

Benefit and Cost Calculatic

Discount rate 7% per year

Year	Costs													
	Base Case			Project							Net Project Costs (Discounted)			
	Capital		Maintenance	Capital		Maintenance		Total						
Actual	Discounted	Actual	Discounted	Discounted	Actual	Discounted	Actual	Discounted	Discounted					
2012	0		\$500,000	\$500,000	\$500,000	\$16,100,000	\$16,100,000	\$500,000	\$500,000	\$16,600,000	\$16,600,000			
2013	1		\$500,000	\$467,290	\$467,290	\$16,100,000	\$15,046,729	\$450,000	\$420,561	\$15,467,290	\$15,467,290			
2014	2		\$500,000	\$436,719	\$436,719	\$13,900,000	\$12,140,798	\$450,000	\$393,047	\$12,533,846	\$12,533,846			
2015	3		\$500,000	\$408,149	\$408,149	\$ -	\$ -	\$250,000	\$204,074	\$204,074	\$204,074			
2016	4		\$500,000	\$381,448	\$381,448	\$ -	\$ -	\$250,000	\$190,724	\$190,724	\$190,724			
2017	5		\$500,000	\$356,493	\$356,493	\$ -	\$ -	\$250,000	\$178,247	\$178,247	\$178,247			
2018	6		\$500,000	\$333,171	\$333,171	\$ -	\$ -	\$250,000	\$166,586	\$166,586	\$166,586			
2019	7		\$500,000	\$311,375	\$311,375	\$ -	\$ -	\$250,000	\$155,687	\$155,687	\$155,687			
2020	8		\$500,000	\$291,005	\$291,005	\$ -	\$ -	\$250,000	\$145,502	\$145,502	\$145,502			
2021	9		\$500,000	\$271,967	\$271,967	\$ -	\$ -	\$250,000	\$135,983	\$135,983	\$135,983			
2022	10		\$500,000	\$254,175	\$254,175	\$ -	\$ -	\$250,000	\$127,087	\$127,087	\$127,087			
2023	11		\$500,000	\$237,546	\$237,546	\$ -	\$ -	\$250,000	\$118,773	\$118,773	\$118,773			
2024	12		\$500,000	\$222,006	\$222,006	\$ -	\$ -	\$250,000	\$111,003	\$111,003	\$111,003			
2025	13		\$500,000	\$207,482	\$207,482	\$ -	\$ -	\$250,000	\$103,741	\$103,741	\$103,741			
2026	14		\$500,000	\$193,909	\$193,909	\$ -	\$ -	\$250,000	\$96,954	\$96,954	\$96,954			
2027	15		\$500,000	\$181,223	\$181,223	\$ -	\$ -	\$250,000	\$90,612	\$90,612	\$90,612			
2028	16		\$500,000	\$169,367	\$169,367	\$ -	\$ -	\$250,000	\$84,684	\$84,684	\$84,684			
2029	17		\$500,000	\$158,287	\$158,287	\$ -	\$ -	\$250,000	\$79,144	\$79,144	\$79,144			
2030	18		\$500,000	\$147,932	\$147,932	\$ -	\$ -	\$250,000	\$73,966	\$73,966	\$73,966			
2031	19		\$500,000	\$138,254	\$138,254	\$ -	\$ -	\$250,000	\$69,127	\$69,127	\$69,127			
2032	20		\$500,000	\$129,210	\$129,210	-\$17,100,000	-\$4,418,965	\$250,000	\$64,605	-\$4,354,360	-\$4,354,360			
Total (undis		\$0	\$10,500,000		\$29,000,000		\$5,900,000			\$4,600,000	\$1,279,745	\$514,682	\$157,419,006	
Discounted present		\$0	\$5,797,007	\$5,797,007	\$38,868,562	\$3,510,107	\$42,378,670	\$42,378,670	\$2,286,900	\$636,228	\$255,875	\$366,620	\$76,837,931	\$80,383,555

Benefits														
Maintenance Cost Savings		Time Savings		Fuel Savings		Accident Savings		Job Savings		Total Savings				
Actual	Discounted	Actual	Discounted	Actual	Discounted	Actual	Discounted	Actual	Discounted	(Discounted)				
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0				
\$50,000	\$46,729	\$13,910	\$13,000	\$5,594	\$5,228	\$12,510	\$11,692	\$0	\$0	\$76,649				
\$50,000	\$43,672	\$13,910	\$12,150	\$5,594	\$4,886	\$25,020	\$21,854	\$0	\$0	\$82,562				
\$250,000	\$204,074	\$69,551	\$56,775	\$27,972	\$22,833	\$37,910	\$30,946	\$8,745,500	\$7,138,933	\$7,453,561				
\$250,000	\$190,724	\$69,551	\$53,060	\$27,972	\$21,340	\$37,910	\$28,921	\$8,745,500	\$6,671,900	\$6,965,945				
\$250,000	\$178,247	\$69,551	\$49,589	\$27,972	\$19,944	\$37,910	\$27,029	\$8,745,500	\$6,235,421	\$6,510,229				
\$250,000	\$166,586	\$69,551	\$46,345	\$27,972	\$18,639	\$37,910	\$25,261	\$8,745,500	\$5,827,496	\$6,084,326				
\$250,000	\$155,687	\$69,551	\$43,313	\$27,972	\$17,419	\$37,910	\$23,608	\$8,745,500	\$5,446,258	\$5,686,286				
\$250,000	\$145,502	\$69,551	\$40,480	\$27,972	\$16,280	\$37,910	\$22,064	\$8,745,500	\$5,089,961	\$5,314,286				
\$250,000	\$135,983	\$69,551	\$37,831	\$27,972	\$15,215	\$37,910	\$20,620	\$8,745,500	\$4,756,973	\$4,966,623				
\$250,000	\$127,087	\$69,551	\$35,356	\$27,972	\$14,219	\$37,910	\$19,271	\$8,745,500	\$4,445,769	\$4,641,703				
\$250,000	\$118,773	\$69,551	\$33,043	\$27,972	\$13,289	\$37,910	\$18,011	\$8,745,500	\$4,154,924	\$4,338,041				
\$250,000	\$111,003	\$69,551	\$30,882	\$27,972	\$12,420	\$37,910	\$16,832	\$8,745,500	\$3,883,107	\$4,054,244				
\$250,000	\$103,741	\$69,551	\$28,861	\$27,972	\$11,607	\$37,910	\$15,731	\$8,745,500	\$3,629,072	\$3,789,013				
\$250,000	\$96,954	\$69,551	\$26,973	\$27,972	\$10,848	\$37,910	\$14,702	\$8,745,500	\$3,391,656	\$3,541,133				
\$250,000	\$90,612	\$69,551	\$25,209	\$27,972	\$10,138	\$37,910	\$13,740	\$8,745,500	\$3,169,772	\$3,309,470				
\$250,000	\$84,684	\$69,551	\$23,559	\$27,972	\$9,475	\$37,910	\$12,841	\$8,745,500	\$2,962,404	\$3,092,963				
\$250,000	\$79,144	\$69,551	\$22,018	\$27,972	\$8,855	\$37,910	\$12,001	\$8,745,500	\$2,768,601	\$2,890,620				
\$250,000	\$73,966	\$69,551	\$20,578	\$27,972	\$8,276	\$37,910	\$11,216	\$8,745,500	\$2,587,478	\$2,701,514				
\$250,000	\$69,127	\$69,551	\$19,232	\$27,972	\$7,734	\$37,910	\$10,482	\$8,745,500	\$2,418,204	\$2,524,779				
\$250,000	\$64,605	\$69,551	\$17,973	\$27,972	\$7,228	\$37,910	\$9,797	\$8,745,500	\$2,260,003	\$2,359,607				
Total (undis		\$0	\$10,500,000	\$29,000,000	\$5,900,000	\$4,600,000	\$1,279,745	\$514,682	\$157,419,006					
Discounted present		\$0	\$5,797,007	\$5,797,007	\$38,868,562	\$3,510,107	\$42,378,670	\$42,378,670	\$2,286,900	\$636,228	\$255,875	\$366,620	\$76,837,931	\$80,383,555

B/C = 1.90
based on present value

*Assumes residual value at the end of 20 years as calculated in "Revised Benefits" sheet.

Net and total costs are equal because the maintenance cost savings are claimed under benefits.

This analysis also uses 7% discount rate. Since the primary funding is assumed to be the TIGER grant, which would go to other projects if not this one, than a 3% discount rate can be considered, which would increase the B/C ratio by 55%.

Benefit and Cost Calculatic

Discount rate 3% per year

Year	Costs										Benefits														
	Base Case			Project							Net Project Costs (Discounted)	Maintenance Cost Savings		Time Savings		Fuel Savings		Accident Savings		Job Savings		Total Savings (Discounted)			
	Actual	Discounted	Discounted	Actual	Discounted	Actual	Discounted	Actual	Discounted	Actual		Discounted	Actual	Discounted	Actual	Discounted	Actual	Discounted	Actual	Discounted					
2012	0		\$500,000	\$500,000	\$500,000	\$16,100,000	\$16,100,000	\$500,000	\$500,000	\$16,600,000	\$16,600,000			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
2013	1		\$500,000	\$485,437	\$485,437	\$16,100,000	\$15,631,068	\$450,000	\$436,893	\$16,067,961	\$16,067,961			\$50,000	\$48,544	\$13,910	\$13,505	\$5,594	\$5,431	\$12,510	\$12,146	\$0	\$0	\$79,626	
2014	2		\$500,000	\$471,298	\$471,298	\$13,900,000	\$13,102,083	\$450,000	\$424,168	\$13,526,251	\$13,526,251			\$50,000	\$47,130	\$13,910	\$13,112	\$5,594	\$5,273	\$25,020	\$23,584	\$0	\$0	\$89,099	
2015	3		\$500,000	\$457,571	\$457,571	\$ -	\$0	\$250,000	\$228,785	\$228,785	\$228,785	\$228,785			\$250,000	\$228,785	\$69,551	\$63,649	\$27,972	\$25,598	\$37,910	\$34,693	\$8,745,500	\$8,003,372	\$8,356,097
2016	4		\$500,000	\$444,244	\$444,244	\$ -	\$0	\$250,000	\$222,122	\$222,122	\$222,122	\$222,122			\$250,000	\$222,122	\$69,551	\$61,795	\$27,972	\$24,853	\$37,910	\$33,682	\$8,745,500	\$7,770,264	\$8,112,716
2017	5		\$500,000	\$431,304	\$431,304	\$0	\$0	\$250,000	\$215,652	\$215,652	\$215,652	\$215,652			\$250,000	\$215,652	\$69,551	\$59,996	\$27,972	\$24,129	\$37,910	\$32,701	\$8,745,500	\$7,543,945	\$7,876,423
2018	6		\$500,000	\$418,742	\$418,742	\$0	\$0	\$250,000	\$209,371	\$209,371	\$209,371	\$209,371			\$250,000	\$209,371	\$69,551	\$58,248	\$27,972	\$23,426	\$37,910	\$31,749	\$8,745,500	\$7,324,219	\$7,647,013
2019	7		\$500,000	\$406,546	\$406,546	\$0	\$0	\$250,000	\$203,273	\$203,273	\$203,273	\$203,273			\$250,000	\$203,273	\$69,551	\$56,552	\$27,972	\$22,744	\$37,910	\$30,824	\$8,745,500	\$7,110,892	\$7,424,284
2020	8		\$500,000	\$394,705	\$394,705	\$0	\$0	\$250,000	\$197,352	\$197,352	\$197,352	\$197,352			\$250,000	\$197,352	\$69,551	\$54,904	\$27,972	\$22,081	\$37,910	\$29,926	\$8,745,500	\$6,903,779	\$7,208,043
2021	9		\$500,000	\$383,208	\$383,208	\$0	\$0	\$250,000	\$191,604	\$191,604	\$191,604	\$191,604			\$250,000	\$191,604	\$69,551	\$53,305	\$27,972	\$21,438	\$37,910	\$29,055	\$8,745,500	\$6,702,698	\$6,998,100
2022	10		\$500,000	\$372,047	\$372,047	\$0	\$0	\$250,000	\$186,023	\$186,023	\$186,023	\$186,023			\$250,000	\$186,023	\$69,551	\$51,753	\$27,972	\$20,814	\$37,910	\$28,208	\$8,745,500	\$6,507,474	\$6,794,272
2023	11		\$500,000	\$361,211	\$361,211	\$0	\$0	\$250,000	\$180,605	\$180,605	\$180,605	\$180,605			\$250,000	\$180,605	\$69,551	\$50,245	\$27,972	\$20,207	\$37,910	\$27,387	\$8,745,500	\$6,317,936	\$6,596,380
2024	12		\$500,000	\$350,690	\$350,690	\$0	\$0	\$250,000	\$175,345	\$175,345	\$175,345	\$175,345			\$250,000	\$175,345	\$69,551	\$48,782	\$27,972	\$19,619	\$37,910	\$26,589	\$8,745,500	\$6,133,918	\$6,404,253
2025	13		\$500,000	\$340,476	\$340,476	\$0	\$0	\$250,000	\$170,238	\$170,238	\$170,238	\$170,238			\$250,000	\$170,238	\$69,551	\$47,361	\$27,972	\$19,047	\$37,910	\$25,815	\$8,745,500	\$5,955,260	\$6,217,721
2026	14		\$500,000	\$330,559	\$330,559	\$0	\$0	\$250,000	\$165,279	\$165,279	\$165,279	\$165,279			\$250,000	\$165,279	\$69,551	\$45,982	\$27,972	\$18,493	\$37,910	\$25,063	\$8,745,500	\$5,781,806	\$6,036,623
2027	15		\$500,000	\$320,931	\$320,931	\$0	\$0	\$250,000	\$160,465	\$160,465	\$160,465	\$160,465			\$250,000	\$160,465	\$69,551	\$44,642	\$27,972	\$17,954	\$37,910	\$24,333	\$8,745,500	\$5,613,404	\$5,860,799
2028	16		\$500,000	\$311,583	\$311,583	\$0	\$0	\$250,000	\$155,792	\$155,792	\$155,792	\$155,792			\$250,000	\$155,792	\$69,551	\$43,342	\$27,972	\$17,431	\$37,910	\$23,624	\$8,745,500	\$5,449,907	\$5,690,096
2029	17		\$500,000	\$302,508	\$302,508	\$0	\$0	\$250,000	\$151,254	\$151,254	\$151,254	\$151,254			\$250,000	\$151,254	\$69,551	\$42,080	\$27,972	\$16,923	\$37,910	\$22,936	\$8,745,500	\$5,291,172	\$5,524,365
2030	18		\$500,000	\$293,697	\$293,697	\$0	\$0	\$250,000	\$146,849	\$146,849	\$146,849	\$146,849			\$250,000	\$146,849	\$69,551	\$40,854	\$27,972	\$16,431	\$37,910	\$22,268	\$8,745,500	\$5,137,060	\$5,363,461
2031	19		\$500,000	\$285,143	\$285,143	\$0	\$0	\$250,000	\$142,572	\$142,572	\$142,572	\$142,572			\$250,000	\$142,572	\$69,551	\$39,664	\$27,972	\$15,952	\$37,910	\$21,619	\$8,745,500	\$4,987,437	\$5,207,244
2032	20		\$500,000	\$276,838	\$276,838	-\$17,100,000	-\$9,467,855	\$250,000	\$138,419	-\$9,329,436	-\$9,329,436	-\$9,329,436			\$250,000	\$138,419	\$69,551	\$38,509	\$27,972	\$15,487	\$37,910	\$20,990	\$8,745,500	\$4,842,171	\$5,055,576
Total (undis		\$0	\$10,500,000		\$29,000,000		\$5,900,000						\$4,600,000	\$1,279,745		\$514,682						\$157,419,006			
Discounted present		\$0	\$7,938,737		\$7,938,737		\$35,365,296		\$4,602,063		\$39,967,358		\$39,967,358		\$3,336,675		\$928,281		\$373,332		\$527,192		\$113,376,711		\$118,542,191

B/C = 2.97
based on present value

*Assumes residual value at the end of 20 years as calculated in "Revised Benefits" sheet.
 Net and total costs are equal because the maintenance cost savings are claimed under benefits.
 This alternative case analysis uses 3% discount rate since the primary funding is assumed to be the TIGER grant, which would go to other public projects if not this one.

Beartooth Construction Costs

	Spending	
Q1 2012	\$ 400,000	January - March
Q2 2012	\$ 3,500,000	April - June
Q3 2012	\$ 9,300,000	July-September
Q4 2012	\$ 2,900,000	October - December
Q1 2013	\$ 400,000	January - March
Q2 2013	\$ 3,500,000	April - June
Q3 2013	\$ 9,300,000	July-September
Q4 2013	\$ 2,900,000	October - December
Q1 2014	\$ 400,000	January - March
Q2 2014	\$ 3,000,000	April - June
Q3 2014	\$ 8,000,000	July-September
Q4 2014	\$ 2,500,000	October - December
	\$ 46,100,000	

Estimate of Annual Benefits

Final

4.71 miles
 1578 vpd, effectively constant because of low growth
 146 days per year of benefits
 42 mph
 47 mph
 \$25.30 per hour, assume 1.5 wage earners per car; occupancy ~2.6
 \$0.42 per minute of time savings
 6.728571429 min initial travel time
 6.012765957 min after travel time
 0.715805471 savings (min)
 0.011930091 savings (hours per vehicle)
 2,749 hours per year 18.8 hrs/day
 \$69,551 per year
 20 life without overlays
 \$1,391,027 20-yr time cost savings
 0.0084 fuel gallon savings per vehicle
 1,932 total fuel savings per year
 \$27,972 fuel cost savings per year
 39,728 lb of GHG/yr, based on 5% diesel (22.2 lb CO2/gal) and 95% gasoline (19.4 lb CO2/gal) , with 5% added to CO2 to account for other GHG.
 20 tons of GHG saved/yr
 397 tons of GHG saved/20 years

Value of Time per Red Book, pp. 5-3 through 5-7. AASHTO, *User Benefit Analysis for Highways*, August 2003.

18.56 ave wage for all employees, 2000 \$
1.298479 Inflator 2000 - 2011 from annual unadjusted CPI for all urban consumers, assuming mid point 2011 (updated 9/2/11)
24.09976 per hour
16.86983 Use 70% of wage rate for personal intercity trip per Red Book, p. 5-3

\$250,000 Estimated annual maintenance cost savings
 \$250,000 per year adjusting for no overlay costs

\$347,523 Total annual benefits of maintenance savings, time, and fuel savings

0.95 acc/mvm (assumed "before" rate)
 0.5415 acc/mvm (assumed "after" rate)
 1.08512748 annual mvm

0.44 accidents saved per year 27.0712571

Previous approach with AASHTO

\$85,522 Cost per accident (see accident cost tab)

\$69,988 Average user cost per accident net of insurance reimbursement (AASHTO, 2003, p. 5-45, a)

\$37,910 Annual accident cost savings

\$37,910 Average accident savings between now and future

\$385,433 Total annual benefits of maintenance savings, time, fuel, and accident savings

\$8,745,500 Job loss avoidance (see "Carbon County Tourist Jobs" tab)

\$9,130,933 Total annual project benefit

Component

		Structures	Earthwork	Base/subgrade	Pavement
\$17,100,000 Residual value after 20 years	Cost (m)	16.5	5.1	2.4	2.5
	% left	73%	67%	67%	0%
	Residual value	12.1	3.4	1.6	0
	Life (years)	75	60	60	20

Valuation of accident data

KABCO - AIS Conversion

KABCO codes

0 = No Injury	3 = Incapacitating Injury
1 = Possible Injury	4 = Fatal
2 = Non-Incapacitating Injury	

Codes = 0 1 2 3

KABCO-AIS Conversion Table (Excluding Fatalities in Non-Fatal Injury Codes)

	O	C	B	A	K	Injured	Unknown
	No Injury	Poss Inj	Non-Incapacitating	Incapacitating	Killed	Severity Unknown	If Injured
AIS 0	0.92534	0.23437	0.08347	0.03437	0	0.21538	0.43676
AIS 1	0.07257	0.68946	0.76843	0.55449	0	0.62728	0.41739
AIS 2	0.00198	0.06391	0.10898	0.20908	0	0.104	0.08872
AIS 3	0.00008	0.01071	0.03191	0.14437	0	0.03858	0.04817
AIS 4	0	0.00142	0.0062	0.03986	0	0.00442	0.00617
AIS 5	0.00003	0.00013	0.00101	0.01783	0	0.01034	0.00279
Fatality	0	0	0	0	1	0	0

Source: NHTSA, July 2011.

from p. 50308 Federal Register / Vol. 76, No. 156 / Friday, August 12, 2011 / Notices

Relative Disability Factors by Injury Severity Level (AIS)

For Use with 3% or 7% Discount Rate

AIS Level	Severity	Fraction of VSL
AIS 1	Minor	0.003
AIS 2	Moderate	0.047
AIS 3	Serious	0.105
AIS 4	Severe	0.266
AIS 5	Critical	0.593
AIS 6	Unsurvivable	1

Notice of Funding Availability for the Department of Transportation's National Infrastructure Investments Under the Full-Year Continuing Appropriations, 2011; and Request for Comments

Treatment of the Economic Value of a Statistical Life in Departmental Analyses – 2011 Interim Adjustment

Gives VSL = \$6.2 million

MEMORANDUM TO: SECRETARIAL OFFICERS [SIGNED July 29, 2011]

MODAL ADMINISTRATORS

From: Polly Trottenberg, Assistant Secretary for Transportation Policy

p.3

value-of-life-guidance.pdf

from:

<http://ostpxweb.dot.gov/policy/reports.htm>

Accessed: 9/30/11

PDO Valuation

1.298478513 Inflator 2000 - 2011 from annual unadjusted CPI for all urban consumers, assuming mid point 2011 (updated 9/2/11)

\$260 Average user cost per accident for property damage net of insurance reimbursement (AASHTO, 2003, p. 5-45, adjusted for inflation to 2011)
Use for AIS Level 0 accidents

Don't know breakdown for Bear Tooth so assume unknown if injured for sample accident

1	Fraction VSL	Value	Total
For unknown if inj			
0.43676	N/A	\$260	\$114
0.41739	0.003	\$18,600	\$7,763
0.08872	0.047	\$291,400	\$25,853
0.04817	0.105	\$651,000	\$31,359
0.00617	0.266	\$1,649,200	\$10,176
0.00279	0.593	\$3,676,600	\$10,258
0	1	\$6,200,000	\$0
			<u>\$85,522</u>

Carbon County, Montana, Jobs for Estimation of Income Effects of Reduced Tourist Access

Sources of 2009 Update:

	<u>2000 Census</u>	<u>2009 Update</u>	
Household data	9,552 people	2009 9,756	T1. Population Estimates [11] Data Set: 2009 Population Estimates http://factfinder.census.gov/servlet/DTTable?_bm=y&-context=dt&-ds_name=PEP_2009_EST&-mt_name=PEP_2009_EST_G2009_T0
	4,065 households	3,974	ACS 2009 http://factfinder.census.gov/servlet/DTTable?_bm=y&-context=dt&-ds_name=ACS_2009_5YR_G00_&-mt_name=ACS_2009_5YR_G20
	\$32,139 median income per household	\$50,676	median income per household, 2009 \$ B19013. MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2009 INFLATION-ADJUSTED DOLLARS) - Universe: HOUSEHOLDS Data Set: 2005-2009 American Community Survey 5-Year Estimates Survey: American Community Survey
			B11001. HOUSEHOLD TYPE (INCLUDING LIVING ALONE) - Universe: HOUSEHOLDS Data Set: 2005-2009 American Community Survey 5-Year Estimates Survey: American Community Survey http://factfinder.census.gov/servlet/DTTable?_bm=y&-context=dt&-ds_name=ACS_2009_5YR_G00_&-mt_name=ACS_2009_5YR_G2000_B11001&-CO

Based on DEIS, about 1/3 of Carbon County jobs are based on tourism.
Assume that 1/3 of Carbon County jobs supplies income to 1/3 of households
With multiplier, up to 50% of households could be affected.

	2000 \$	2011 \$	CPI
Adjusting the 2009 median income to 2011 \$ via CPI =		\$52,816	1.042235 Inflatior 2009 - 2011 from annual unadjusted CPI for all urban consumers, assuming mid point 2011 (updated 9/2/11)
Do it in both 2000 and 2011 \$			214.537 2009 223.598 2011
	2000 \$	2011 \$	
	\$43,548,345 Annual income of 33% of households	\$69,964,003	
	\$65,322,518 Annual income of 50% of households	\$104,946,004	

So income from jobs are dependent on the highway is \$70 to \$105 million per year in 2011 \$

Assume 10% loss of average (mid point) of range = \$8,745,500

This assumes that there is a 10% loss in income from the tourist dependent jobs if the highway continues to deteriorate due to larger vehicles using other routes and lower overall traffic for smaller vehicles.
Assumption is conservative: Mariposa, CA, lost more like 1/3 of income from SR 140 vehicle restriction with temporary bridge.

Income Data for Consideration of Economic Distress

ACS not accurate for small area due to large sample error, use 2000 Census data:

Zone	2009 \$		1999 \$		adj for inflation 2009 \$	Souce (from P53 table) 9/15/2011 http://factfinder.census.gov/servlet
	ACS 2009	% of US	2000 Census	% of US		
CT 9953	\$51,203	102%	\$40,008	79.9%	\$51,520	http://factfinder.census.gov/servlet
CT 9951	\$52,601	105%	\$43,674	87%	\$56,241	
CT 9953 remainder of Cody CDP	\$51,386	102%	\$40,302	80.5%	\$51,898	9/15/2011
CT 9953 Block group 2	N/A		\$39,350	78.6%	\$50,672	http://factfinder.census.gov/servlet
Zip 82435	N/A		\$41,609	83%	\$53,581	
Zip 82414	N/A		\$41,691	83%	\$53,687	
US	\$50,221	100%	\$50,046	100%	\$64,446	
					2009 CPI	214.537 1.287737
					1999 CPI	166.6

[P53. MEDIAN HOUSEHOLD INCOME IN 1999 \(DOLLARS\) \[1\] - Universe: Households](#)
[Data Set: Census 2000 Summary](#)
[File 3 \(SF 3\) - Sample Data](#)

[NOTE: Data based on a sample except in P3, P4, H3, and H4. For information on confidentiality protection, sampling error, nonsampling error, definitions, and count corrections see <http://factfinder.census.gov/home/en/datanotes/expsf3.htm>.](#)

Block Group 2, Census Tract 9953, Park County, Wyoming	
Median household income in 1999	39,350

U.S. Census Bureau
 Census 2000

Fuel Efficiency

p. 5-12 AASHTO, *User Benefit Analysis for Highways*, August 2003.

mph	Gallons per Mile		Average with 5% trucks	Over 4.71 miles	Cost/mi	Updated 9/15/11
	Autos	Trucks				Total Cost
40	0.044	0.176				
42	0.0432	0.1736 interpolation	0.04972	0.234181	\$0.18	\$3.40
45	0.042	0.17				
47	0.0416	0.1684 interpolation	0.04794	0.225797	\$0.18	\$3.28
50	0.041	0.166				
				0.008384 gal per vehicle saved		
				average	\$0.030 cost savings per vehicl	\$0.121 to account for different gas and diesel prices

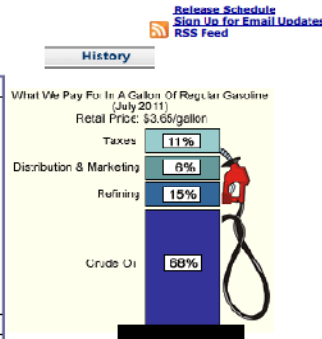
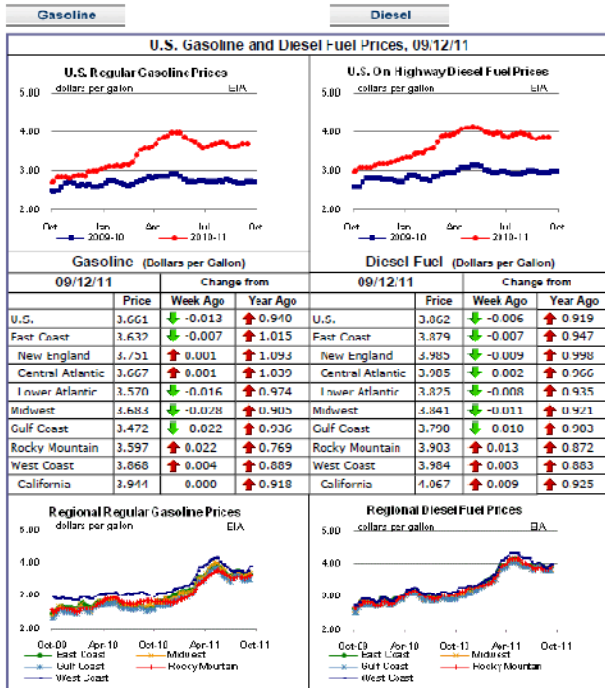
Use 9/12/11 gasoline and diesel cost from <http://tonto.eia.doe.gov/oog/info/gdu/gasdiesel.asp>
 Energy Information Administration
 for Rocky Mountain Region
 \$3.60 for regular gas
 \$3.90 for diesel

Gasoline and Diesel Fuel Update

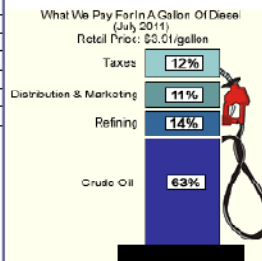


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Gasoline and Diesel Fuel Update



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[Gasoline Pump Data History](#)



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