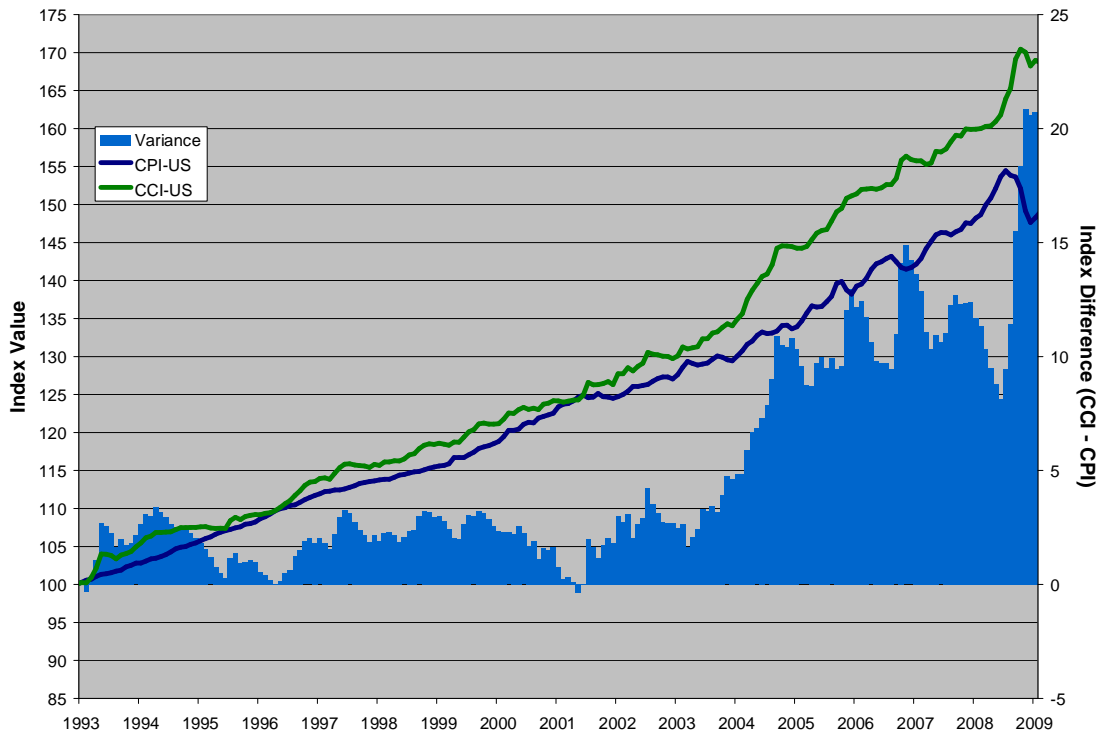
7 Construction Business Cycles

7.1 US Construction Economy

Prior to 2002, construction cost escalation had a stable linear growth trend which was in line with general inflation as measured by the Consumer Price Index (CPI). Since 2002, the variance between construction cost escalation and general CPI inflation (as shown in Exhibit 46), has significantly increased. This divergence between general inflation and construction cost escalation has been driven largely (although not entirely) by volatile growth in key global commodity prices, particularly oil and steel. November 2008 through January 2009 saw the biggest widening in the variance, due in part to the run up in steel and fuel prices from the second quarter of the year, which had impacts that lagged declines in overall inflation.

While the current recession has changed the escalation environment for now, recovery and a resumption of global economic growth, when it occurs, is likely to be accompanied by a return to the upward pressure on commodity and thus construction prices.

Exhibit 46: CPI, CCI, and Variance between the two from 1993-2009¹⁸



Drivers of Recent Growth in U.S. Construction Costs

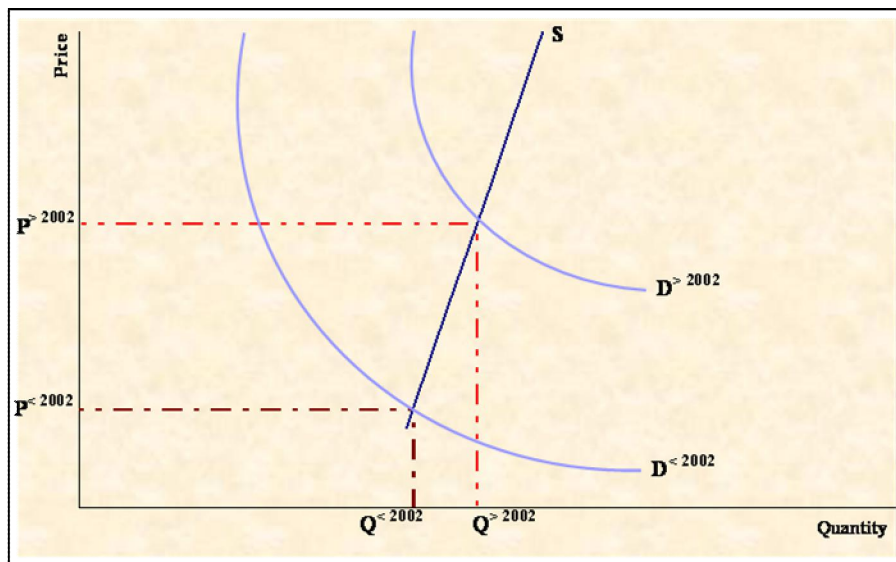
As mentioned above, construction cost escalation has deviated from general inflation in recent years. Higher-than-average inflation cost growth has been partly driven by a supply / demand imbalance in which suppliers and producers of construction components were unable to scale-up to meet rapidly increasing demand. While higher prices would provide incentives to producers to meet rapidly increasing demand, there are barriers to quick ramp-ups in supply in the construction component market.

¹⁸ Consumer Price Index (CPI) from Bureau of Labor Statistics (BLS); Construction Cost Index (CCI) from ENR.com; and PB Analysis.

Constraining factors include political alliances including OPEC control of oil production, limited natural resources, physical timelines to bring on-line new production capabilities, localized competition for factor inputs, exchange rates, trade barriers, decreased contractor competition, and market speculation. Conversely, in the recent past the demand side was not subject to these same constraints. Global forces including rapid growth in emerging economies (especially China), the residential construction boom in the U.S., and highly leveraged access to capital for infrastructure investment all played a part in the demand growth seen in the past five years.

The short term aggregate construction material and labor supply curve is somewhat inelastic (i.e. elasticity is close to zero). As the demand increased (i.e. an outward shift in the demand curve) due to the factors outline above, the price disproportionately increased – thus triggering high construction cost inflation (Exhibit 47). The long-run aggregate construction material/labor supply curve is relatively more elastic, because producers and contractors will adapt to high demand requirements.

Exhibit 47: Short-term Aggregate Construction Material and Labor Supply/Demand



The three main factors that contributed to high construction escalation in the recent past (i.e., since 2003) include:

- Rapid growth in emerging economies
 - The rapid growth in emerging markets has driven demand for construction resources beyond the capacity of global suppliers to respond. While advanced economies have shown relatively stable real GDP growth of between 1 and 4 percent, emerging economies experienced much more rapid real GDP growth – for example, 8.3 percent in 2007. This trend is magnified in the case of China, which experienced 13 percent real GDP growth in 2007. Strong growth in emerging economies requires large amounts of investment in civil infrastructure to support increasing trade and mobility. Included in this spending were extensive infrastructure improvements made by China in preparation for the 2008 summer Olympics. In spite of the current deep global recession, it is likely that emerging economies will return to high growth in the next few years (although pre-recession growth rates may not be seen for some time). The IMF is predicting some recovery in 2010 and a return to growth rates of greater than 6 percent by 2011.
- US residential / non residential construction bubble
 - Recent years have seen increased high real growth in both residential and non-residential construction. Both categories reached growth rates of more than 7.5 percent in the last 5

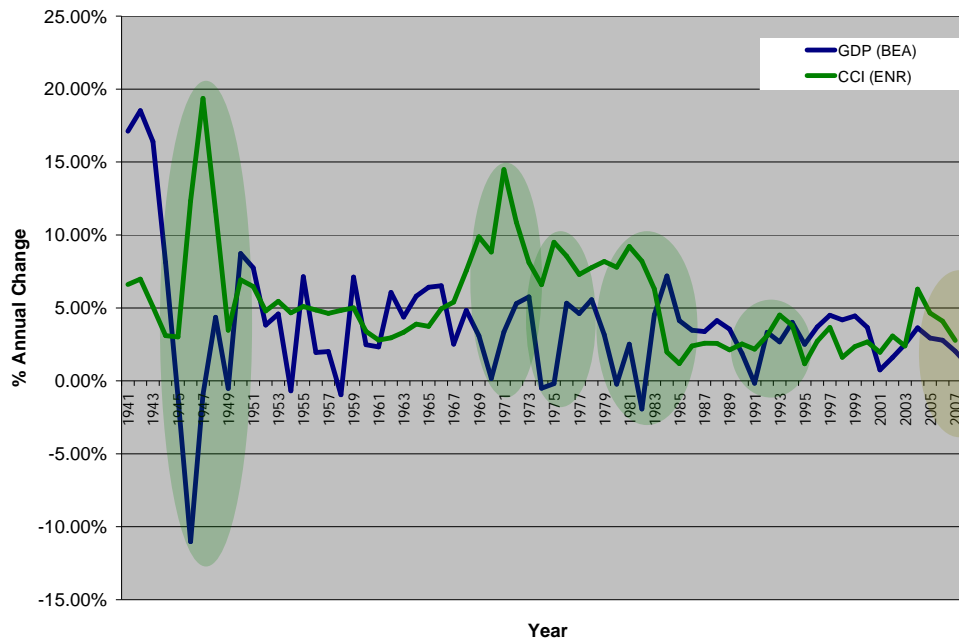
years¹⁹. Though residential investment growth started its decline in 2003, growth in the non-residential market continued to increase, with a peak in 2006, which perhaps delayed the onset of the current recession. The decline in residential and non-residential was also observed in 2001, where the US economy experienced a relatively mild recession. Conversely, the residential construction and housing markets were leaders in the drop-off of the overall economy and play a significant role in the recent price drops of some construction components.

- o Ready access to capital
 - An essential driver to the housing boom was ready access to inexpensive capital. This driver of growth helped to generate high demand for construction materials, equipment, labor and other inputs. As major mortgage-backed losses in the end of 2007 gave way to bankruptcies and government bailout packages by the end of 2008, credit essentially dried up for a period of months. As banks move to protect their capital positions, loans have been difficult to come by resulting in an uncertain situation for both private and public construction. While these funds have begun to flow again (albeit at very low volumes), near-term infrastructure spending will most likely be from the public sector.

7.2 Construction Escalation and Business Cycles

Historically, recessionary times have led to increased infrastructure spending; thus higher construction cost escalation. During a downturn, the Federal government has sought to bolster aggregate demand by public works spending, stimulating economic growth. Exhibit 48 illustrates this concept, with recessionary periods highlighted in green, showing a negative correlation between changes in GDP (indicative of a recession) and CCI. Of course, this behavior is highly driven by policy and politics. Given the recent infrastructure stimulus spending by the US government (and other governments such as the European Union and China), a spike in construction costs is possible.

Exhibit 48: Correlation between GDP and CCI from 1942-2008



¹⁹ Bureau of Economic Analysis, May 2009

However, as Exhibit 49 illustrates over the past three quarters, construction cost escalation has mirrored that of economic growth (measured in GDP growth). Given the severity of the current economic recession, it is likely for this low construction cost escalation phenomenon to continue until the economy sees signs of recovery and until the infrastructure stimulus spending takes effect. Given historical correlations (as illustrated in Exhibit 48), the return to high construction escalation should lag economic recovery by two to three quarters.

Construction cost inflation is heavily influenced by local factors and it is not uncommon for prices to grow at a differential rate in Wyoming than national averages. Major drivers for local differences include local labor (union vs. non-union), transportation costs (especially for construction material prices such as concrete, cement and aggregates), localized competition for factor inputs by similar projects and the local contractor bidding environment. However, given the trends in Exhibit 49, construction escalation in Denver (one of the nearest major metro areas to Wyoming) appears to be similar to that of national trends.

Exhibit 49: Correlation between GDP and CCI – Quarterly 2007 Q1 to 2009 Q2

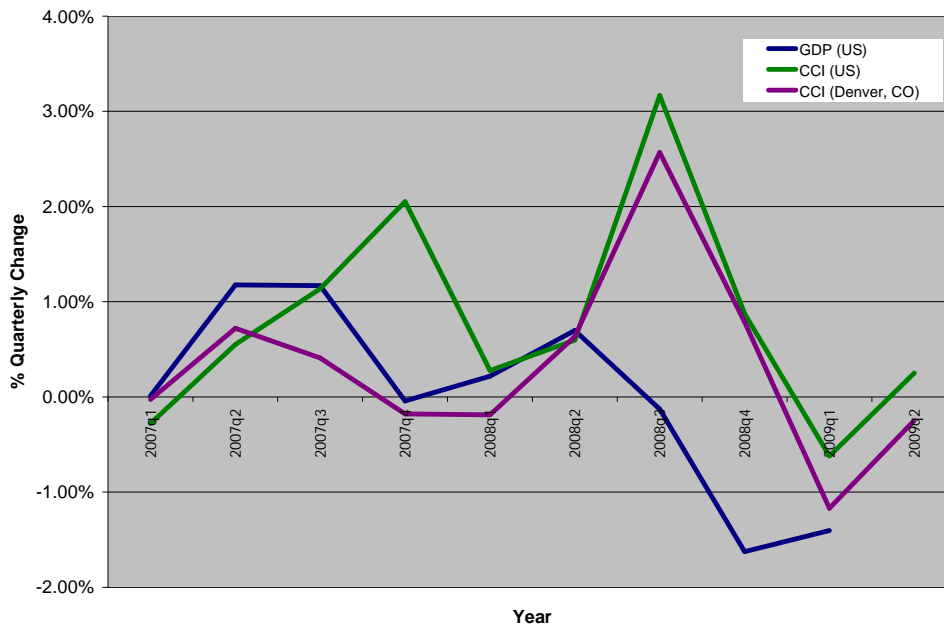


Exhibit 50 presents historical data for the rate of inflation of various construction cost components between 1972 and 2007, along with general CPI-U²⁰. Each shaded area represents a recession period, which is further illustrated by the growth rate in real GDP, also presented on the charts.

These charts highlight the significant volatility of construction inflation in periods of economic downturn, such as the recession of the early 1990s or the more recent dot.com and high tech bust in 2001-2002. The combination of the downward pressure on prices due to the current U.S. economic downturn and the inflationary pressures on raw materials and commodities such as those typically used in the construction industry (especially energy prices), is likely to result in a volatility similar to that experienced in previous troughs of the business cycles.

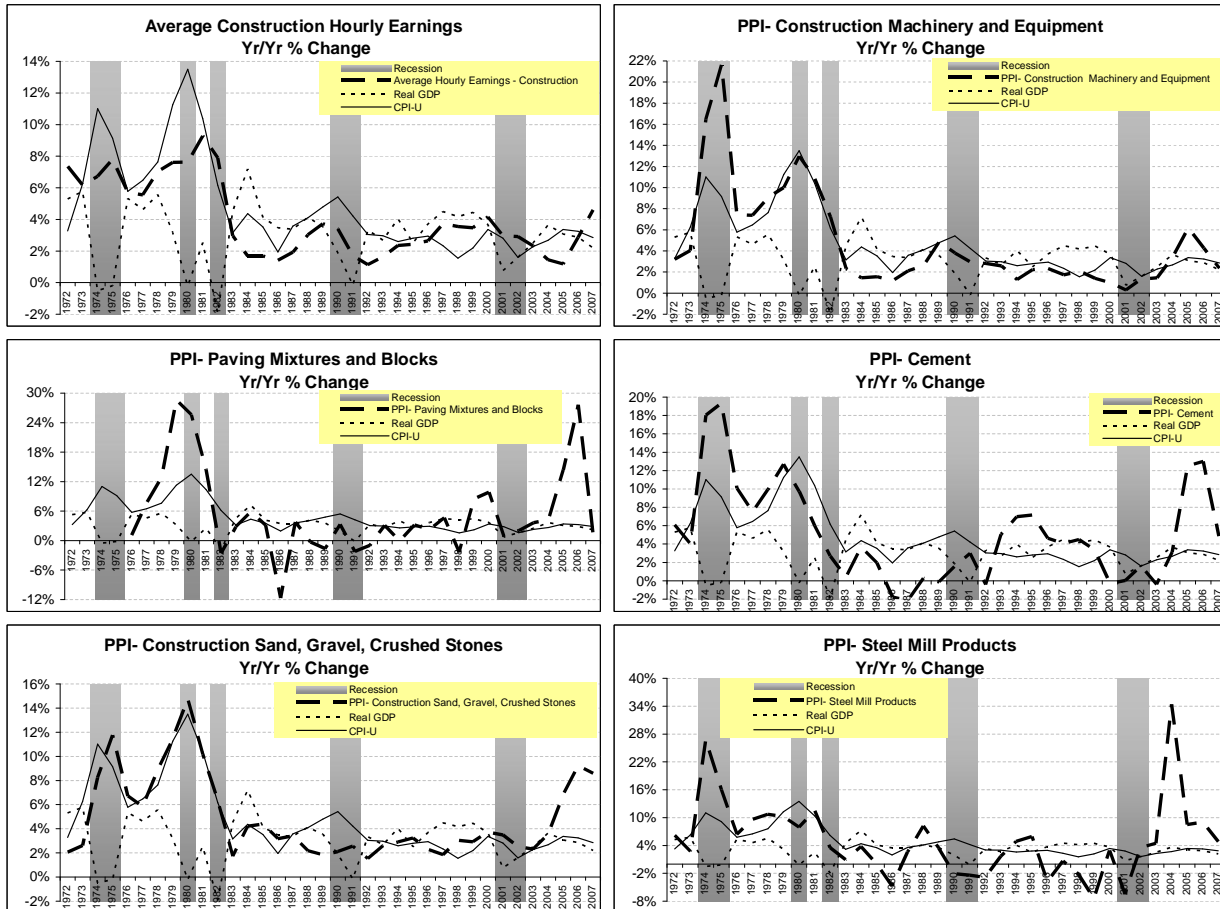
The following charts also illustrate how construction cost escalation has tended to lag the recovery period by a few years, especially in the last two cycles. Depending on the length of the current contraction, it is likely that some of the construction cost components would experience a similar delay in responding to

²⁰ Consumer Price Index for All Urban Consumers

the economic recovery, thus making the overall construction inflation lag the US economy (as measured by real GDP) by a year or so.

Over the last few years, some construction cost indices have grown at their highest rate in 25 years; some of them, such as steel, increasing as much as 30 percent above base CPI growth rate. This suggests a disconnect between the domestic economy and global price pressure, which is expected to remain one of the key drivers of construction price increases in the near future.

Exhibit 50: Business Cycle Analysis by Construction Cost Component, 1972-2007²¹



7.3 Project Specific Cost Drivers

The following section highlights some of the key market factors and forces influencing prices for two of the major commodities that would affect construction costs for a highway project such as the I-80 expansion: crude oil and refined petroleum products, and concrete.

Oil/Refined Petroleum

Oil prices affect construction costs in a number of ways. The price of oil directly affects highway costs through asphalt binder prices. Asphalt binder – a byproduct of the refining process – constitutes about half of the materials costs of asphalt paving. The remainder of the cost is comprised primarily of mineral aggregates. Asphalt averages about 20 percent of highway costs nationwide. In addition to its direct

²¹ Source: Bureau of Labor Statistics (BLS) and Bureau of Economic Analysis (BEA)

impact on asphalt prices, the price of oil affects construction costs via transportation costs, as well as through generalized impacts on overall inflation, as energy prices drive up costs throughout the economy.

Oil prices are driven first and foremost by overall world demand. Limited supply is the second major driver, both due to OPEC controls, as well as limitations in refining capacity.

Because of high fixed costs, US refining capacity does not provide sufficient excess margin when demand spikes, or when refineries are put out of commission, such as after Hurricanes Katrina and Rita. As a result, refined petroleum product prices can fall independently of oil prices on spot markets. Additional observations:

- Of all global commodities, crude oil prices are by far the most sensitive to international political relations and conflicts. Political disruptions are always possible, and can result in shortages and price increases at any time.
- Because crude oil is commoditized – that is, it is sold primarily on spot markets, rather than directly from country to country – bilateral exchange rate differentials are less important than the overall status of the U.S. dollar against a market basket of currencies.
- Economic growth in China, India, and the rest of the rapidly developing world, once it resumes, will continue to place strong upward pressure on prices, particularly as world oil supplies reach their theoretical “tipping point” and as new fields prove more expensive to tap.

Asphalt prices, as noted, are closely correlated with crude oil and refined petroleum prices, but there can be a lag in the effect. Engineering News Record (April 6, 2009) indicates that asphalt paving prices have fallen in response to the precipitous drop in oil prices, but with a lag of 3 to 6 months.

As refined petroleum products resume their upward price trend after recovery, refiners will focus on producing more gasoline and less asphalt binder, exerting more pressure on asphalt prices.

Cement/Concrete

Because of its weight and bulk, which make transporting expensive, and also because most of the non-energy inputs can be procured locally, concrete (either ready mix concrete, Portland Cement, or pre-fabricated concrete) is not generally shipped over very long distances. Cement is the basic input to concrete, and is typically less closely linked to local supply constraints as other concrete components. Sand and aggregate prices can be highly localized due to high transportation prices of these heavy materials. Cement is, therefore, easiest to analyze on a national level.

The price of cement is largely determined by the transportation costs involved in delivering the cement, as well as energy prices used in production. Because of the relatively high cost of shipping cement, competition is generally maintained on a regional level. Average transportation costs reported by U.S. producers for shipments within 50 miles of the plant were \$5.79 per ton. Average shipping costs increased to \$9.86 for shipments within 51 to 100 miles, to \$14.53 for 101 to 200 miles, and to \$18.86 for 201 to 300 miles. The majority of cement produced in the U.S. is sold within 200 miles of the plant or terminal of origin.

While cement is produced close to where it is used, cement production in the U.S. is dominated by foreign owned conglomerates; CEMEX, a Mexican producer, has the largest market share in the United States. Because of a gap between U.S. domestic production capacity and demand, over 20 percent of US cement is imported, from Mexico, Canada, Thailand, and China. Because of the lower costs of production, and the less restrictive air quality regulations in Mexico, the southern tier states of the US in particular have relied fairly heavily on cement imports from Mexico.

Cement prices, as noted, are closely tied to transportation costs and energy costs in general. Engineering News Record indicates that cement prices (Portland Cement) have fallen rapidly since December.

7.4 Construction Cycle Conclusions

While history can explain some of causes of cost variability, no two business cycles are the same and policy decisions that can severely impact oil prices cannot easily be predicted. This said, predicting construction price trends can make a substantial difference in the cost of highway development, especially if there is some latitude in the types of materials and timing of implementation. Since WYDOT may be afforded such latitude, both in the initial construction phase and in later rehabilitation phases, and due to the very high cost of the proposed project, construction cycle analysis should be performed on an ongoing basis to help minimize the overall project cost.

8 Federal Funding Programs

As noted in Section 6.3, Wyoming’s Federal funding levels are not expected to be impacted materially as a result of tolling on I-80. This section continues the discussion of Federal funding programs, providing historical context and additional detail on the structure of programs. This section explores the Federal funding impact of tolling on I-80 and the potential options available to WYDOT to mobilize Federal monies to best support the future needs for their transportation network. Some of the major funds through which Federal monies are apportioned to WYDOT are explained in the following sections.

WYDOT receives Federal funds through 29 of the 140 funding programs within the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU). Many of these funds are stipulated to be used on certain types of roadways and have other associated restrictions on their use.

Interstate Maintenance Program

The Interstate Maintenance (IM) program provides funding for resurfacing, restoring, rehabilitating and reconstructing routes on the Interstate System. The funds are subject to overall Federal-aid obligation limitations and are available for a period of four years. IM funds are apportioned to States based on a combination of factors, with equal weights given to available interstate lane-miles, amount of travel on the interstates (measured in total vehicle- miles traveled) and the State’s annual contribution to the Highway Account of the Highway Trust Fund attributable to commercial vehicles.

IM funds may be redirected to other State appropriations such as the NHS, STP, CMAQ, HBRRP, or the Recreational Trails apportionment, though the redirected funds cannot be greater than 50 percent of the State’s total IM apportionment. Once redirected, IM funds can be used as per the guidelines stipulated for the target fund.

In fiscal year 2008, the State of Wyoming received \$56.4 million in IM funding, about 25 percent of its total Federal authorization of \$228 million in that year.²² Exhibit 51 shows the historic apportionments of Interstate Maintenance funds and Statewide and Interstate VMT’s.

Exhibit 51: Historical Interstate Maintenance Funds Apportionments and Annual Vehicle Miles Traveled

Year	Total Statewide VMT (Millions of Vehicle Miles)	Interstate VMT (Millions of Vehicle Miles)	Interstate Maintenance Funds Appropriations (Thousands \$)
2003	6,065	2,792	\$ 41,321.00
2004	6,178	2,867	\$ 47,205.00
2005	6,264	2,861	\$ 45,651.00
2006	6,396	2,925	\$ 45,846.00
2007	6,549	2,989	\$ 52,622.42
2008	6,403	2,883	\$ 56,396.72

Source: WYDOT

Note: A factor of 365 was used to convert Daily VMT to Annual VMT

National Highway System (NHS)

This program provides funding for improvements to rural and urban roads that are part of the NHS, including the Interstate System and designated connections to major intermodal terminals. NHS funds

²² The authorization figures quoted have been augmented by equity bonus and revenue aligned budget authority funds, after penalty shifts.

can also be used to fund transit improvements in NHS corridors, under special circumstances. In FY 2008, the State of Wyoming received \$85.8 million in NHS funding, 38 percent of its total allocation for the year.

Surface Transportation Program (STP)

This program provides flexible funding that may be used by States and localities for projects on any Federal-aid highway, including the NHS, bridge projects on any public road, transit capital projects, and intra-city and intercity bus terminals and facilities. In FY 2008 STP provided \$36.1 million or 16 percent of the total Federal appropriations.

The Highway Bridge Replacement and Rehabilitation Program (HBRRP)

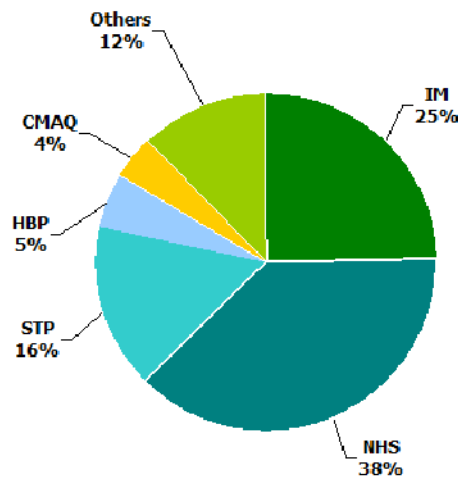
The HBRRP provides funds to assist the States in their programs to replace or rehabilitate deficient highway bridges and to seismically retrofit bridges located on any public road. In FY 2008, \$12.1 million in Highway Bridge Replacement funds were apportioned to WYDOT.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

This program provides funding for projects and programs in air quality nonattainment and maintenance areas for ozone, carbon monoxide (CO), and particulate matter which reduce transportation related emissions. WYDOT obtained \$9.9 million through the CMAQ program in FY 2008.

As shown in Exhibit 52 in 2008, greater than two thirds of the total Federal funding came through two Federal programs – the Interstate Maintenance funds and the National Highway System funds.

Exhibit 52: Federal Funding Programs Share of Total Federal Funds, FY 2008



Source: FHWA

The funds described above have a complex system of apportionment and allocation restrictions. For instance, IM funds are only available for maintenance and rehabilitation of the Interstates while STP funds are eligible for use on almost any roadway. Exhibit 53 shows the major Federal funding programs and their allocation restrictions.

Exhibit 53: Federal Funding Program - Allocation Restrictions

	WYDOT miles	Interstate Maintenance	National Highway System	Surface Transportation Program	Other Programs Depending upon Projects
Functional classification					
Principal Arterials	Interstate: 914	✓	✓	✓	✓
	Other NHS: 2,038		✓	✓	✓
	Off NHS: 146			✓	✓
Minor Arterials	Off NHS: 1,029			✓	✓
Major Collectors	Off NHS: 2,208			✓	✓
Minor Collectors	Off NHS: 266				✓
Local Roads	Off NHS: 243				✓
Percent of WYDOT Miles eligible		13%	43%	93%	NA
Percent of WYDOT's Federal Funding in FY 2008		27%	40%	17%	16%

Source: WYDOT and general Fund Appropriations for Highways, 2008

Note: Of Wyoming's 27,831 road miles, WYDOT is responsible for 6,844 lane miles of highway.

8.1 FHWA Tolling Pilot Programs

Section 1216(b) of TEA-21 established a set of pilot programs which enable States to collect tolls on Interstates, State Highways, bridges, or tunnels to support expansion, rehabilitation, or reconstruction projects. Most of these programs were extended in SAFETEA-LU. Each of these programs must be applied for and has a limited number of "slots" that were made available at the time the legislation was put into law. A brief description of some of these programs is provided below.

Express Lanes Demonstration Program

This program allows for tolling on select facilities to manage high congestion levels, reduce emissions or finance additional interstate lanes for the purpose of reducing traffic congestion.

Qualified demonstration projects could include, variable price schemes, HOV exempt tolling, implementation of automatic toll collection in express lanes to reduce congestion, and other similar projects. This program could also be applied to a modified truck-only-toll (TOT) lanes construction.

A total of 15 demonstration projects can be allowed through this program. Toll revenues collected under this program have to be directed, in order of priority, to debt service, reasonable return on private investment, operating and maintenance expenses.

Interstate System Reconstruction & Rehabilitation Pilot Program (ISSRRP)

This program authorizes up to three existing interstate facilities to be tolled in order to provide for maintenance and rehabilitation of the Interstate. One slot of the original three available under this program is still open.

The program does not permit IM funds to be used on the facility from which tolls are being collected. The apportionment of the funds to the State, however, does not necessarily change due to the act of tolling under this program. All funding received by the State would have to be used on other interstate facilities, following the IM program criteria. In the case of Wyoming, tolling on I-80 would result in all IM funding received being restricted to use on Interstates 25 and 90.

Title 23 United States Code (U.S.C.) Section 129 Agreement

Section 129 Toll Agreements allow federal participation in activities such as the construction or improvement of a toll facility or, if the State plans to convert a free highway or a bridge or tunnel, roadways originally constructed with Federal-aid funds to a toll facility. An agreement is executed between the State and the Federal government under Section 129 (a)(3) that allows the State to collect

tolls and requires that all toll revenues be directed in order of priority to, debt service, reasonable return on private investment, operation and maintenance including reconstruction, resurfacing, restoring and rehabilitation work.

This program essentially allows for five types of tolling:

- Initial construction (except on Interstate System) for toll highways, bridges and tunnels, including their approaches;
- Reconstruction, resurfacing, rehabilitation and restoration of any existing toll facility;
- Reconstruction or replacement of free bridges or tunnels and conversion to toll facilities;
- Reconstruction of a Federal-aid highway system (except on an Interstate System) and conversion to a toll facility;
- Preliminary studies to determine the feasibility of the above toll construction activities;

While the program does not specifically include provisions for tolling existing Interstates, FHWA representatives suggested that negotiating a Section 129 agreement for I-80 in Wyoming may be a viable alternative to the pilot programs, as they are one the most flexible of the available tolling alternatives.

9 Financial Feasibility and Scenarios

Since the summer of 2008, problems in the financial markets have reverberated throughout the economy and created many new challenges for infrastructure development. Most large highway projects rely on financing of some type and this project has been initially proposed as a fully financed project with non-recourse toll revenue bonds. While the proposed project is an expansion of an existing roadway with a long history of traffic, there are still significant risks that must be borne by bond holders and other partners in the project. Some of these risks can be mitigated by WYDOT while others should be transferred to the parties who are best able to provide mitigation. This section discusses certain assumptions used in the Base Case conceptual finance plan that have changed over the past 12 months and suggests potential options for improving the project's financial position during implementation and operation.

9.1 Financial Market Changes

Between 2000 and 2007, the housing sector grew at unprecedented rates, both in terms of sales volume and home prices. This growth was experienced nationwide (and internationally), but was focused in certain markets including southern California, Nevada, Florida, and many major metropolitan areas. Some lending practices that were employed during this time were unsound and resulted in negative equity situations for many home-owners. In 2007, as some home-owners began to default on their loans, it became apparent that the economy was heading towards a recession. In a short period of time between 2007 and 2008, home foreclosures grew to record levels followed by growth of the inventory of new and existing homes for sale. As inventories grew, prices fell, making it more difficult for struggling home-owners to find financial relief. Behind the scenes, the institutions that invested heavily in mortgage backed securities found themselves over-leveraged and began to default on their obligations, creating a global financial crisis that made itself apparent to the world with the major U.S. stock market crash in October of 2008.

Since the fall of 2008, lending markets in the US and abroad have been in general disarray. Funds are generally not available to lend, and for several months in the beginning of 2009, virtually no municipal bonds were being sold. Interest rates grew and bond insurance, once commonly used to improve the credit ratings of toll revenue bond issues, was no longer available. These conditions are expected to continue until the economy emerges from the recession, but the future of lending terms to fund toll road development is very uncertain.

It is assumed that markets will stabilize over time, certainly by the time a transaction for the proposed I-80 project is contemplated. This said, there are several ways that project sponsors can improve the marketability of their projects by reducing the risk transferred to investors and being active partners in the project's development and implementation. Some of these options and approaches are explored in this section.

9.2 Financial Scenarios

The Phase 1 Report outlined a basic financial structure where a single bond issue was sold, consisting of Current Interest Bonds (CIBs) and Capital Appreciation Bonds (CABs). CIBs are standard mortgage style bonds which have regular annual or semi-annual principal and interest payments. Payments on CABs are deferred to a later date, and, as such, accrue more interest. CABs commonly play a part in toll revenue bond structures because of the inherent growth of toll revenue streams that limits the number of CIBs that can be issued at the project's outset.

A basic financial structure, as was outlined in Phase 1, is useful in judging the initial financial feasibility of a project, though there are other options and enhancements that can increase the value of the toll revenue stream in a financing. While we do not expect the current, historically tight credit markets to be maintained in perpetuity, some recent changes to credit criteria for toll roads will live on well after the economy rebounds from the recession. These include:

- 1) CIB / CAB Split – CABs are an inherently more risky type of financing instrument than CIBs due to the fact that CAB principal and interest payments are deferred to the end of the repayment period. As such, the 'market' has established a cap on the proportion of CABs that a bond issue could make up and be successfully sold to investors. Clearly this is not a hard and fast rule, and many variables play into the marketability of a bond issue, but generally a toll road bond issue should not have more than 35 percent of the debt in CABs. Having more than 35 percent could cause the bonds to be considered overly risky or unfavorable and underwriters may be unable to sell all of the bonds, thus terminating the entire transaction.

The Phase 1 financial feasibility included over 40 percent of the debt in CABs. Reducing the proportion of CABs in the financing will have a negative impact on the overall bond proceed from toll revenues. The transactions modeled as part of the Phase 2 work have a CAB proportion ceiling of 35 percent.

- 2) Series of Bond Issues – The longer the duration of time between when a bond transaction closes and the toll road opens for service (and revenue generation) the more risk is involved for investors. It is beneficial to reduce the amount of time that a project is under construction, not only because interest must be capitalized and paid later, but the risks inherent to construction (delays due to unexpected circumstances) can cause the overall cost of borrowing to increase.

Phase 1 assumed only one bond issue at the outset of construction and that pre-completion tolling would begin soon after in order to begin repayment of debt prior to the roadway's construction being completed. In the Phase 2 financial scenarios, a similar pre-completion tolling approach will be used, but the approach will be modified to finance, construct, open, and toll five individual sections of the roadway in succession. This is a less risky overall approach, which should be better received by the market than the single debt issuance approach modeled in Phase 1.

- 3) 40 Year Debt Maturity – Long-term tax exempt (municipal) debt generally ranges in maturity from 20 to 40 years. The longer the maturity, the more up front funds can be generated, though longer maturity debt usually has a higher interest rate. 40 year debt is not uncommon, but some programs (including the USDOT TIFIA program) limit debt maturities to 35 years. Some of the Phase 2 financing scenarios take advantage of loan programs such as TIFIA (discussed below) in an attempt to reduce the project's overall weighted average cost of capital. As such, all Phase 2 financing scenarios use a 35 year debt maturity. Holding all else constant, lowering the maturity of the debt will decrease the bond proceeds from a given revenue stream, though if TIFIA is used, the reduction in the overall cost of capital should make up for any negative impact from shortening the maturity.

These three updates to the I-80 toll revenue financial model reflect changes to the financial markets and credit criteria that we expect to extend into the future beyond the impending economic recovery. With these changes to the general assumptions of the financial model, the financial capacity of the Base Case project outlined in the Phase 1 report increases by approximately 12 percent from \$3.21 billion to \$3.38 billion.²³

Section 4 of this report discusses adjustments made to the diversion and traffic model, resulting in revised toll revenue projections for the Base Case toll configuration and two other toll configurations (toll scenarios 1 and 2). The gross toll revenue forecast and operating cost of each of these scenarios varies, resulting in a range of net revenues that were used to calculate bonding capacity.

While the assumptions used to develop the estimates of the Base Case (described above) are considered reasonable and representative of the most likely scenario given current information, a financial sensitivity analysis was conducted to show what the impacts of using other financing and credit enhancement mechanisms would be on the project's bonding capacity. Two variations to the financing assumptions

²³ There are many variables at play impacting the revenue and financial outcomes, such that the Base Case financial capacities from Phase 1 and Phase 2 analyses are not directly comparable.

were explored. Both are upside scenarios that are meant to improve the financial capacity of the toll revenue streams. The first involves using the USDOT TIFIA program to lower the cost of capital and the second discusses ways that the State of Wyoming could reduce the borrowing costs for the project.

- 1) Subordinate Debt & TIFIA – The Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) established a Federal credit program for eligible transportation projects of national or regional significance under which the U.S. Department of Transportation may provide three forms of credit assistance – secured (direct) loans, loan guarantees, and standby lines of credit. The program's fundamental goal is to leverage Federal funds by attracting substantial private and other non-Federal co-investment in critical improvements to the nation's surface transportation system. The USDOT awards credit assistance to eligible applicants, which include state departments of transportation and special authorities. Projects must meet certain criteria to qualify for a TIFIA credit, including:
 - Must be large surface transportation projects (over \$50 million)
 - Senior project debt must be rated "investment grade"
 - Dedicated revenues must be pledged to repay the TIFIA loan

The rules of TIFIA limit its contribution to the overall project to 33 percent of eligible project costs. There are two major benefits of incorporating a TIFIA loan into the financing structure. First, the rate at which TIFIA funds are lent is considerably lower than typical subordinate debt rates. Second, the TIFIA program allows lower debt service coverage ratios to be used in sizing the debt.

- 2) Wyoming State Credit Enhancement – Traffic on new toll roads is very difficult to predict. Economic, engineering, and financial consultants typically spend years researching a toll facility to understand the variables that will impact traffic before working with rating agencies to secure favorable credit ratings so that toll revenue-backed debt can be issued for the project. Having witnessed many US toll roads fall into financial distress soon after the initial financing, rating agencies have continually revised their criteria for awarding "investment grade" ratings to toll roads with more stringent terms, particularly for greenfield toll roads. The fact that I-80 has a long traffic history would benefit the bonds' potential credit rating if a transaction was pursued.

Rating agencies examine the risks inherent in a project to see if there is any uncommon exposure to the issuer, which is passed on to the bond investors. The issuer, on the other hand, presents the rating agency with information on risk mitigation strategies to temper the perceived project risk and potentially relax some of the credit terms that can reduce the funds that can be raised in a financing.

- 3) Backstopping: One common approach to reducing the debt's risk is for a government entity with other more diverse revenues to provide a full or partial revenue backstop. This means that the government entity would pledge its resources to pay some or all of the project's debt service if project revenues are unable to cover the payments. The government entity in this case would most likely be the State of Wyoming and the backstop could come from a specific source or from general revenues. A State backstop would clearly shift some risk from the bond holders to the State. The benefit of the State assuming this risk could be a decrease in the required coverage ratio and / or more favorable interest rates.

The conceptual State backstop financial sensitivity modeled assumes that the State would pay a maximum of 1/3 of the project's debt service on an annual basis if project revenue is insufficient. In exchange for this pledge, the debt service coverage ratio on senior bonds is reduced from 2.0X to 1.75X.

- 4) State Lending: Another way the State could assist in reducing the project debt's risk would be to provide cash flow for the project's construction up-front with the expectation of full repayment of this investment once the project toll revenue bonds are issued. This concept has been used

by many states that have State Infrastructure Banks, though in most cases, these banks were capitalized with Federal funding.

In this case, the State would lend construction funds to WYDOT in amounts necessary to fund construction phases on a biannual basis.²⁴ At the end of each phase, tolling on that portion of the roadway would begin, bonds would be issued for that portion of the roadway, and the bond proceeds would repay the State. This process would be repeated for each successive phase until the project is completed, all debt has been issued, and the State has been completely repaid.

Delaying the issuance of debt until the roadway phases are open for use would create opportunities for reducing the overall project cost, including;

- Lowering accrued interest costs (capitalized interest) during construction
- Lowering long-term interest rates due to the elimination of construction risk
- Achieving more favorable credit ratings due to higher certainty of traffic volumes, as the analysis will be updated just prior to or perhaps after the roadway is opened

The conceptual State lending financial sensitivity modeled assumes that the State would pay for the construction of each phase and debt would be issued after the phase was completed (as opposed to before construction start). Under this scenario, it is expected that the long-term interest rate on the debt could be reduced by 50 basis points. Additionally, capitalized interest costs would be eliminated, saving the project about \$270 million over the five phases of construction.

9.3 Project Build Scenarios

The Base Case project represents a full build-out of I-80 to three lanes in each direction, with a project cost estimated at close to six billion dollars. While the Base Case may provide the most safety and congestion relief benefits, there is a spectrum of build options that would cost considerably less and necessitate lower toll rates on the facility. Two additional build scenarios were evaluated to shed light on these options.

First, a 'no build' scenario was developed to show the toll rate that would be needed to cover only the operations and maintenance costs of the facility. Though no roadway expansion would be performed under this scenario, tolling operations and approximately \$115 million in roadway maintenance funding would be generated from toll revenues each year.²⁵ A toll rate between \$30 and \$35 per truck and between \$3.00 and \$3.50 per car could be expected to cover these costs.

Section 2.3 noted a collection of capital improvements outlined by a 2008 WYDOT study that are expected to improve safety on I-80. The cost of these safety improvements has been estimated at between \$350 and \$400 million in year of expenditure dollars. A toll rate between \$45 and \$50 dollars for a truck and between \$4.50 and \$5.00 for a car would be expected to cover the cost of these improvements.

An important note should be made regarding the \$45 to \$50 dollar toll range cited for the safety improvement scenario. This was calculated using a 15-year bond maturity as opposed to a 35-year bond maturity as used in the Base Case. This shorter bond maturity was used to highlight the fact that the length of the bond's maturity can significantly impact the toll rates needed to support a given set of capital improvements. This latitude is provided by the lower capital improvement cost not requiring the use of toll revenue maximizing rates.

²⁴ The amount lent to WYDOT would vary by construction phasing, but could generally be sized to discrete portions of the project that could be completed in one to three years and opened for use. The phasing schedule assumed in this analysis is five concurrent two year phases with one bond issue of approximately \$600 million for each phase.

²⁵ Toll rate would be set such that \$115 million would be generated in the first year of operations (2015) and this amount would be increased each year with expected cost escalation at 5%.

Options for toll rate setting could include an initially higher toll being set for a shorter amount of time (i.e. 15 years) after which the toll could be significantly reduced to cover only O&M costs. Alternatively, a much lower initial toll level could be established but would have to be in place for a longer term (i.e. 30 years) before the debt was repaid and toll could be reduced. Similarly, a given toll rate (and resulting revenue stream) will translate into different capital amounts, depending on the length of time over which the revenue stream is capitalized.

The following simplified analysis provides an order of magnitude comparison of the potential bond proceeds that could be generated by net toll revenues under various toll rate scenarios given two alternatives for the length of the bond's maturity. The basic assumptions for each of the debt issuances include 2.0 times coverage and a 6% average bond yield.

Exhibit 54 presents a comparison of the bond proceeds generated under these alternatives. The bond proceeds listed would be used to fund construction, maintenance, bond issuance costs, reserve accounts, and capitalized interest during construction. The table shows that increasing the bond maturity (debt term) from 15 to 30 years increases the bond proceeds by 75% to 80% at a given rate. It also shows that a toll level of roughly \$65 dollars over 15 years would yield about the same bond proceeds as a toll rate of \$35 over a 30-year term. These tradeoffs represent key policy issues that will be need to be addressed as the project is developed.

Exhibit 54: Comparison of Toll Rates and Bond Proceeds

Debt Term	Toll Rate			
	\$35	\$45	\$55	\$65
15 Years	\$570	\$760	\$930	\$1,010
30 Years	\$1,000	\$1,330	\$1,660	\$1,830

There are several financing approaches from the combinations of tactics outlined in Section 9.2 that could be used to reduce the overall cost of capital expansion and possibly eliminate the need to issue bonds altogether, depending on the magnitude of the capital needs. For instance, the State could set up an internal lending agreement with WYDOT to provide project financing at more favorable terms than the capital markets, thus reducing the length of time that initially higher toll rates would need to be charged. Alternatively, toll rates could be set artificially high for a short period of time (3 to 5 years) to generate excess cash reserves for use in pay-as-you-go project funding. Such an approach should be carefully evaluated as changing toll rates to generate excess reserves could disrupt operations and distort revenue forecasts, negatively impacting the facility's credit profile. Spreading capital projects over time will also increase the overall cost of construction due to cost escalation.

9.4 Financial Conclusions

The bonding capacity of each scenario varies based on the financing enhancements that are employed. While each produces a robust bonding capacity with at least \$3.4B in proceeds that can be used for construction, the utilization of TIFIA financing, as well as some form of State bond enhancement will be needed given the current configuration of the project, associated construction costs, and timing. As the project continues to move forward, the financial analysis will need to be refined in light of existing market conditions and updated construction cost and staging assumptions.

The Phase 1 Study concluded that the project was financially feasible based on a bonding capacity of approximately \$3.2 billion compared to a year of expenditure project cost of \$2.8 billion. Upward revisions to the cost estimate (from current year \$2.1 billion to \$3.5 billion) and pushing the project out in time from a 2010 start to a 2015 start resulted in a year of expenditure cost increase to nearly \$6.0 billion, more than double that which was previously estimated.

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Exhibit 55 shows the debt service coverage assumptions used in the Base Case and variations based on the above described alternative financing options developed for this analysis. The bonding capacity for each scenario was compared to the overall escalated project cost of \$5,956.6 million to determine the financial feasibility of the project under each scenario.

Exhibit 55: Financial Feasibility Scenario Assumptions and Bonding Capacity²⁶

Scenario	Overall Coverage Requirement	Bonding Capacity	Project Surplus / (Shortfall)
Base Case	2.0x	\$3,379.6M	(\$2,577.0)M
Base Case with TIFIA	1.67x	\$3,796.2M	(\$2,160.5)M
State Backstop	1.75x	\$4,237.5M	(\$1,719.2)M
State Backstop with TIFIA	1.42x	\$5,595.5M	(\$361.2)M

The exhibit shows that using certain financial tools (backstopping and the TIFIA program), the project is very close to financially feasible. The \$361 million shortfall that remains under the last scenario is substantial on its own, but represents only a 6 percent funding gap when compared to the total project cost. The operating and financial models used to develop these estimates are very sensitive and this shortfall could change due to small shifts in costs, revenues, interest rates, required coverage, or other factors that must be monitored and re-estimated in the future if tolling is pursued. The gap could also be eliminated through value engineering, adjusting the scope of the project, accelerating the project, or through a State lending program which could eliminate \$200 to \$300 million in interest costs from the project. Given the current results of the financial analysis, the Base Case project appears viable despite the relatively small funding shortfall that exists. If the size and scope of the capital expansion and safety improvement aspects of the project were reduced, a lower toll rate structure that is more amenable to the traveling public and requires less outside credit enhancement could be implemented.

²⁶ Complete sources and uses tables and debt service tables are presented in Appendix B for each scenario.

10 Public Outreach

Public outreach is a critical element of any major change in transportation infrastructure or policy. Generally public outreach is done as part of the environmental stage of project development and while this is largely a technical study, a public information dissemination and opinion gathering campaign was conducted. Five public meetings were held in cities and towns across the I-80 corridor in June of 2009, including Cheyenne, Laramie, Rawlins, Rock Springs, and Evanston. Responding to the sentiment that northern residents of the State were not easily able to attend the meetings, two additional meetings were held later in July in Casper and Gillette.

The meetings generally consisted of a short presentation on the Study's background and tolling concepts being evaluated, followed by a question and answer session between WYDOT and Study staff and the meeting attendees. Survey forms and other feedback tools were presented to attendees to maximize the avenues through which people could provide comments and access project information. The meetings were covered in local newspaper, radio, and television.

Appendix A contains all of the comments received from the public at each of the public meetings, as well as the letters received by WYDOT from individuals before and after the meetings were held. The majority of the comments and letters expressed concern over the concept of tolling I-80 and the effects tolling would have on local economies. The most common reasons residents cited for being opposed to the tolling concept were:

- The public is already charged a fuel tax to pay for transportation infrastructure. Charging a toll on I-80 in addition to a fuel tax amounts to double taxation.

Many residents suggested that the government should raise fuel taxes instead of charging a toll. According to these residents, such an increase is merited since Wyoming's fuel tax is one of the lowest in the country and is substantially lower than that of its neighbors.
- Interstate maintenance needs should be funded by the Federal government, not by the states.
- Trucks that use I-80 will not be able to afford a toll of 30 cents per mile, and thus will divert to alternate routes.
- Wyoming residents who use I-80 to travel to work would face undue hardship by paying a toll. This cost should not be borne by individual passenger vehicles, since trucks cause 99 percent of the damage on I-80. Trucks should pay the tolls if they cause the damage.
- The cost of tolls will be passed on to consumers through rising costs of consumer products, imposing an additional cost to Wyoming residents above the cost of the highway itself.
- Tourism to Wyoming will be severely impacted if a toll is levied on passenger vehicles.

There was generally little support for the tolling concepts from the people who attended the public meetings. The most staunch opposition was from independent truck operators, local businesses (especially those related to the trucking industry such as diesel mechanics and other support services), and citizens concerned about the current Federal administration's approaches to dealing with the recession (mainly the Federal stimulus and bailout packages).

A short survey that asked questions related to peoples' use of I-80 was circulated at each of the meetings and collected to obtain additional feedback. Five questions were used to obtain the respondents county of residence, frequency of use of I-80, purpose of the trip, and destination. The survey was distributed at public meetings and was available electronically on the tolling study website²⁷. The results of the survey given below include all responses received prior to September 24, 2009. Explanations below the tables reference the adjusted relative frequency, as this is the most accurate way to gauge the responses of those respondents who completed the survey.

²⁷ http://dot.state.wy.us/wydot/site/wydot/I-80_tolling_study

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Question 1: Are you a resident of:

Choices	Absolute Frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative
Laramie County	52	52	16.46%	16.46%	18.64%	18.64%
Uinta County	30	82	9.49%	25.95%	10.75%	29.39%
Albany County	30	112	9.49%	35.44%	10.75%	40.14%
Other County in Wyoming	19	131	6.01%	41.46%	6.81%	46.95%
Carbon County	43	174	13.61%	55.06%	15.41%	62.37%
Other	35	209	11.08%	66.14%	12.54%	74.91%
Sweetwater County	70	279	22.15%	88.29%	25.09%	100.00%
Not answered:	37	316	11.71%	100.00%	-	-
Sum:	316		100.00%		100.00%	

A majority of respondents (25 percent) are residents of Sweetwater County. Approximately 81 percent were a resident of a county which the project passes through. Therefore, a majority of respondents live near the project.

Question 2: How often do you use Interstate 80 in Wyoming?

Choices	Absolute Frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative
Four or more times per week	120	120	37.97%	37.97%	43.17%	43.17%
One to three times per month	48	168	15.19%	53.16%	17.27%	60.43%
Two to three times per week	49	217	15.51%	68.67%	17.63%	78.06%
Once every two to six months	27	244	8.54%	77.22%	9.71%	87.77%
Once per week	22	266	6.96%	84.18%	7.91%	95.68%
Less than once every six months	12	278	3.80%	87.97%	4.32%	100.00%
Not answered:	38	316	12.03%	100.00%	-	-
Sum:	316		100.00%		100.00%	

Most of the respondents travel on I-80 four or more times per week; the highest frequency tested in the question. A majority of respondents (69 percent) use I-80 at least once per week. This indicates that a majority of respondents are frequent users of the facility.

Question 3: What is your most common reason for using Interstate 80 in Wyoming?

Choices	Absolute Frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative
Commuting to work	55	55	17.41%	17.41%	19.78%	19.78%
Business (other)	52	107	16.46%	33.86%	18.71%	38.49%
Shopping	29	136	9.18%	43.04%	10.43%	48.92%
Recreation	42	178	13.29%	56.33%	15.11%	64.03%
Freight or Shipping	38	216	12.03%	68.35%	13.67%	77.70%
Other	62	278	19.62%	87.97%	22.30%	100.00%
Not answered:	38	316	12.03%	100.00%	-	-
Sum:	316		100.00%		100.00%	

The most common reason reported for using I-80 was 'other' (22 percent), followed by commuting to work (20 percent). An estimated 38 percent of trips are work or business related, while 39 percent are non-work trips.

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Question 4: How often do you make the trip referenced in question #3?

Choices	Absolute Frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative
Four or more times per week	110	110	34.81%	34.81%	39.57%	39.57%
One to three times per month	62	172	19.62%	54.43%	22.30%	61.87%
Two to three times per week	45	217	14.24%	68.67%	16.19%	78.06%
Once every two to six months	30	247	9.49%	78.16%	10.79%	88.85%
Once per week	19	266	6.01%	84.18%	6.83%	95.68%
Less than once every six months	12	278	3.80%	87.97%	4.32%	100.00%
Not answered:	38	316	12.03%	100.00%	-	-
Sum:	316		100.00%		100.00%	

Responses to Question 4 were similar to those given in Question 2. The most chosen response was 'Four or more times per week' at 40 percent. Approximately 63 percent of respondents indicated that they traveled on I-80 for the purpose specified in Question 3 at least once per week.

Question 5: What is the most common destination of the trip referenced in question #3?

Choices	Absolute Frequency	Cum. absolute frequency	Relative frequency	Cum. relative frequency	Adjusted relative frequency	Cum. adjusted relative
Cheyenne	45	45	14.24%	14.24%	17.11%	17.11%
Evanston	12	57	3.80%	18.04%	4.56%	21.67%
Green River	19	76	6.01%	24.05%	7.22%	28.90%
Laramie	45	121	14.24%	38.29%	17.11%	46.01%
Rawlins	16	137	5.06%	43.35%	6.08%	52.09%
Rock Springs	32	169	10.13%	53.48%	12.17%	64.26%
Salt Lake City	27	196	8.54%	62.03%	10.27%	74.52%
Wamsutter	9	205	2.85%	64.87%	3.42%	77.95%
Other Location	58	263	18.35%	83.23%	22.05%	100.00%
Not answered:	53	316	16.77%	100.00%	-	-
Sum:	316		100.00%		100.00%	

The most common trip destination for survey respondents was an 'other location,' although Cheyenne and Laramie were the largest single destinations cited by respondents; both cities had the same response rate.

Appendix A: Public Comments

Cheyenne

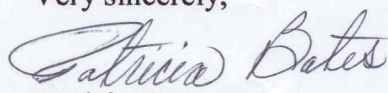
- I am opposed to tolls on I-80 for passenger or recreational vehicles.
- What is the cost of administering/managing toll road? Will it create another department to operate toll road? Is it equitable to collect toll from truckers only? Need to flesh out proposal to determine costs to drivers. Toll cost is bottom line concern for most people.
- .30 cents a mile is a joke
- I am totally against tolling. A fuel tax would be much more cost effective and cheaper to institute.
- I am opposed to tolling I-80.
- No toll road or booth stations if we have to do it with a fuel tax. No road just for trucks only.
- Tolling should not be utilized until excise tax options are fully explored. There is a huge disparity current between Wyoming and surrounding states. There will be a disproportionate burden placed on certain users, just like Secretary Peters recognized in the Pennsylvania proposal.
- Tolling is not the answer. You need to use microphones and speaker equipment for presenters and responses.

To Whom It May Concern,

This is in regards to the possibility of making 1-80 a toll road. We feel this would give much needed revenue to the state and enable WYDOT to keep this section of the highway in good shape and take some of the financial pressure off of the residence of Wyoming. But, the income from a toll road must be marked for use of maintaining the highway only not given to other causes. I realize, this would require strict control and monitoring.

Sorry we are unable to attend the June 16th public meeting to discuss this issue but we are sincere in our feelings and wish to add our opinion to the planning process.

Very sincerely,


Patricia Bates



2723 Christensen Road
Cheyenne, WY 82007

Phone: 307-637-0708
Cell: 307-421-4531
Fax: 307-632-9831

sally.d.stainbank@lowes.com

Sally Stainbank
Wyoming Regional
Distribution Center 965
Regional Transportation Manager

Wyoming Regional Distribution Center 0965
July 6, 2009

To Whom It May Concern:

Lowe's Wyoming Regional Distribution Center is located east of Cheyenne and has been in operation since April 2002. At the present time the facility services 74 Lowe's Stores in Wyoming, Colorado, New Mexico, Texas, Utah, Idaho, Montana, North Dakota and South Dakota.

The total cost of business was a determining factor in Lowe's locating to Cheyenne and transportation costs continue to be one of the top expenses for this Distribution Center.

How would I80 toll expenses impact RDC 965?

- For fiscal 2008 we processed 26,930 trailers through the facility, not including LTL freight, containers and prepaid loads. To Lowe's this would have been an additional \$1,598,160 to freight expenses for those loads that would have traveled the I80 corridor.
- For fiscal 2009 to date (February 2009 – June 2009) we have processed 9,902 trailers to date, not including LTL freight, containers and prepaid loads. To Lowe's this would be an additional \$612,240 for those loads that traveled the I80 corridor.

This Distribution Center has about 500 employees. With possible increased transportation expenses the Cheyenne Distribution Center would possibly lose some of the outlying Stores that we currently service to Distribution Centers in Texas, California, Illinois and Oregon, which could impact the current workforce. Lowe's looks at the cost of inbound freight costs and outbound freight costs in determining which center should service their network of Stores.

Lowe's realizes that the State needs to find some way to finance I80 maintenance, but hope everyone seriously addresses the impact it will have on the all the businesses that chose to, or will in the future might consider, making Wyoming the State of choice to operate in.

Sincerely,

Sally Stainbank
Regional Transportation Manager

Evanston

- How will this impact the local traffic in the I-80 corridor.
- Semi-trucks are the biggest detriment to Highway I-80. Speed and heavy loads tear up asphalt in winter as well as summer. Their speed should be enforced and bigger fines applied. I do not think it should be tolled interstate.
- We Do Not Want a Toll Road! We do not believe in statistics (they lie). The federal government should and must fund this interstate for maintenance and state DOT should do state roads. (Get rid of the U.N.) The proper role of government is police and fire protection. Get us out of the UN. Abolish all federal agencies. Get the UN out of U.S. Stop the east infection in Wyoming. Toll roads are an "Eastern Idea" – We will cut your money off. All this scheme by the current administration is for is the continued horrible looting and robbing of Wyoming and other states citizens and companies.
- I-25 should be included.
- Cheyenne to Mtn. View.
- Put money towards "high speed rail" for trucks
- Good luck with the study.
- The trucking industry would be screwed. Recreational travel would be downsized tremendously. It's hard enough to get by these days let alone more money for the state to spend on roads. What is Wyoming doing with the other 50 million that is to be used in 2009 for the highway rebuilding? However, if this toll stimulus was guaranteed to create at least 50,000 jobs for strictly Wyoming residents, I wouldn't mind paying a small toll, about 5 cents per mile for everyone.
- I think a tolling location in the middle of state would be better than on each state line because you have a lot of people in Evanston who visit Utah more than traveling to the other side of the state.
- There is no other way to travel east or west. We would be trapped with no other choice but to pay the toll. Terrible tolls never stay the same, just look at the bridge tolls in New York. They started off at 25 cents now \$5 to \$10.
- Collecting tolls for only partial trips would not pass constitutional muster under equal protection trucks that have 20 times the impact but would only pay 10 times as much as a car. Ton mile is the fairest way.
- Tax on citizens who live on I-80 corridor but not the rest of the state; either toll or fuel tax would kill the tourist industry in our state. You can visit Jackson, Yellowstone, Devil's Tower without traveling I-80. Many of our industries hurting (oil, gas, ag) because of federal actions – now putting us in unsafe cars to travel down I-80. Let's fight for state rights and get Wyoming back in control of our roads and traffic-mineral tax flowing again.

- Will kill tourists. Will money stay in state? Will locals work on jobs?
- Concern about diversions onto other Wyoming roads – more truck traffic, more damage, higher costs on roads not meant to handle that much truck traffic.
- No tolls. It will kill Wyoming economy.
- IFTA s already cover cost of the road. With the absence of US 30 across Wyoming you have enough money – quit donating to local governments. You should never spend money on landscaping – let local governments beautify through their towns.
- Very good, informative presentation by Wyoming DOT people. Looks like double taxing on truckers. With the lack of revenue, how much per gallon would the fuel tax have to be raised and stay with present Port of Entry system?
- I favor of improving I-80 and a toll may be a way to do so. Several points that need to be considered are: 3 lanes each way are needed with restrictions on trucks; an alternate route to I-80 to travel east to west is needed; any monies generated by taxes/tolling must stay in the state of Wyoming and be put back to the I-80 only and not allowed to be paid into administrative/collection costs; pay funds for road work only to U.S. (domestic) firms and give Wyoming firms preference; make sure WYDOT controls any funds be from taxes or tolls and no outside federal control.
- Times are hard. It's a lousy situation.
- In my opinion and that of others in the community, with an economy in as poor of state that it is, this will be the final nail in the coffin for many towns and businesses along I-80. There are too many businesses and individuals that depend on the level of traffic and travelers on I-80.
- We have no options living here in Wyoming but to use I-80 to go east or west. The burden on your residents is fatally unfair. The government already charges us for highways in gas taxes.
- We are a small trucking company. We will be paying this toll out of our pockets. Shippers and brokers will not reimburse us for this expense. It will be a tremendous hardship at the proposed cost. We will no doubt "go around" interstate 80.

I-80 Tolling Study Comments from a concerned user of Interstate 80

1. My number 1 concern is the economic impact that this will have on my community and myself. The cost of the toll will be passed on to the consumer and the cost of day to day living will be significantly higher to all who live not just along the I-80 corridor but to all in Wyoming.

2. As a Independent Trucker, who lives in Evanston, I for one, will never use I-80 if it is tolled. Your proposed toll would be higher than the cost associated with going around the toll. The cost to you will be even more because I would be forced to buy my supplies in other areas i.e.; food, clothes, parts etc. This will decrease your sales tax revenue and the income to businesses along the I-80 corridor. Your estimate of 45 percent is lower than the estimates of some trucking insider estimates of 50 percent.

3. Another important concern to consider is the truck traffic through the small towns such as Evanston. If you were to go to Ohio and see the traffic on US-30, Highway 2, etc, you would see the amount of trucks and cars going around the toll road is considerable. We would not be able to get out of the post office or grocery stores along business 80.

4. Another aspect of bypassing the toll road is what would happen on highway 28 up on south pass in the wintertime when all these trucks attempt to cross that. Most drivers today don't have the necessary skills needed to cross I-80 safely with a couple of little hills as seen in the amount of times the sisters are closed in the winter time. WHAT WOULD HAPPEN UP ON SOUTH PASS DOESN'T EVEN BARE CONSIDERATION!!!!!!!!!!!!!!!!!!!!!!

5. Every single toll road across the U.S.A. limit's the size of the loads going across. They do not allow oversize loads over 10'wide and anything over the states statutory height limit. This would adversely affect me! The state charges me by mile and this would seriously increase my cost to do business. What would be the size allowed on the turnpike and what would be the cost of the toll ?

6. A fuel tax increase across the board would be the most fair way to raise extra money. Wyoming has the second lowest fuel tax in the country. Why not raise the fuel tax on trucks and cars to raise some of the money for necessary road repairs. Also, why don't you raise the tax that the tourists

Comment Continued

pay, for example, motel tax, recreational vehicle park tax, ect. as this would help fund the repairs.

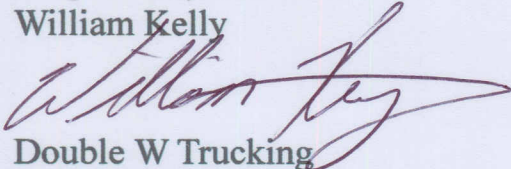
7. This a mineral rich state. Everyone relies on this state to furnish something like gas for heating, electricity, etc. Let them help pay for our roads with an increase on the mineral tax!!!! Also The feds built the road to move interstate commerce let them cough up more money for fixing their road. If I-80 has the highest number of trucks running the road to supply the other states then the states along I-80 should get the lions share of the money to maintain the road.

8. Another concern to me as a consumer is if Wyoming gets the toll road that it sounds like the legislature wants, every other state along I-80 will try to get a toll road. This will see a spike in the cost of everything we buy. It will seriously affect our economy and our way of life.

9. The idea of a three lane highway with trucks only in the left two lanes abhors me as a professional driver. Many states use this and it is the most idiotic idea of safety. It is extremely dangerous not only for the trucks but especially for the car driver. The trucks can't get out of the way at on and off ramps. On hills the three lane road with two right lanes for trucks works, but not at on and off ramps. If you don't believe me drive to Los Angeles or Atlanta and try to get on and of the freeway.

10. Electronic tolling only, what will be the cost of transponders? Another reason to bypass the toll road is the perceived notion of "BIG BROTHER".

Respectfully submitted,
William Kelly



Double W Trucking
Evanston Wyoming

June 24, 2009

Tim McDowell
WYDOT Headquarters
5300 Bishop Blvd.
Cheyenne WY 82009

Dear Mr. McDowell:

I am in favor of a toll on I-80.

An article in the UINTA COUNTY HERALD quotes Nick Amrhein—"Trucks cause 99 percent of damage to roadways."

Therefore, I think that a toll should be levied on the heavy semi-trucks but not on passenger cars and smaller trucks.

Sincerely,

Pamilla Smith
Pamilla Smith

1609 W. Main Street
Evanston WY 82930-3132

Laramie

- The Wyoming Legislators needs only to raise the rate on our Natural Resources that leave the state every day to 25% (Like Alaska) instead of the present 6% rate we now get. We would then have the Health system and Roads without a toll.
- If this is put in place and trucks at tolled at 0.30 cents per mile I would think they would not use I-80 (using I-90, I-70, or I-40). In order to pay for the third lane, cars would be charged much greater than 2 – 4 cents per mile to cover the truck loss. What happens in this situation?
- No alternatives given
- Look at raising fees on semi trucks in proportion to road damage or road usage. Raise diesel fuel tax to be on par with Wyoming's neighboring states, - diesel fuel tax.
- I am opposed to this concept. I think Wyoming should adopt a dedicated source solely to fund highways and highway repair. Tolling on I-80 is a bad idea.
- I believe trucks must help more with upkeep of I-80. More state money on 2nd roads – 30, 287, 20, 16.
- 99% of degradation is due to trucks. Truck freight should pay 99% of the increased fees – no tolling stations or new bureaucracy required. Raising the price of trucking to reflect the true cost of transport could make other means of freight transport – e.g., rail, air – more competitive.

916 East Curtis St.
Laramie, WY 82072

June 15, 2009

Mr. Tim McDowell
State programming engineering WYDOT
5300 Bishop Blvd.
Cheyenne, WY 82009

Dear Mr. McDowell

We support the establishment of a toll for the use of I-80 across Wyoming. The toll may be for both trucks and cars or trucks alone.

The State can no longer afford to maintain the highway without additional funding.

We have lived in Wyoming for approximately 40 years.

Sincerely,

John & Deanna Lloyd
Deanna Lloyd

John & Deanna Lloyd

Tim

I have already paid for I 80 thru state and federal fuel tax if you make it a toll road then refund my tax dollars that you have collected from me because it wood be double taxation to keep my tax money and collect tolls!

If you make I 80 a toll road it wood make your state highways exstremly busy costing you more in maintrance and also more acidents

I have never suported a toll road in any way whatso ever and I will not start in your state!

John Hockenbary

June 15, 2009 Mon., Noon

Dear Mr. McDowell:

I am unable to attend Laramie's wyDOT meeting tonight about I-80 Tolls.

I am AGAINST tolls, for either trucks or private vehicles. Fuel tax should cover it or add another 2¢ raise.

Apportioned plates already pay some of the money for roads. Fuel tax pays for more. O Great OBAMA supposedly threw billions for infrastructure. Where's that money?

What a logistical nightmare to collect the tolls. Long lines. Vehicles backed up onto the highway. Look at the Ports of Entry now. They get backed up now at times. There will be evaders. The Highway Patrol has enough to do. We are starting to get taxed to oblivion. 2¢ per gallon tax isn't as hard to swallow as \$20/truck which of course would be paid for by the public in higher prices for goods. Please, no tolls.

Thanks, Dan Dyer

1505 Shetland Dr.
Laramie, Wyo.
82070

I'm not a
trucker, just
WHP retired, 1977-2005

Mr. Daniel Dyer
1505 Shetland Dr.
Laramie, WY 82070-5344



Miscellaneous – Out of State

- We would be concerned with the dollar amount as our drivers don't carry cash.
- I think this will affect all of Wyoming. Freight price will have to go up so all prices in stores will go up. This does not seem fair to only pick on the trucks, if the toll only will be on trucks.
- If toll road is implemented, I will reroute our fleet around Wyoming. Will buy No fuel. The same way I did in Okalahoma. And their proposed rates were a lot cheaper. Crazy idea – Don't do it.
- We are a trucking company. We pay high permit fees in Wyoming already.
- Toll charge will constitute excessive charges.
- Commercial Driver and Trucking Companies are the ones that suffer here. We as an industry bring in all products consumed in this country in one way or another. Yet we are held carrying the burden. If a driver lives in Wyoming and wants to come home to see his family, it will cost them an additional \$240.00 out of their pocket just to see their family. This proposal is very unfair to the trucking industry.
- The FAQ which accompanies this survey references that the federal funds received by the state of Wyoming are "insufficient" for necessary repairs and maintenance. In addition to the federal funds, the state of Wyoming also receives 14 cents per gallon of diesel fuel burned in Wyoming from truckers.
- There has to be a better way to pay for roads - not put a toll booth on them.
- I haul into and out of Gillette, Rock Springs, Laramie, Lovell and Evanston, Wyoming. I also travel through with Honey Bees Back and forth to California. A toll will either make the rates go up or trucks will not haul into or out of Wyoming. Remember in making this decision what you eat, wear and probably what your sitting on came to you on a truck.
- CALLED IN – He travels that route for work- thinks that tolling everyone hits the average consumer twice (?). He thinks the tolling is a good idea but only for semi's or else we should raise the state's fuel tax. He thinks the tolling booths are not a good idea having to slow down or stop to pay. He thinks we should look at a statewide toll for semis.

Rawlins

- I think that toll road would add yet another layer of government that needs to be monitored. I thought that port of entries and ton/mile tax was supposed to address heavy trucks on highways. Why not spend money and make ton/mile work like it's suppose to. Including those areas where ports do not exist. It's ridiculous to have only 2 ports on I-80.
- I am a mechanic on class 8 semis and we survive by the highway traffic.
- We are land locked. We have to use the 80 interstate every week, day and shopping on the weekend.
- If you live in Rawlins Wyoming, you are screwed unless you go to Casper or Saratoga. Not far to Rawlins and Carbon county. Trucks tear up the roads!!!
- Make trucks pay. It is the trucks. They cause wrecks. They speed and run 4 wheeler off the road. Help Wyoming people be safe. Charge the trucker for the damage they cause.
- Should be done on commercial vehicles only.
- Fuel tax, plates and all transportation taxes need to be audited and appropriated to transportation projects. Money can always be found in the CAFR
- Ton-mile tax – already. Another layer of government. Not monitoring now. Affect tourist adversely. Trucks should pay not us. Lose what money now to other in state so we pay all.
- Please do not double tax those of us living on the I-80 corridor. Add a use tax back on to the semi's that the legislature deleted a few years ago. I will go through Lander to get to Jackson – will still have to use the interstate to go to Utah. Am opposed to this idea of a toll on interstate. It will cut down on tourism and affect all of us.
- I am not in favor of the toll road idea. Prefer raising fuel tax and maintaining I-80 as a 4 lane. Toll road may affect my job as truck traffic would likely decrease.
- How will this affect tourism in Wyoming? Do you realize that there is a high number of people that use I-80 to commute to and from work 5 to 7 times

a week? How will this affect the many trips schools take a long I-80? Will this affect highway 30? Could this affect the price of groceries and other goods being shipped to Rawlins? I oppose I-80 tolling.

- No new taxes (tolls)
- Highly dissident towards tolls – more receptive to increase or implementation of government tax increase – but not without limits on arbitrary increases – inevitably the people are overtaxed and underpaid.
- Toll is a bad idea.
- No tolling for cars.
- I am totally opposed to the public paying anymore for I-80. Let the trucking industry pay its own way, it is the problem. I should not subsidize the trucking industry. I am being penalized for where I live. Casper, Jackson, Basin will not be subsidizing trucks.
- I oppose a toll on I-80. How will this affect price of groceries, gas? Will out of town doctors still come to Rawlins? Will local citizens who commute to Rawlins be charged? How will this affect tourism?
- Will use of Hwy. 30 increase? Will Hwy 30 be maintained? Will school buses be required to pay daily fee? What impact on tourism? Can't maintain 2 lanes now – how will 3 lanes be maintained? How will this affect price of goods and services to Rawlins? I oppose toll of I-80.
- Have read in paper about difference between passenger car and semi causing damage to roads. Therefore, semi trucks should carry that percent of damage repair replacement.
- I have ailing parents in Cheyenne that I must visit frequently (I live in Sinclair). It is expensive to care for them and this would add an undue burden.
- Tolling trucks would only transfer to commuters that cost, but this is where the "tax" should come from, not the residents of Wyoming. Why not have weigh stations for trucks?
- Tax trucks based on Wyoming road use. Like a stamp needed to pass through Wyoming. Population of state is so low to support freeways. Use

tax for oil and gas boom trucks and wind farms? The use of many cannot be afforded by the small population of Wyoming.

- For 3 years a fuel tax increase has been proposed. 3 years it has died in committee or opposed by the Governor.
- Make truckers pay – not people who live here.
- Wyoming residents that reside in one county and work in another county will be charged both directions commuting from home to work and back.
- Tolling I-80 for Wyoming residents is ridiculous and will hurt local businesses thereby driving out businesses that will hurt the community. Remember elections are around the corner and every vote counts. Local residents should not be forced to taxation and tolling.
- Tolling I-80 for Wyoming residents is ridiculous. The 18 wheelers are causing the problem – make them pay and let the Wyoming residents have a free road. Remember elections are around the corner.

Bill Brudigam
P.O. 1531
Saratoga, WY 82331

RE:
WYDOT
I-80 Tolling Study

Discussions with others and my own reflections concerning the implications of an I-80 toll road:

The trucking industry will be hesitant to pay \$116 to \$120 in additional fees to cross WY and if the driver has to foot the bill with out reimbursement he will use alternant routes.

The rural aspect of WY dictates the support of employees and support services from other towns. Travel to and from work of these employees will dictate a need and burden on employer wage increases or a lack of employees if wages do not increase to offset the added expense. Support services will have to increase already taxing fees.

Comparison on page 26 of the PDF info. E-470 is not applicable, this is a private enterprise.

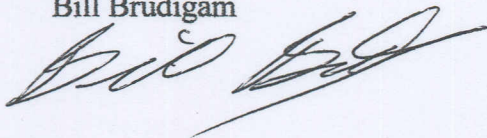
As the Pennsylvania Tolling Pilot Project found out the PA application did not demonstrate the necessary due diligence required in the Pilot Project legislation of proving that all possible fiscal options had been exercised, i.e. excise taxes

Many medical and legal individuals travel I-80 to other towns and cities along the route to provide their needed service on weekly and or monthly visitations. Where does this put such needed service, if cost is an issue.

Thus far in 2009 road use is down so the 2007 scenario is not applicable and recovery will be slow. Many trucking Co's. have cut trips and in some instances trucks.

It only stands to reason that an increase in state fuel tax is the answer.

Bill Brudigam



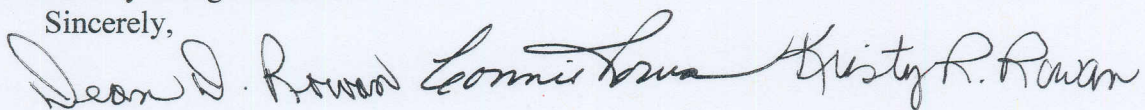
Letter to the Editor:

We attended the "Toll Study" meeting in Rawlins on June 17th. It was apparent that the only way the committee has considered to raise money for both repair and construction of a 3rd lane on I80 is by tolls. However, a retired highway patrolman suggested re-instating the Tonnage Tax. The 18 wheelers are responsible for 99% of the damage then they should pay for the repairs of the damage they cause. This could be implemented statewide on all the roads and we would have the money to repair all the highways including I80. The Tonnage Tax could also fund the 3rd lane on I80. As the truck traffic increases so would the revenue. If we re-open or build new weigh stations in every county that would create jobs in both the construction and the actual daily weighing of the trucks. The Tonnage Tax would also provide more money to hire more Highway Patrol for I80. It is not equitable to toll vehicles that use the highways either for small businesses or personal use when another way is presented that charges those who cause the problem. We could also have a flat fee of \$5.00 or \$10.00 included on every licensed vehicle in the State and that money could be put in a special fund to be used for weigh station operations. There are many Carbon County residents who use I80 on a daily basis commuting to their jobs. If the toll tax is instituted, the cost for the individual would be approximately \$900.00 to \$1600.00 a year. They are not the ones who ruin the interstate, the 18 wheelers are. The working man should not have to pay for the road damage.

If the State of Wyoming is serious about increasing revenue, in addition to the Tonnage Tax why don't we have a State Lottery? The revenue the State would receive could be allocated 1/3 WyDOT: 1/3 construction of school buildings: and 1/3 for counties for social programs to help our citizens.

Elections of our public officials occur on a regular schedule and laws, such as the Toll Tax, can be repealed, however, it is easier to do the fair thing in the first place. If everyone will contact the State committee and inform them of your concerns, we might be able to avoid problems in the future concerning our highway infrastructures and unfair taxation of Wyoming residents.

Sincerely,



Dean D. Rowan

Connie Rowan

Kristy Rowan

Bill Brudigam
P.O. 1531
Saratoga, WY 82331

RE:
WYDOT
I-80 Tolling Study

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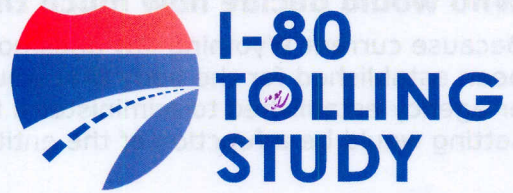
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It only stands to reason that an increase in state fuel tax is the answer.

Bill Brudigam



Frequently Asked Questions



The concept of tolling on I-80 is rudimentary, so little detailed information is available. This short list of answers to frequently asked questions is provided as an overview of the study and explanation of some of the technical aspects of the approach being considered. For answers to other questions, send an email to tollingstudy@dot.state.wy.us or write to: Timothy McDowell, WYDOT Planning Program, 5300 Bishop Blvd., Cheyenne, WY 82009-3340.

presentation online next week

Why is tolling being considered?

All states receive funding from the federal government to maintain their interstates. Primarily due to the high proportion of heavy trucks traveling on I-80, the funding received by Wyoming is insufficient to pay for the level of roadway upkeep necessary to maintain the facility at an acceptable level. Toll collection is being considered to pay for highway maintenance and possibly the expansion of the roadway from two to three lanes in each direction.

Who authorized the tolling study?

Study on the subject of tolling on I-80 began in 2008 following authorization by the Wyoming Legislature's Joint Interim Transportation, Highways, and Military Affairs Committee. An initial feasibility report was issued in the fall of 2008, and in early 2009, the full Legislature enacted a measure (Enrolled Act No. 111) requiring additional study to build on the findings of the feasibility report.

Who is conducting the tolling study?

WYDOT, through its Planning Program in Cheyenne, is ultimately responsible for the study. Consultant firm Parsons Brinckerhoff (PB America) is performing most of the data collection, analysis and report writing. The current study is scheduled for completion by this Sept. 1.

When could tolling go into effect?

This study is in the very preliminary stages and implementation could not occur until several substantial legal, environmental assessment, project design, and construction steps are taken. If the State Legislature decides to pursue tolling on I-80, it is unlikely that it could be instituted before 2015, though no schedule for implementation has been discussed or considered by WYDOT or legislators.

How much would tolls be?

A wide range of conceptual toll rates for cars and trucks have been examined but there have been no determinations made as to the likely toll rates. The study's intent is to keep toll rates low relative to other similar facilities in the U.S. Ranges of toll rates examined were between two and five cents per mile for cars and between 10 and 40 cents per mile for trucks, but rates will ultimately depend on the cost to maintain and expand the facility.

Continued on back

apportioned states - exempt from sales tax?

8/10, 2/5/08

*Req Fed approval and WY laws for tolling
3rd lane defects
purpose of toll?
more \$?*

10 mile tax? reinstate WHP

June 17 2009

Comments:

- ① Ret. HP Tolling thing bunch of CRAP (appliance)
Propose institute ton-mile tax
- ② Approach as military objective
get \$ from DOD
- ③ Questions on who will own the bonds?
Nervous about China.
Toll in one place will cause diversion
- ④ Diversion = drop in revenue both trucks & pass vehicles
- ⑤ No guarantee toll \$ will, in fact, go back into highways.
- ⑥ We're getting penalized for living in this part of the state - let the bloody trucks pay for it

Perkins Oil Company
Rawlins WY

PO Box 1068,
917 West Front Street
Rawlins WY 82301
307 324 3131
perkinsoilco@vcn.com

June 17, 2009

Random thoughts gathered from talking around town about tolling.

\$116 toll to cross Wyoming equals .29 per mile, seems very expensive.

Hope Colorado has a good highway maintenance system they will need to take care of the traffic diverting away from Wyoming.

Might as well close the Wyoming side of Yellowstone Park permanently.

Maybe the Wyoming tourist and travel commission would reimburse the tolls charged to out of state tourist.

What is wrong with having the same state fuel tax as surrounding states?

An eight-cent increase in fuel tax would generate an easy \$41,424,000.00 a year additional revenue, using WDOT numbers.

Tolling a road might be ok for state that high population densities and alternate surface routes, Wyoming as no complete alternate routes that parallel I-80.

Wyoming has a large tourist industry, this tolling is a slap in the face to every tourist that would come to Wyoming!

Next the State will be raising the sales tax and property tax to make up the short fall from a drop in tourism and other service industry sales resulting from fewer traveling customers.

For three years in row fuel tax increases have been presented to the Wyoming Legislature, three years in row they have been opposed by the Governor or died in committee.

The issue as to why tolling is being discussed is for highway maintenance, why not have everyone who buys fuel in Wyoming pay a share. By increasing the state fuel tax and have the increase directed to all highways and not offset any amounts already received from the general fund a twelve cent increase would bring an additional \$ 62,136,000. per year.

Currently truck traffic is already less than what it was five years ago due to the depressed economy nationwide and depressed energy development in state. The tolling revenue projections should be based on a new traffic volume study done this summer.

If as the study mentioned that 99% of road damage is a result of truck use, it sounds to me like those roads that are being damaged were not designed or built to the right specifications.

While visiting with our contractor customers and others from around the state it sounds like a lot of the general construction work that is going on now are soon to be is coming in with smaller price tags than last year. Just makes me wonder if the projected highway construction and repair costs will be as high as stated in the DOT operating budget.

Rock Springs

- The state is doing a good job monitoring the I-80. We don't want a toll road. No more taxes.
- Deliver casing back and forth from Evanston to Laramie, WY
- No Toll!!!!!!
- Please do not put a toll, this is wrong. Truckers can't afford this. My son travels this I-80. I vote NO.
- Please do not put toll. We could not afford it
- We have a business in Rock Springs. We travel Wyoming, Colorado, Nebraska all year. This is crazy. How dare you want to put a toll. People can't afford any of this.
- With no alternative route available for us to use, we would have to pay to come home and to go back to work. We truck all 48 states. This proposal is unfair in a state where everyone must travel a road with no other way. There has to be a more equitable way to find the funding. How about our Governor and legislature pursuing the Federal Funding we are due in lieu of reaching yet again into the people's pockets?
- We are owner/operator of 1 truck. My husband travels 48 states. He comes home to Rock Springs 8 times a month a lot of the times empty. No we can't afford to pay a toll.
- Federal government should pay for interstate repair since we already pay enough taxes.
- Not fair for the locals who use I-80 every day to go anywhere at all, the price too much, if you can't make much.
- No toll.
- I do not like the idea. It would cost too much for taxpayers and as usual, the money doesn't go to highway repairs.
- If I-80 becomes a toll road I think all vehicles should be tolled equally. 1 trip, 1 toll regardless of size or highway usage.
- No other route to Rock Springs to Green River.
- I am flat against a toll on federal highways. The Trory mines are in a recession, hiring freeze, with no substantial increase in wages in the last several years. To put this toll burden on these communities is ridiculous. Solution – the state of Wyoming needs to flat refuse burden of I-80. Turn it back over to the federal government. They will have to assume responsibility.
- If Wyoming charges 30 cents a mile, that's roughly \$120 to cross the state, 4 or 5 other states will do the same thing. Add 800 or 900 dollars to the freight from the east coast to the west coast, the price of clothing and food will skyrocket. Use money from the government stimulus package to fix the highways.
- The semis have taken over I-80. They need to be responsible for the wear & tear.

- Tolling I-80 would not be good.
- Travel several times a year to Denver, Colorado.
- The city streets inside of Rock Springs are so over-crowded interstate is used to move to other side of town and you want me to pay for what our taxes pay for already. You're nuts.
- I use I-80 to go to work Monday through Friday and going between Green River and Rock Springs to take care of family.
- This is the most ridiculous thing I have heard of. There are no other roads to commute to work. We can't even get the state to put in a frontage road.
- I-80 is a federal highway, that's what taxes are for.
- We don't need a toll road. We paid enough tax as it. No Thanks. The state is doing a very good job on I-80.
- Third lane will be a necessity if truck traffic continues to grow. Has any thought been given to piggy-back heavily traveled routes of I-80 on rail? How does the cost of oil/fuel affect the projected increase in truck traffic?
- Tolling: Not a good idea. Re-visit the budget priorities.
- This is tripling taxes - 1) fuel; 2) road tolling create higher #3; 3) added sales tax per good sold at stores.
- Also all of I-80 to Cheyenne and Evanston for outings and legislature and recreation for traveling. Family is out of state.
- We have enough taxes.
- No tolling fee.
- Usually Green River for Pamida shopping. Salt Lake UT for medical.
- Use the money spent on these studies to lobby Congress to use the highway fuel taxes. Paid for their intended use – road construction and repair
- Take your toll and stuff it.
- Make new road for truck only charge them.
- I am not in favor of any toll. This is just another tax. The cost of our goods will rise if only trucks are tolled.
- No matter how you decide, a toll would hit users, whether we drive often or have to pay for usage by truckers since they will pass the price on to consumers. Find some other way to make it fair.
- I don't like the idea at all!!!!
- Not interested in paying toll charges in Wyoming.
- If you travel from Rock Springs going east or west about the only way to go is to use I-80.

- Truck drivers are for the most part good but you have those that blame the state for everything in their life. This will just add to that and if I see 1 aggressive semi a day, I see 2. How are we funding highway patrol to handle this or is the state ready to put up a lot of broken heart signs for the opportunity to state this.
- I am very much in favor of having I-80 a toll road for everyone that uses it.
- Toll on trucks. They damage roads most and out of state vehicles.

F. WALTER RIEBENACK

Post Office Box 146
Mountain View, Wyoming 82939

Telephone: (307) 782-7400
Facsimile: (307) 782-7407

June 17, 2009

Mr. Tim McDowell
State Programming Engineer
WYDOT
5300 Bishop Boulevard
Cheyenne, Wyoming 82009

Re: Comments on I-80 Tolls

Dear Mr. McDowell:

I am not able to attend the meeting at the Evanston Library on June 19th. Since I can't be present in person, I decided to write you this letter with my comments.

Before detailing my comments, I'd like to give you some of my background which may be relevant to the issues.

For over 12 years, I was the Treasurer, Chief Financial Officer and a Director of Site-Blauvelt Engineers ("Site"). In 2001, Site was sold to TRC Companies, Inc. and I became no longer associated with the firm.

Site was an engineering/construction inspection firm which operated in 9 states with 11 offices. Total revenues were in excess of \$40 million. We did design (civil) engineering, geotechnical engineering, soils testing in our own accredited soils lab, materials testing and employed approximately 250 people.

Ninety-five percent of our revenues were from transportation authorities. We did work for PennDOT, NJDOT, Deldot, ODOT, VADOT, NYCDOT, N.Y. Thruway Authority, N.J. Turnpike Authority, Pennsylvania Turnpike, as well as several bridge and tunnel authorities.

During these 12 years, I became familiar with many studies regarding toll roads, bridges and tunnels. As you can see, from the list of clients, Site was located in the Northeast – a most different place from Wyoming.

State Programming Engineer

WYDOT

June 17, 2009

Page Three

- Reduce property taxes (I realize that property taxes are for school funding, etc., but some formula could be found to help fund schools, etc. Perhaps an allocation from the general sales tax or the severance tax.)

I'm sure that there can be some method that would lessen the impact on Wyoming residents of a higher fuel tax.

If you have any comments or questions on this letter or on the issue of tolling, please feel free to contact me.

Respectfully,



F. Walter Riebenack

FWR/mb

F. WALTER RIEBENACK

Post Office Box 146
Mountain View, Wyoming 82939

Telephone: (307) 782-7400
Facsimile: (307) 782-7407

June 29, 2009

Mr. Tim McDowell
State Programming Engineer
WYDOT
5300 Bishop Boulevard
Cheyenne, Wyoming 82009

Re: Further Comments on I-80 Tolls

Dear Mr. McDowell:

Since I wrote my prior letter to you, I've had the opportunity to discuss the topic of "tolling" with some of my old colleagues. A copy of my prior letter is enclosed.

Even though toll "gates" or "stations" have become more automated, the public still resents tolls because they still distract drivers. An increase in accident rates still is a problem. Sometimes the distraction of tolls is exacerbated by the use of cell phones.

Also, the installation and maintenance costs for toll facilities could be better diverted to roadway maintenance. This says nothing about the personnel costs involved in a toll system.

As I pointed out in my first letter, the infrastructure (both legal and administrative) already exists for an increase in fuel taxes. With all the trucks using I-80 as well as U.S. 30 and other truck routes, there might not only be an increase in the fuel tax, but also an increase in Wyoming truck permit fees. Since trucks do the most damage to roads, higher permit fees would be justified.

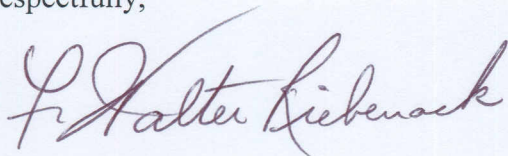
From my viewpoint, as a frequent driver on I-80, I'd rather pay more at the fuel pump rather than complicating my life by having to pay tolls.

Mr. Tim McDowell
State Programming Engineer
WYDOT
June 29, 2009
Page Two

Parsons Brinkerhoff is a fine transportation/engineering firm. But, is this a conflict of interest? I don't know WYDOT's rules governing consultants so I can't say if it's a complicit or not. I hope not. This is a major issue for Wyoming and I would hate to see its resolution impaired in any way.

If you have any comments or questions on this letter or on the issue of tolling, please feel free to contact me.

Respectfully,

A handwritten signature in dark ink, reading "F. Walter Riebenack". The signature is written in a cursive style with a large, sweeping initial "F".

F. Walter Riebenack

FWR/mb

Enclosure

P.S. Enclosed is something you might find of interest.

P.O. Box 943
Rock Springs, WY 82902
307-362-5833

August 1, 2009

Mr. Timothy McDowell
WYDOT Planning Program
5300 Bishop Blvd.
Cheyenne, WY 82009-3340

Subject: I-80 Tolls

Dear Mr. McDowell:

Thank-you for coming to Rock Springs to explain the issues leading to proposed tolls on I-80. While we are embarrassed that so few from our community showed when so many drive that road every day, you and your people made us proud of your agency. We came away feeling like you were looking and planning ahead and trying to make the best use of the taxpayer's money, despite overwhelming constraints. Few government agencies convey that message, no matter what they say or do!

Anyway, since we travel 80 miles round trip on I-80 everyday to work and back, we are really not keen on tolls. There is no practical way for us to avoid travelling at least a small stretch of the interstate. We are not alone. The majority of those employed in Sweetwater County travel I-80 to work every day and most go at least 30 miles one way.

Creating tolls to travel I-80 will add to the existing financial burden of just going to and from work. Compounding the financial situation is the fact that employers are feeling the pinch from the economic downturn and are trimming financial compensation of their employees every way they can short of letting them go. This makes the idea of tolls even more overwhelming, especially for those on the low end of the pay scale.

Another concern we have is that if Wyoming takes over financing I-80's maintenance with tolls, the Federal Government will proceed to withdraw what funding it already provides for its maintenance, thus burdening the citizens of Wyoming and the travelers of I-80 all the more.

In your meeting it was said that one consideration was setting up tolls at the borders of the state. That would seem to solve our personal issue, but in fact it would only hide it from view. It is true that we would not have to pay out money every day to go to work, but all the goods and services we require to live here will go up in price because everything is brought here by truck. All the industries whose workers travel I-80 also receive their materials by trucks that come in from out of state. Moreover, all the products that line the shelves of our stores come in on trucks from out of state. If the trucks have to pay more, the consumer will pay more also.

If you must pursue charging the trucks coming into Wyoming, consider taxing trucks based on their weight. They are already weighed at each port of entry so you already have this data. Taxing the trucks based on their weight would force the worst offenders to pay more and would minimize the need to add infrastructure just to collect extra funds. It would not prevent the price of goods and services to go up, but it might soften the blow some.

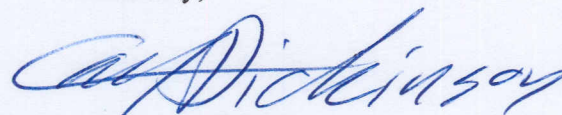
Your presentation made Wyoming sound like an island who was left stuck paying the bill for all the freight that moves through our state. While Wyoming's low population probably exacerbates the issue, we doubt that Wyoming is the only state with this problem. We would encourage you to encourage Governor Freudenthal to bring this issue up with the governors of the other western states through which I-80 passes. The Western Governors got together to create a joint plan to facilitate moving energy (particularly electricity) out of the states where it is generated to where it needed to go. Why can't they get together to work out a plan that facilitates maintenance of the busiest E-W interstate in the country that happens to traverse their states? Perhaps they can, as a collective group, engender more support from the Federal Government or at least share their own collective resources so Wyoming's bill is not so high.

We have some safety concerns too. We understand that you plan to take tolls electronically. How is that going to work for those who are not connected electronically? If you put in traditional toll booths, things can get real exciting in the winter when visibility drops to just in front of your hood and the road is sheet ice. That would incur extra expense for highway patrolmen, EMT's, tow trucks, and plows. Hmmm...something to think about.

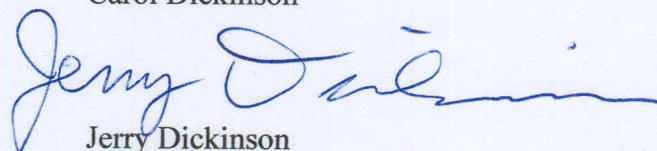
While we understand that going forward, you will be really short of funds for maintenance of I-80 and we do not have any magic answers, we really hope you can find some funding without installing tolls. The way we see it, installing tolls just brings on a bunch of additional complications and expense.

Thank-you for taking time to inform the public of the funding problems of I-80's maintenance and providing opportunity to comment on this issue. We wish you the best of luck in finding a practical and equitable solution.

Sincerely,



Carol Dickinson



Jerry Dickinson

Tim McDowell
WYDOT Adgts
5300 Bishop Blvd.
Cheyenne WY 82009

Mr McDowell,

Telling 'I-80 is a tranesty!
First of all its a federal taxpayer
highway. We pay for that road
with our tax dollars. Its our
right to travel from state to
state without being charged.
This sounds like another
Wyoming good ole boy well
do what we want irregardless
of how it affects others.

If WYDOT needs more money
then maybe you should watch
your field offices for a change.
The money that is wasted out
of Pinedale alone is unbelievable!
But im sure its all covered up.

Another thing - Wy can stop
the ads on TV trying to get tourists
here - why - so they can pay
a toll to travel this state?
I wouldn't do it - I'd go
someplace else!

Concerned + Outraged
Citizen

July 24, 2009

Subject: Wydot I-80 Tolling Study

My wife and I attended the I-80 tolling study meeting held in Evanston.

First, the numbers, as quoted by Wydot, should convince the State Legislature that tolling is a bad idea. We know that 50% of the traffic is large trucks, causing 90% of the damage to the road.

The solution should be simple.

Either:

1. Lower the weight limit permitted for large trucks, or
2. Build better quality roads that will handle these heavy trucks, or
3. Charge higher fees, in the form of taxes, to those (trucks) doing the damage.

Second, in the Wydot video presentation, the traffic from the west and central parts of the country was shown to converge on Wyoming in what was described as a "crowded corridor" or pinch point.

It should be remembered that I-80 did not always exist. There was a road across Wyoming before I-80 called US 30. In fact, if you go to Pine Bluffs, WY and get off I-80, you can drive east on US 30 all the way across Nebraska (460 miles), and across Iowa and Illinois. In fact, you can drive US 30 clear to the Jersey shore. Going west, instead of taking I-80, you can drive US 50 halfway across Utah, and all the way across Nevada and California.

The State Legislature and the Transportation Committee should understand that the reason I-80 is so crowded **now** is that Wydot made a decision years ago that they would **not** maintain a second, parallel route. All other states (with the exception of eastern Utah) **have** alternate routes to I-80.

Now Wyoming plans to charge its citizens headed to work or going shopping to drive on the **only road** the state has provided! Tourists will no doubt take I-70 across Colorado since it is much more scenic, and it is free!

Third, The Interstate Highway System, as envisioned by President Eisenhower, was for commerce **and for defense**, and as such, was supposed to be a "freeway".

Fourth, since I-80 was built and is maintained primarily with federal funds already collected from ordinary taxpayers, (like you and me), charging a toll to drive on I-80 amounts to double taxation!

I have lived in Uinta County, Wyoming for 33 years and although I am not a professional driver I am still out there on I-80 nearly every day. My wife and I log almost 25,000 miles a year just commuting to work and home again.

Chris and Carol Plummer, P.O. Box 836, Lyman, WY 82937 cplummer@union-tel.com 307-787-6541

F. WALTER RIEBENACK

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July 31, 2009

Mr. Tim McDowell
State Programming Engineer
WYDOT
5300 Bishop Boulevard
Cheyenne, Wyoming 82009

Re: More Further Comments on I-80 Tolls

Dear Mr. McDowell:

Enclosed is a copy of a news article that appeared in USA Today earlier this month. Perhaps you've seen it.

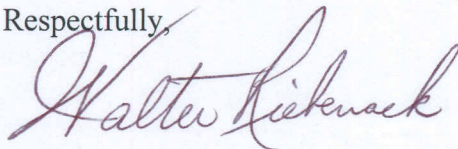
In any event, Wyoming has one of the lowest, if not the lowest, lodging tax in the country. In Uinta County, it's 3%.

In the last few weeks, I had occasion to go to Phoenix on business. There the hotel room occupancy tax was 14% and the sales/miscellaneous tax was an additional 8.2%. The taxes on the car rental totaled 42%!!!

It would appear to me that such taxes would be additional sources of revenue – some of which could be used for road and highway maintenance.

Just some food for thought.

Respectfully,



F. Walter Riebenack

FWR/mb

Enclosure

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Tourists pay price as states jack up taxes to balance budgets

By Dennis Cauchon, USA TODAY

Taxes on travel are soaring as states and cities target the wallets of tourists and business travelers for new revenue.

Hotel taxes, car rental fees and other charges were jacked up in many states in an effort to balance budgets by last week, when the fiscal year started in 46 states.

Popular tourist destinations were hit especially hard. Among places where taxes rose:

•**Hawaii.** The hotel room tax increased from 7.25% to 8.25% on Wednesday and will rise to 9.25% in July 2010.

•**Nevada.** The room tax will increase up to 3 percentage points, to a maximum of 12%. In Las Vegas, the hotel tax jumps from 9% to 12%. Reno's tax was already 12% and is not scheduled to change.

•**New Hampshire.** The tax on rooms and restaurant meals rose from 8% to 9% and was extended to include recreational vehicles at campgrounds.

•**Massachusetts.** Cities were given authority to raise the hotel tax from 4% to 6%, in addition to the state tax of 5.7%. Taxes on eating out will rise from 5% to 6.25% statewide, plus another 0.75% if cities choose.

•**New York City.** The city, which raised its hotel tax March 1 to 14.25%, not counting other fees, will start charging more for Internet reservations.

"You couldn't pick a worse time to make it more expensive to rent a hotel room," says Mark Woodworth, executive vice president of PKF Hospitality Research in Atlanta. Hotel occupancy this year will be at its lowest level — 55.5% — since his company started keeping track in 1936, Woodworth says.

Legislators say tax hikes were needed. New Hampshire, which doesn't have a sales or income tax, made painful spending cuts in addition to hiking taxes and fees, says New Hampshire state Rep. Marjorie Smith, a Democrat.

"We didn't have an enormous number of options, and that was one," she says.

Room taxes generated \$14 billion in 2008, the American Hotel & Lodging Association reports. That amount is expected to fall in 2009, even with higher tax rates.

Car rental fees are rising, too. A new 5% tax at the Newark airport will fund economic development. Wisconsin approved hiking the car rental fee in Milwaukee from \$2 to \$18 to subsidize mass transit.

Adding an \$18 fee to a car rental is outrageous, says Caleb Miller of the National Business Travel Association. "In what other context can you charge a 50% tax rate and get away with it?" he says.

He says businesses are very sensitive to travel costs in this recession and higher taxes hurt local businesses, not just visitors from out of town. "It's not the whole story to think, 'We tax someone from out of town. What's the big deal?'"

Most travel tax hikes ran into light opposition this year. The Nevada Hotel and Lodging Association didn't oppose the state's hotel tax hike aimed at generating \$100 million a year. "We support education," says Van Heffner, the association's president. "What could we do? We stayed neutral."

Find this article at:

http://www.usatoday.com/travel/2009-07-05-traveltax_N.htm

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Check the box to include the list of links referenced in the article.

Appendix B: Financial Scenarios

Wyoming Department of Transportation
Phase 2 I-80 Tolling Feasibility Study

Base Case Financing Scenario

Sources and Uses

SOURCES	
Current Interest Bonds/Subordinate Debt	\$2,519.9
Capital Appreciation Bonds	1,575.9
Constuction Fund Interest Earnings	81.9
Total Sources	\$4,177.7
USES	
Capital Account Deposit	\$3,379.6
Issuance Costs	163.8
Debt Service Reserve Fund	433.1
Capitalized Interest	201.2
Total Uses	\$4,177.7
FINANCIAL FEASIBILITY	
Capital Account Deposit	\$3,379.6
Escalated Roadway Costs	5,956.6
Project Surplus/(Shortfall)	(\$2,577.0)

Wyoming Department of Transportation
Phase 2 I-80 Tolling Feasibility Study

Base Case Financing Scenario

Debt Service Schedule

Fiscal Year	Current Interest Bonds/TIFIA			Capital Appreciation Bonds			TOTAL		
	Principal	Interest	Total Debt Service	Principal	Interest	Total Debt Service	Principal	Interest	Total Debt Service
2015	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-
2017	3.0	19.6	22.7	-	-	-	3.0	19.6	22.7
2018	3.2	19.5	22.7	1.0	0.2	1.2	4.2	19.7	23.8
2019	8.0	51.6	59.6	11.6	2.6	14.2	19.6	54.2	73.8
2020	8.4	51.3	59.6	13.8	4.0	17.8	22.2	55.3	77.5
2021	14.1	89.0	103.0	19.7	7.2	26.9	33.8	96.2	130.0
2022	14.8	88.2	103.0	18.5	8.6	27.1	33.3	96.8	130.1
2023	21.0	126.6	147.6	22.2	11.9	34.0	43.1	138.4	181.6
2024	22.2	125.4	147.6	18.4	12.5	30.9	40.6	137.8	178.4
2025	28.8	163.4	192.2	16.5	13.5	30.0	45.3	176.9	222.2
2026	30.5	161.6	192.2	22.4	18.7	41.1	52.9	180.3	232.2
2027	32.4	159.7	192.2	27.5	24.8	52.3	59.9	184.6	244.5
2028	34.5	157.6	192.2	32.1	32.2	64.3	66.6	189.8	256.4
2029	36.7	155.4	192.2	36.0	40.7	76.7	72.8	196.1	268.9
2030	39.2	153.0	192.2	39.7	50.2	89.9	78.9	203.2	282.1
2031	41.8	150.4	192.2	42.1	59.8	101.9	83.8	210.2	294.1
2032	44.6	147.6	192.2	44.2	70.2	114.3	88.7	217.7	306.5
2033	47.6	144.6	192.2	45.9	81.4	127.3	93.5	225.9	319.4
2034	50.8	141.3	192.2	47.4	93.4	140.7	98.2	234.7	332.9
2035	54.3	137.9	192.2	48.8	105.9	154.7	103.1	243.8	346.9
2036	58.0	134.2	192.2	50.9	121.0	171.8	108.9	255.1	364.0
2037	61.9	130.2	192.2	52.7	137.2	189.9	114.6	267.4	382.0
2038	66.1	126.0	192.2	54.3	154.5	208.8	120.4	280.5	400.9
2039	70.6	121.5	192.2	55.7	172.9	228.6	126.3	294.5	420.8
2040	75.4	116.8	192.2	56.8	192.6	249.5	132.2	309.4	441.6
2041	80.5	111.7	192.2	57.8	213.6	271.4	138.2	325.3	463.5
2042	85.9	106.2	192.2	58.5	235.9	294.4	144.5	342.1	486.6
2043	91.7	100.4	192.2	59.2	259.5	318.6	150.9	359.9	510.8
2044	97.9	94.2	192.2	59.6	284.4	344.0	157.6	378.6	536.2
2045	104.6	87.6	192.2	60.0	310.7	370.7	164.6	398.3	562.9
2046	111.6	80.5	192.2	60.3	338.5	398.8	171.9	419.1	590.9
2047	119.2	73.0	192.2	60.4	367.9	428.3	179.6	440.9	620.4
2048	127.2	64.9	192.2	60.5	398.7	459.2	187.7	463.7	651.3
2049	135.8	56.3	192.2	60.4	431.3	491.7	196.2	487.6	683.9
2050	122.3	47.1	169.5	49.8	354.7	404.5	172.2	401.8	574.0
2051	130.6	38.9	169.5	49.7	382.9	432.5	180.3	421.7	602.0
2052	102.5	30.0	132.5	39.1	302.0	341.1	141.6	332.1	473.6
2053	109.4	23.1	132.5	38.9	325.3	364.3	148.3	348.5	496.8
2054	73.4	15.7	89.1	27.5	230.9	258.4	100.9	246.6	347.5
2055	78.3	10.8	89.1	27.3	248.1	275.4	105.7	258.8	364.5
2056	39.1	5.5	44.6	14.5	132.1	146.6	53.6	137.6	191.2
2057	41.8	2.8	44.6	14.4	141.6	156.0	56.2	144.4	200.6

Wyoming Department of Transportation
Phase 2 I-80 Tolling Feasibility Study

Base Case with TIFIA Financing Scenario

Sources and Uses

SOURCES	
Current Interest Bonds/Subordinate Debt	\$2,712.6
Capital Appreciation Bonds	1,797.1
Constuction Fund Interest Earnings	90.2
Total Sources	<u>\$4,599.8</u>
USES	
Capital Account Deposit	\$3,796.2
Issuance Costs	180.4
Debt Service Reserve Fund	433.1
Capitalized Interest	190.2
Total Uses	<u>\$4,599.8</u>
FINANCIAL FEASIBILITY	
Capital Account Deposit	\$3,796.2
Escalated Roadway Costs	<u>5,956.6</u>
Project Surplus/(Shortfall)	<u>(\$2,160.5)</u>

Wyoming Department of Transportation
Phase 2 I-80 Tolling Feasibility Study

Base Case with TIFIA Financing Scenario

Debt Service Schedule

Fiscal Year	Current Interest Bonds/TIFIA			Capital Appreciation Bonds			TOTAL		
	Principal	Interest	Total Debt Service	Principal	Interest	Total Debt Service	Principal	Interest	Total Debt Service
2015	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-
2017	3.7	18.9	22.7	-	-	-	3.7	18.9	22.7
2018	3.9	18.8	22.7	1.0	0.1	1.2	4.9	18.9	23.8
2019	9.8	49.9	59.6	11.9	2.3	14.2	21.6	52.1	73.8
2020	10.2	49.5	59.6	14.2	3.6	17.8	24.4	53.1	77.5
2021	17.1	85.9	103.0	20.4	6.5	26.9	37.5	92.4	130.0
2022	17.9	85.1	103.0	19.3	7.8	27.1	37.2	92.9	130.1
2023	25.4	122.2	147.6	23.2	10.9	34.0	48.5	133.1	181.6
2024	26.7	120.9	147.6	19.4	11.5	30.9	46.0	132.4	178.4
2025	34.5	157.6	192.2	17.5	12.5	30.0	52.0	170.2	222.2
2026	36.4	155.7	192.2	23.7	17.4	41.1	60.1	173.1	233.2
2027	38.4	153.7	192.2	29.1	23.2	52.3	67.6	176.9	244.5
2028	40.6	151.5	192.2	34.1	30.1	64.3	74.8	181.6	256.4
2029	43.0	149.1	192.2	38.5	38.2	76.7	81.5	187.3	268.9
2030	45.6	146.6	192.2	42.7	47.3	90.0	88.2	193.9	282.1
2031	48.3	143.9	192.2	45.4	56.5	101.9	93.7	200.3	294.1
2032	51.2	140.9	192.2	48.0	66.4	114.3	99.2	207.3	306.5
2033	54.3	137.8	192.2	50.2	77.1	127.3	104.5	214.9	319.4
2034	57.6	134.5	192.2	52.1	88.7	140.7	109.7	223.2	332.9
2035	61.2	131.0	192.2	54.0	100.8	154.8	115.2	231.7	346.9
2036	65.0	127.2	192.2	56.6	115.3	171.9	121.5	242.5	364.0
2037	68.9	123.2	192.2	58.9	130.9	189.9	127.9	254.2	382.0
2038	73.1	119.0	192.2	61.1	147.7	208.8	134.2	266.7	400.9
2039	77.6	114.5	192.2	63.1	165.6	228.7	140.7	280.1	420.8
2040	82.3	109.8	192.2	64.7	184.8	249.5	147.1	294.6	441.6
2041	87.4	104.8	192.2	66.2	205.2	271.4	153.5	310.0	463.6
2042	92.7	99.5	192.2	67.5	227.0	294.5	160.2	326.5	486.6
2043	98.3	93.8	192.2	68.6	250.1	318.7	167.0	343.9	510.8
2044	104.3	87.8	192.2	69.6	274.4	344.1	173.9	362.3	536.2
2045	110.7	81.5	192.2	70.5	300.3	370.8	181.1	381.8	562.9
2046	117.4	74.7	192.2	71.2	327.7	398.8	188.6	402.4	591.0
2047	124.6	67.6	192.2	71.8	356.5	428.3	196.4	424.1	620.5
2048	132.2	60.0	192.2	72.3	387.0	459.2	204.5	446.9	651.4
2049	140.2	51.9	192.2	72.7	419.1	491.8	212.9	471.0	683.9
2050	126.1	43.4	169.5	60.0	344.6	404.6	186.1	388.0	574.1
2051	133.8	35.7	169.5	60.2	372.4	432.6	194.0	408.1	602.1
2052	105.0	27.5	132.5	47.4	293.8	341.1	152.3	321.3	473.7
2053	111.4	21.1	132.5	47.5	316.9	364.3	158.8	338.0	496.8
2054	74.8	14.4	89.1	33.6	224.9	258.4	108.3	239.2	347.5
2055	79.3	9.8	89.1	33.6	241.9	275.4	112.9	251.7	364.6
2056	39.6	5.0	44.6	17.8	128.8	146.6	57.4	133.8	191.2
2057	42.0	2.6	44.6	17.8	138.2	156.0	59.8	140.8	200.6

Wyoming Department of Transportation
Phase 2 I-80 Tolling Feasibility Study

State Backstop Financing Scenario

Sources and Uses

SOURCES	
Current Interest Bonds/Subordinate Debt	\$3,064.2
Capital Appreciation Bonds	1,987.4
Constuction Fund Interest Earnings	101.0
Total Sources	<u>\$5,152.5</u>
USES	
Capital Account Deposit	\$4,237.5
Issuance Costs	202.1
Debt Service Reserve Fund	496.6
Capitalized Interest	216.4
Total Uses	<u>\$5,152.5</u>
FINANCIAL FEASIBILITY	
Capital Account Deposit	\$4,237.5
Escalated Roadway Costs	<u>5,956.6</u>
Project Surplus/(Shortfall)	<u>(\$1,719.2)</u>

Wyoming Department of Transportation
Phase 2 I-80 Tolling Feasibility Study

State Backstop Financing Scenario

Debt Service Schedule

Fiscal Year	Current Interest Bonds/TIFIA			Capital Appreciation Bonds			TOTAL		
	Principal	Interest	Total Debt Service	Principal	Interest	Total Debt Service	Principal	Interest	Total Debt Service
2015	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-
2017	4.2	22.0	26.2	-	-	-	4.2	22.0	26.2
2018	4.3	21.9	26.2	1.2	0.2	1.3	5.5	22.0	27.6
2019	10.9	57.8	68.8	13.6	2.6	16.2	24.5	60.5	85.0
2020	11.4	57.4	68.8	16.3	4.1	20.4	27.6	61.5	89.2
2021	19.1	99.6	118.7	23.3	7.4	30.8	42.5	107.0	149.5
2022	20.0	98.7	118.7	22.0	9.0	31.0	42.0	107.7	149.7
2023	28.3	141.7	170.0	26.5	12.4	38.9	54.7	154.2	208.9
2024	29.7	140.3	170.0	22.1	13.2	35.3	51.8	153.4	205.2
2025	38.4	182.9	221.3	20.0	14.4	34.3	58.4	197.3	255.6
2026	40.5	180.8	221.3	27.0	20.0	46.9	67.5	200.7	268.2
2027	42.8	178.5	221.3	33.2	26.6	59.8	76.0	205.1	281.1
2028	45.2	176.1	221.3	38.9	34.5	73.4	84.2	210.6	294.7
2029	47.9	173.4	221.3	44.0	43.7	87.7	91.9	217.1	309.0
2030	50.7	170.6	221.3	48.7	54.1	102.8	99.5	224.6	324.1
2031	53.8	167.5	221.3	51.9	64.6	116.5	105.7	232.1	337.8
2032	57.0	164.3	221.3	54.7	76.0	130.7	111.7	240.2	352.0
2033	60.5	160.8	221.3	57.1	88.4	145.5	117.6	249.2	366.8
2034	64.2	157.1	221.3	59.0	101.8	160.9	123.2	258.9	382.1
2035	68.2	153.1	221.3	60.9	115.9	176.9	129.2	269.0	398.2
2036	72.5	148.8	221.3	63.5	132.9	196.4	136.0	281.7	417.7
2037	77.0	144.3	221.3	65.8	151.2	217.0	142.8	295.5	438.3
2038	81.8	139.5	221.3	67.9	170.7	238.6	149.7	310.2	459.9
2039	86.9	134.4	221.3	69.6	191.7	261.3	156.5	326.1	482.6
2040	92.4	128.9	221.3	71.3	213.9	285.1	163.7	342.8	506.4
2041	98.2	123.1	221.3	72.7	237.5	310.2	170.9	360.6	531.5
2042	104.4	116.9	221.3	74.0	262.5	336.5	178.3	379.5	557.8
2043	110.9	110.4	221.3	75.0	289.1	364.2	186.0	399.5	585.5
2044	117.9	103.4	221.3	75.9	317.3	393.2	193.8	420.6	614.5
2045	125.3	96.0	221.3	76.7	347.0	423.7	202.1	443.0	645.0
2046	133.2	88.1	221.3	77.4	378.4	455.8	210.6	466.5	677.1
2047	141.6	79.7	221.3	77.9	411.6	489.5	219.5	491.3	710.8
2048	150.5	70.8	221.3	78.3	446.5	524.8	228.8	517.3	746.1
2049	160.0	61.3	221.3	78.6	483.4	562.0	238.6	544.8	783.3
2050	143.8	51.2	195.1	64.8	397.5	462.4	208.7	448.8	657.4
2051	152.9	42.2	195.1	64.9	429.4	494.4	217.8	471.6	689.4
2052	119.9	32.6	152.5	51.1	338.8	389.9	171.0	371.3	542.4
2053	127.5	25.0	152.5	51.1	365.2	416.3	178.6	390.3	568.9
2054	85.6	17.0	102.6	36.1	259.2	295.3	121.7	276.2	397.9
2055	90.9	11.6	102.6	36.1	278.7	314.8	127.0	290.3	417.3
2056	45.4	5.9	51.3	19.2	148.4	167.6	64.6	154.3	218.9
2057	48.3	3.0	51.3	19.1	159.2	178.3	67.4	162.3	229.6

Wyoming Department of Transportation
Phase 2 I-80 Tolling Feasibility Study

State Backstop with TIFIA Financing Scenario

Sources and Uses

SOURCES	
Current Interest Bonds/Subordinate Debt	\$3,988.8
Capital Appreciation Bonds	2,623.2
Constuction Fund Interest Earnings	132.2
Total Sources	<u>\$6,744.2</u>
USES	
Capital Account Deposit	\$5,595.5
Issuance Costs	264.5
Debt Service Reserve Fund	617.4
Capitalized Interest	266.8
Total Uses	<u>\$6,744.2</u>
FINANCIAL FEASIBILITY	
Capital Account Deposit	\$5,595.5
Escalated Roadway Costs	<u>5,956.6</u>
Project Surplus/(Shortfall)	<u>(\$361.2)</u>

Wyoming Department of Transportation
Phase 2 I-80 Tolling Feasibility Study

State Backstop with TIFIA Financing Scenario

Debt Service Schedule

Fiscal Year	Current Interest Bonds/TIFIA			Capital Appreciation Bonds			TOTAL		
	Principal	Interest	Total Debt Service	Principal	Interest	Total Debt Service	Principal	Interest	Total Debt Service
2015	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-
2017	5.8	27.3	33.1	-	-	-	5.8	27.3	33.1
2018	6.0	27.1	33.1	1.5	0.2	1.7	7.5	27.3	34.8
2019	15.0	71.4	86.4	16.9	3.1	20.0	31.9	74.5	106.4
2020	15.6	70.9	86.4	20.3	4.9	25.2	35.9	75.8	111.6
2021	26.2	122.8	148.9	29.2	8.9	38.0	55.3	131.6	187.0
2022	27.4	121.6	148.9	27.6	10.7	38.3	54.9	132.3	187.2
2023	38.6	174.5	213.1	33.2	14.9	48.1	71.8	189.3	261.1
2024	40.5	172.6	213.1	27.8	15.8	43.6	68.3	188.3	256.6
2025	52.4	224.9	277.3	25.2	17.2	42.4	77.6	242.2	319.7
2026	55.1	222.2	277.3	34.0	23.9	58.0	89.1	246.1	335.3
2027	58.1	219.2	277.3	41.9	31.9	73.9	100.0	251.1	351.1
2028	61.3	216.0	277.3	49.2	41.5	90.7	110.5	257.5	368.0
2029	64.7	212.6	277.3	55.6	52.7	108.3	120.3	265.3	385.6
2030	68.4	208.9	277.3	61.7	65.3	127.0	130.1	274.2	404.3
2031	72.4	204.9	277.3	65.8	78.0	143.9	138.2	283.0	421.2
2032	76.6	200.7	277.3	69.6	91.8	161.4	146.2	292.5	438.7
2033	81.1	196.2	277.3	72.8	106.8	179.7	153.9	303.1	457.0
2034	85.9	191.4	277.3	75.6	123.1	198.7	161.5	314.5	476.0
2035	91.0	186.3	277.3	78.5	140.0	218.5	169.5	326.3	495.8
2036	96.4	180.9	277.3	82.3	160.4	242.6	178.6	341.3	519.9
2037	102.1	175.2	277.3	85.7	182.3	268.1	187.8	357.5	545.3
2038	108.2	169.1	277.3	88.9	205.9	294.8	197.0	375.0	572.1
2039	114.6	162.7	277.3	91.7	231.1	322.8	206.3	393.8	600.1
2040	121.4	155.9	277.3	94.2	258.0	352.2	215.6	413.9	629.5
2041	128.6	148.7	277.3	96.5	286.7	383.2	225.1	435.4	660.5
2042	136.2	141.1	277.3	98.5	317.2	415.7	234.8	458.3	693.0
2043	144.3	133.0	277.3	100.3	349.6	449.9	244.6	482.6	727.2
2044	152.9	124.4	277.3	101.9	383.8	485.7	254.8	508.3	763.0
2045	162.0	115.3	277.3	103.3	420.2	523.5	265.2	535.5	800.8
2046	171.6	105.7	277.3	104.5	458.6	563.1	276.1	564.3	840.4
2047	181.8	95.5	277.3	105.6	499.2	604.7	287.3	594.7	882.0
2048	192.6	84.7	277.3	106.4	541.9	648.4	299.0	626.7	925.7
2049	204.0	73.3	277.3	107.2	587.1	694.3	311.2	660.4	971.6
2050	183.0	61.2	244.2	88.4	482.8	571.2	271.4	543.9	815.4
2051	193.9	50.3	244.2	88.9	521.9	610.7	282.7	572.2	854.9
2052	152.0	38.8	190.8	70.0	411.7	481.6	222.0	450.5	672.5
2053	161.1	29.8	190.8	70.2	444.1	514.3	231.3	473.9	705.2
2054	108.1	20.2	128.3	49.6	315.2	364.8	157.8	335.4	493.2
2055	114.5	13.8	128.3	49.7	339.2	388.9	164.3	353.0	517.2
2056	57.2	7.0	64.2	26.4	180.6	207.0	83.7	187.6	271.3
2057	60.6	3.6	64.2	26.4	193.9	220.3	87.1	197.5	284.5