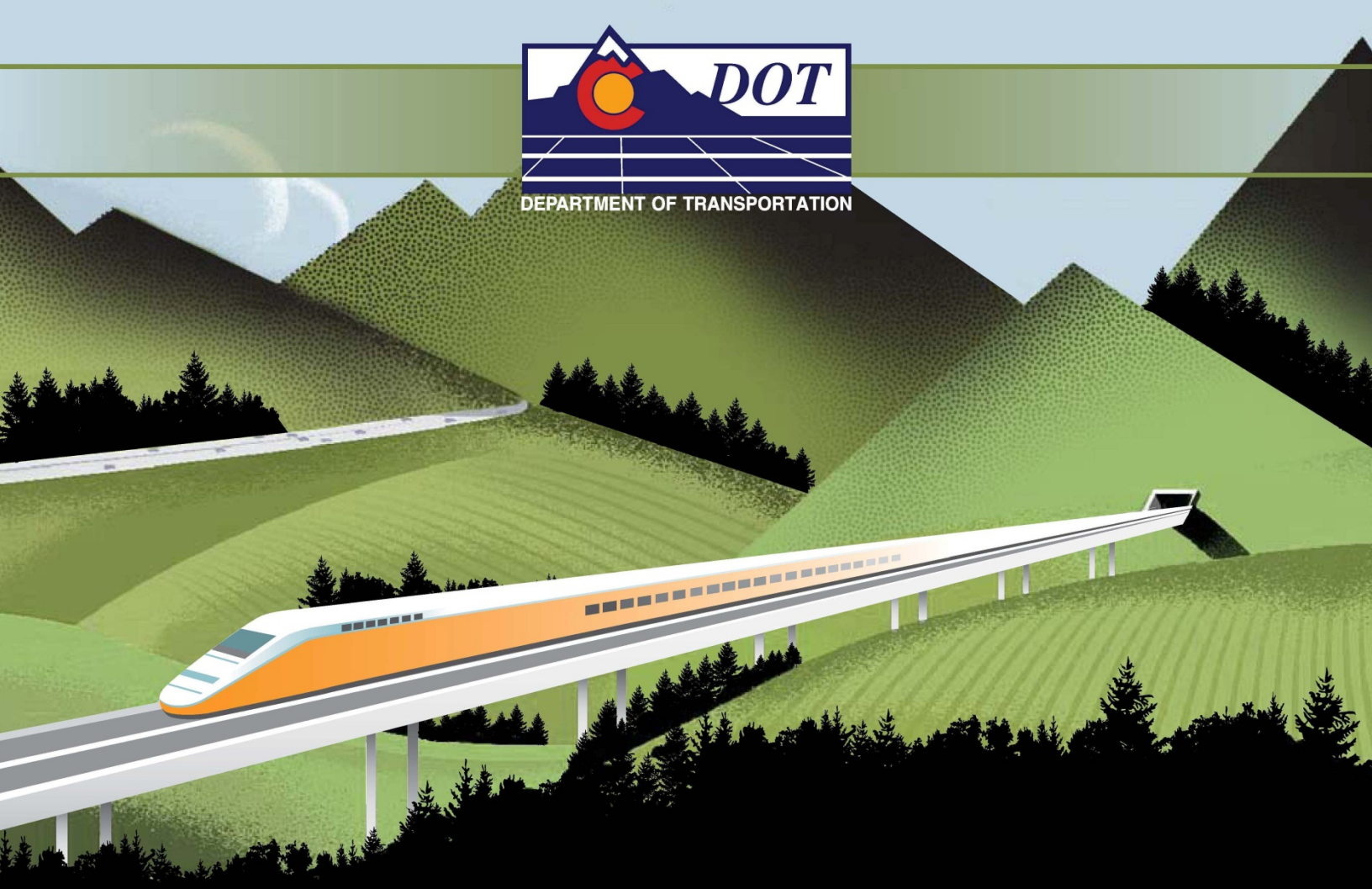


**DRAFT**



# **ADVANCED GUIDEWAY SYSTEM (AGS) FEASIBILITY STUDY**

## **APPENDIX I BENEFIT/COST WORKSHEETS**

### AGS Benefit/Cost at 0% Federal Funding

Technology	High Speed Maglev								Medium Speed Maglev			High Speed Rail			Notes
	Full System, ICS + AGS, A-5a	Full System, ICS + AGS, A-5a	Full System, ICS + AGS, B-2a	DIA to ECRA	West Suburban to Breckenridge	West Suburban to Breckenridge	DIA to Breckenridge, ICS + AGS	DIA to Breckenridge	West Suburban to Breckenridge	West Suburban to Breckenridge	DIA to Breckenridge, ICS + AGS	Full System, ICS + AGS, B-2a	Full System, ICS + AGS, B-2a	DIA to Breckenridge, ICS + AGS	
Alternative	I-76	I-76	C-470/E-470	I-76	N/A	N/A	I-76	I-76	N/A	N/A	I-76	C-470/E-470	C-470/E-470	I-76	
Fare	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	
<b>Costs</b>															
CAPEX	\$13,337,490,000	\$13,337,490,000	\$13,337,490,000	\$16,537,490,000	\$6,801,837,000	\$6,801,837,000	\$10,001,840,000	\$10,001,840,000	\$5,544,557,000	\$5,544,557,000	\$8,744,560,000	\$32,392,800,000	\$32,392,800,000	\$35,592,800,000	AGS Only. Suburban Station to west. MOS is to Breckendirdge
Annual OPEX	\$62,762,000	\$62,762,000	\$62,762,000	\$78,481,000	\$36,466,000	\$36,466,000	\$53,799,000	\$53,799,000	\$35,103,000	\$35,103,000	\$51,788,000	\$72,882,000	\$72,882,000	\$70,379,000	AGS only. Based on train miles only within AGS Corridor.
OPEX Cost (30 year)	\$1,085,154,980	\$1,085,154,980	\$1,085,154,980	\$1,356,936,490	\$630,497,140	\$630,497,140	\$930,184,710	\$930,184,710	\$606,930,870	\$606,930,870	\$895,414,520	\$1,260,129,780	\$1,260,129,780	\$1,216,852,910	
Interest payments	\$4,792,760,344	\$4,792,760,344	\$4,792,760,344	\$5,942,664,344	\$2,444,206,117	\$2,444,206,117	\$3,594,111,195	\$3,594,111,195	\$1,992,408,835	\$1,992,408,835	\$3,142,313,913	\$11,640,190,716	\$11,640,190,716	\$12,790,094,716	50% of CAPEX, 4% Interest, 30 years
<b>Total Cost</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$23,837,090,834</b>	<b>\$9,876,540,257</b>	<b>\$9,876,540,257</b>	<b>\$14,526,135,905</b>	<b>\$14,526,135,905</b>	<b>\$8,143,896,705</b>	<b>\$8,143,896,705</b>	<b>\$12,782,288,433</b>	<b>\$45,293,120,496</b>	<b>\$45,293,120,496</b>	<b>\$49,599,747,626</b>	
<b>Benefits</b>															
<b>Basic Data</b>															
Ridership	3,636,914	4,635,464	6,211,251	3,585,120	1,236,174	1,535,031	2,906,471	1,775,726	1,026,172	1,284,913	2,508,416	4,340,584	6,349,807	2,676,462	Only for trips having origin or destination within I-70 Mountain Corrdior
Ticket Revenue	\$123,745,259	\$113,911,654	\$157,280,243	\$79,037,296	\$22,247,496	\$20,851,174	\$66,493,427	\$28,723,660	\$18,408,144	\$17,418,946	\$56,779,587	\$137,364,179	\$159,912,578	\$58,278,195	Only for trips having origin or destination within I-70 Mountain Corrdior
Reduction in Vehicle-Miles <sup>1</sup>	162,980,029	191,432,412	266,031,869	152,226,347	38,624,456	47,583,933	96,935,072	57,495,203	31,873,037	39,696,174	82,730,444	186,041,118	289,257,126	89,843,332	Only for trips having origin or destination within I-70 Mountain Corrdior
Reduction in Vehicle-Hours <sup>1</sup>	640,580	675,455	950,985	852,987	175,603	215,174	29,116	210,468	56,846	69,420	(148,742)	812,467	1,151,656	(28,874)	Only for trips having origin or destination within I-70 Mountain Corrdior
VMT Benefit	\$91,268,816	\$107,202,151	\$148,977,847	\$85,246,754	\$21,629,695	\$26,647,002	\$54,283,640	\$32,197,314	\$17,848,901	\$22,229,857	\$46,329,049	\$104,183,026	\$161,983,991	\$50,312,266	Only for trips having origin or destination within I-70 Mountain Corrdior
VHT Benefit	\$14,733,340	\$15,535,465	\$21,872,655	\$19,618,701	\$4,038,869	\$4,949,002	\$669,668	\$4,840,764	\$1,307,458	\$1,596,660	(\$3,421,066)	\$18,686,741	\$26,488,088	(\$664,102)	Only for trips having origin or destination within I-70 Mountain Corrdior
Fatality Avoided	\$11,115,238	\$13,055,690	\$18,143,373	\$10,381,837	\$2,634,188	\$3,245,224	\$6,610,972	\$3,921,173	\$2,173,741	\$2,707,279	\$5,642,216	\$12,688,004	\$19,727,336	\$6,127,315	Only for trips having origin or destination within I-70 Mountain Corrdior
<b>Calculated Benefits (PW basis)</b>															
Increase in Real Estate Value - one time deal, no PW calc.	\$2,590,000,000	\$2,590,000,000	\$2,590,000,000	\$3,330,000,000	\$1,480,000,000	\$1,480,000,000	\$2,220,000,000	\$2,220,000,000	\$1,480,000,000	\$1,480,000,000	\$2,220,000,000	\$2,220,000,000	\$2,220,000,000	\$2,220,000,000	\$370 million/station
Fare Box Revenue (30 year)	\$2,139,555,528	\$1,969,532,498	\$2,719,375,401	\$1,366,554,848	\$384,659,206	\$360,516,798	\$1,149,671,353	\$496,632,081	\$318,276,810	\$301,173,576	\$981,719,059	\$2,375,026,655	\$2,764,888,474	\$1,007,629,992	
PW of VMT	\$1,578,037,833	\$1,853,525,186	\$2,575,826,968	\$1,473,916,382	\$373,977,433	\$460,726,673	\$938,564,141	\$556,691,554	\$308,607,493	\$384,354,235	\$801,029,251	\$1,801,324,521	\$2,800,703,197	\$869,899,078	
PW of VHT	\$254,739,449	\$268,608,190	\$378,178,205	\$339,207,340	\$69,832,045	\$85,568,245	\$11,578,560	\$83,696,810	\$22,605,949	\$27,606,251	-\$59,150,231	\$323,093,752	\$457,979,042	-\$11,482,324	
PW of Fatality Avoided	\$192,182,465	\$225,732,889	\$313,698,927	\$179,501,959	\$45,545,109	\$56,109,927	\$114,303,704	\$67,797,078	\$37,583,984	\$46,808,855	\$97,553,919	\$219,375,593	\$341,085,639	\$105,941,281	1.1 fatalities per 100 million miles driven.
Pollution benefits	\$560,767,016	\$658,663,414	\$915,338,512	\$523,766,714	\$132,895,552	\$163,722,514	\$333,525,472	\$197,824,320	\$109,665,877	\$136,583,023	\$284,651,466	\$640,113,535	\$995,249,886	\$309,124,851	Based on \$.199 per VMT removed.
PW of Operations Jobs	\$542,577,490	\$542,577,490	\$542,577,490	\$678,468,245	\$315,248,570	\$315,248,570	\$465,092,355	\$465,092,355	\$303,465,435	\$303,465,435	\$447,707,260	\$630,064,890	\$630,064,890	\$608,426,455	
PW of Non-basic jobs (1.5 multiplier)	\$271,288,745	\$271,288,745	\$271,288,745	\$339,234,123	\$157,624,285	\$157,624,285	\$232,546,178	\$232,546,178	\$151,732,718	\$151,732,718	\$223,853,630	\$315,032,445	\$315,032,445	\$304,213,228	Ops jobs pay the same but we add only 50 % more.
0% Federal funding	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Multiplier effect of Federal Funding (2.0 multiplier)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Construction Employment	\$5,408,352,195	\$5,408,352,195	\$5,408,352,195	\$6,705,952,195	\$2,758,144,904	\$2,758,144,904	\$4,055,746,120	\$4,055,746,120	\$2,248,317,864	\$2,248,317,864	\$3,545,919,080	\$13,135,280,400	\$13,135,280,400	\$14,432,880,400	Construction employment equals 50 % of construction value.
Non-basic jobs (2.0 multiplier)	\$3,569,512,449	\$3,569,512,449	\$3,569,512,449	\$4,425,928,449	\$1,820,375,636	\$1,820,375,636	\$2,676,792,439	\$2,676,792,439	\$1,483,889,790	\$1,483,889,790	\$2,340,306,593	\$8,669,285,064	\$8,669,285,064	\$9,525,701,064	Number of jobs is the same but the average salary = 66% of construction labor
<b>Total Benefits</b>	<b>\$17,107,013,168</b>	<b>\$17,357,793,055</b>	<b>\$19,284,148,893</b>	<b>\$19,362,530,255</b>	<b>\$7,538,302,739</b>	<b>\$7,658,037,552</b>	<b>\$12,197,820,321</b>	<b>\$11,052,818,935</b>	<b>\$6,464,145,919</b>	<b>\$6,563,931,747</b>	<b>\$10,883,590,027</b>	<b>\$30,328,596,855</b>	<b>\$32,329,569,036</b>	<b>\$29,372,334,024</b>	
<b>Sum of Benefits (PW Cost Basis)</b>	<b>\$17,107,013,168</b>	<b>\$17,357,793,055</b>	<b>\$19,284,148,893</b>	<b>\$19,362,530,255</b>	<b>\$7,538,302,739</b>	<b>\$7,658,037,552</b>	<b>\$12,197,820,321</b>	<b>\$11,052,818,935</b>	<b>\$6,464,145,919</b>	<b>\$6,563,931,747</b>	<b>\$10,883,590,027</b>	<b>\$30,328,596,855</b>	<b>\$32,329,569,036</b>	<b>\$29,372,334,024</b>	
<b>Sum of Costs (PW Cost Basis)</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$23,837,090,834</b>	<b>\$9,876,540,257</b>	<b>\$9,876,540,257</b>	<b>\$14,526,135,905</b>	<b>\$14,526,135,905</b>	<b>\$8,143,896,705</b>	<b>\$8,143,896,705</b>	<b>\$12,782,288,433</b>	<b>\$45,293,120,496</b>	<b>\$45,293,120,496</b>	<b>\$49,599,747,626</b>	
<b>B/C Ratio</b>	<b>0.89</b>	<b>0.90</b>	<b>1.00</b>	<b>0.81</b>	<b>0.76</b>	<b>0.78</b>	<b>0.84</b>	<b>0.76</b>	<b>0.79</b>	<b>0.81</b>	<b>0.85</b>	<b>0.67</b>	<b>0.71</b>	<b>0.59</b>	
<b>Operating Ratio</b>	<b>1.97</b>	<b>1.81</b>	<b>2.51</b>	<b>1.01</b>	<b>0.61</b>	<b>0.57</b>	<b>1.24</b>	<b>0.53</b>	<b>0.52</b>	<b>0.50</b>	<b>1.10</b>	<b>1.88</b>	<b>2.19</b>	<b>0.83</b>	

### AGS Benefit/Cost at 10% Federal Funding

Technology	High Speed Maglev								Medium Speed Maglev			High Speed Rail			Notes
	Full System, ICS + AGS, A-5a	Full System, ICS + AGS, A-5a	Full System, ICS + AGS, B-2a	DIA to ECRA	West Suburban to Breckenridge	West Suburban to Breckenridge	DIA to Breckenridge, ICS + AGS	DIA to Breckenridge	West Suburban to Breckenridge	West Suburban to Breckenridge	DIA to Breckenridge, ICS + AGS	Full System, ICS + AGS, B-2a	Full System, ICS + AGS, B-2a	DIA to Breckenridge, ICS + AGS	
Alternative	I-76	I-76	C-470/E-470	I-76	N/A	N/A	I-76	I-76	N/A	N/A	I-76	C-470/E-470	C-470/E-470	I-76	
Fare	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	
<b>Costs</b>															
CAPEX	\$13,337,490,000	\$13,337,490,000	\$13,337,490,000	\$16,537,490,000	\$6,801,837,000	\$6,801,837,000	\$10,001,840,000	\$10,001,840,000	\$5,544,557,000	\$5,544,557,000	\$8,744,560,000	\$32,392,800,000	\$32,392,800,000	\$35,592,800,000	AGS Only. Suburban Station to west. MOS is to Breckendirdge
Annual OPEX	\$62,762,000	\$62,762,000	\$62,762,000	\$78,481,000	\$36,466,000	\$36,466,000	\$53,799,000	\$53,799,000	\$35,103,000	\$35,103,000	\$51,788,000	\$72,882,000	\$72,882,000	\$70,379,000	AGS only. Based on train miles only within AGS Corridor.
OPEX Cost (30 year)	\$1,085,154,980	\$1,085,154,980	\$1,085,154,980	\$1,356,936,490	\$630,497,140	\$630,497,140	\$930,184,710	\$930,184,710	\$606,930,870	\$606,930,870	\$895,414,520	\$1,260,129,780	\$1,260,129,780	\$1,216,852,910	
Interest payments	\$4,792,760,344	\$4,792,760,344	\$4,792,760,344	\$5,942,664,344	\$2,444,206,117	\$2,444,206,117	\$3,594,111,195	\$3,594,111,195	\$1,992,408,835	\$1,992,408,835	\$3,142,313,913	\$11,640,190,716	\$11,640,190,716	\$12,790,094,716	50% of CAPEX, 4% Interest, 30 years
<b>Total Cost</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$23,837,090,834</b>	<b>\$9,876,540,257</b>	<b>\$9,876,540,257</b>	<b>\$14,526,135,905</b>	<b>\$14,526,135,905</b>	<b>\$8,143,896,705</b>	<b>\$8,143,896,705</b>	<b>\$12,782,288,433</b>	<b>\$45,293,120,496</b>	<b>\$45,293,120,496</b>	<b>\$49,599,747,626</b>	
<b>Benefits</b>															
<b>Basic Data</b>															
Ridership	3,636,914	4,635,464	6,211,251	3,585,120	1,236,174	1,535,031	2,906,471	1,775,726	1,026,172	1,284,913	2,508,416	4,340,584	6,349,807	2,676,462	Only for trips having origin or destination within I-70 Mountain Corrdior
Ticket Revenue	\$123,745,259	\$113,911,654	\$157,280,243	\$79,037,296	\$22,247,496	\$20,851,174	\$66,493,427	\$28,723,660	\$18,408,144	\$17,418,946	\$56,779,587	\$137,364,179	\$159,912,578	\$58,278,195	Only for trips having origin or destination within I-70 Mountain Corrdior
Reduction in Vehicle-Miles <sup>1</sup>	162,980,029	191,432,412	266,031,869	152,226,347	38,624,456	47,583,933	96,935,072	57,495,203	31,873,037	39,696,174	82,730,444	186,041,118	289,257,126	89,843,332	Only for trips having origin or destination within I-70 Mountain Corrdior
Reduction in Vehicle-Hours <sup>1</sup>	640,580	675,455	950,985	852,987	175,603	215,174	29,116	210,468	56,846	69,420	(148,742)	812,467	1,151,656	(28,874)	Only for trips having origin or destination within I-70 Mountain Corrdior
VMT Benefit	\$91,268,816	\$107,202,151	\$148,977,847	\$85,246,754	\$21,629,695	\$26,647,002	\$54,283,640	\$32,197,314	\$17,848,901	\$22,229,857	\$46,329,049	\$104,183,026	\$161,983,991	\$50,312,266	Only for trips having origin or destination within I-70 Mountain Corrdior
VHT Benefit	\$14,733,340	\$15,535,465	\$21,872,655	\$19,618,701	\$4,038,869	\$4,949,002	\$669,668	\$4,840,764	\$1,307,458	\$1,596,660	(\$3,421,066)	\$18,686,741	\$26,488,088	(\$664,102)	Only for trips having origin or destination within I-70 Mountain Corrdior
Fatality Avoided	\$11,115,238	\$13,055,690	\$18,143,373	\$10,381,837	\$2,634,188	\$3,245,224	\$6,610,972	\$3,921,173	\$2,173,741	\$2,707,279	\$5,642,216	\$12,688,004	\$19,727,336	\$6,127,315	Only for trips having origin or destination within I-70 Mountain Corrdior
<b>Calculated Benefits (PW basis)</b>															
Increase in Real Estate Value - one time deal, no PW calc.	\$2,590,000,000	\$2,590,000,000	\$2,590,000,000	\$3,330,000,000	\$1,480,000,000	\$1,480,000,000	\$2,220,000,000	\$2,220,000,000	\$1,480,000,000	\$1,480,000,000	\$2,220,000,000	\$2,220,000,000	\$2,220,000,000	\$2,220,000,000	\$370 million/station
Fare Box Revenue (30 year)	\$2,139,555,528	\$1,969,532,498	\$2,719,375,401	\$1,366,554,848	\$384,659,206	\$360,516,798	\$1,149,671,353	\$496,632,081	\$318,276,810	\$301,173,576	\$981,719,059	\$2,375,026,655	\$2,764,888,474	\$1,007,629,992	
PW of VMT	\$1,578,037,833	\$1,853,525,186	\$2,575,826,968	\$1,473,916,382	\$373,977,433	\$460,726,673	\$938,564,141	\$556,691,554	\$308,607,493	\$384,354,235	\$801,029,251	\$1,801,324,521	\$2,800,703,197	\$869,899,078	
PW of VHT	\$254,739,449	\$268,608,190	\$378,178,205	\$339,207,340	\$69,832,045	\$85,568,245	\$11,578,560	\$83,696,810	\$22,605,949	\$27,606,251	-\$59,150,231	\$323,093,752	\$457,979,042	-\$11,482,324	
PW of Fatality Avoided	\$192,182,465	\$225,732,889	\$313,698,927	\$179,501,959	\$45,545,109	\$56,109,927	\$114,303,704	\$67,797,078	\$37,583,984	\$46,808,855	\$97,553,919	\$219,375,593	\$341,085,639	\$105,941,281	1.1 fatalities per 100 million miles driven.
Pollution benefits	\$560,767,016	\$658,663,414	\$915,338,512	\$523,766,714	\$132,895,552	\$163,722,514	\$333,525,472	\$197,824,320	\$109,665,877	\$136,583,023	\$284,651,466	\$640,113,535	\$995,249,886	\$309,124,851	Based on \$.199 per VMT removed.
PW of Operations Jobs	\$542,577,490	\$542,577,490	\$542,577,490	\$678,468,245	\$315,248,570	\$315,248,570	\$465,092,355	\$465,092,355	\$303,465,435	\$303,465,435	\$447,707,260	\$630,064,890	\$630,064,890	\$608,426,455	
PW of Non-basic jobs (1.5 multiplier)	\$271,288,745	\$271,288,745	\$271,288,745	\$339,234,123	\$157,624,285	\$157,624,285	\$232,546,178	\$232,546,178	\$151,732,718	\$151,732,718	\$223,853,630	\$315,032,445	\$315,032,445	\$304,213,228	Ops jobs pay the same but we add only 50 % more.
10% Federal funding	\$1,333,749,000	\$1,333,749,000	\$1,333,749,000	\$1,653,749,000	\$680,183,700	\$680,183,700	\$1,000,184,000	\$1,000,184,000	\$554,455,700	\$554,455,700	\$874,456,000	\$3,239,280,000	\$3,239,280,000	\$3,559,280,000	
Multiplier effect of Federal Funding (2.0 multiplier)	\$2,667,498,000	\$2,667,498,000	\$2,667,498,000	\$3,307,498,000	\$1,360,367,400	\$1,360,367,400	\$2,000,368,000	\$2,000,368,000	\$1,108,911,400	\$1,108,911,400	\$1,748,912,000	\$6,478,560,000	\$6,478,560,000	\$7,118,560,000	
Construction Employment	\$5,408,352,195	\$5,408,352,195	\$5,408,352,195	\$6,705,952,195	\$2,758,144,904	\$2,758,144,904	\$4,055,746,120	\$4,055,746,120	\$2,248,317,864	\$2,248,317,864	\$3,545,919,080	\$13,135,280,400	\$13,135,280,400	\$14,432,880,400	Construction employment equals 50 % of construction value.
Non-basic jobs (2.0 multiplier)	\$3,569,512,449	\$3,569,512,449	\$3,569,512,449	\$4,425,928,449	\$1,820,375,636	\$1,820,375,636	\$2,676,792,439	\$2,676,792,439	\$1,483,889,790	\$1,483,889,790	\$2,340,306,593	\$8,669,285,064	\$8,669,285,064	\$9,525,701,064	Number of jobs is the same but the average salary = 66% of construction labor
<b>Total Benefits</b>	<b>\$21,108,260,168</b>	<b>\$21,359,040,055</b>	<b>\$23,285,395,893</b>	<b>\$24,323,777,255</b>	<b>\$9,578,853,839</b>	<b>\$9,698,588,652</b>	<b>\$15,198,372,321</b>	<b>\$14,053,370,935</b>	<b>\$8,127,513,019</b>	<b>\$8,227,298,847</b>	<b>\$13,506,958,027</b>	<b>\$40,046,436,855</b>	<b>\$42,047,409,036</b>	<b>\$40,050,174,024</b>	
<b>Sum of Benefits (PW Cost Basis)</b>	<b>\$21,108,260,168</b>	<b>\$21,359,040,055</b>	<b>\$23,285,395,893</b>	<b>\$24,323,777,255</b>	<b>\$9,578,853,839</b>	<b>\$9,698,588,652</b>	<b>\$15,198,372,321</b>	<b>\$14,053,370,935</b>	<b>\$8,127,513,019</b>	<b>\$8,227,298,847</b>	<b>\$13,506,958,027</b>	<b>\$40,046,436,855</b>	<b>\$42,047,409,036</b>	<b>\$40,050,174,024</b>	
<b>Sum of Costs (PW Cost Basis)</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$23,837,090,834</b>	<b>\$9,876,540,257</b>	<b>\$9,876,540,257</b>	<b>\$14,526,135,905</b>	<b>\$14,526,135,905</b>	<b>\$8,143,896,705</b>	<b>\$8,143,896,705</b>	<b>\$12,782,288,433</b>	<b>\$45,293,120,496</b>	<b>\$45,293,120,496</b>	<b>\$49,599,747,626</b>	
<b>B/C Ratio</b>	<b>1.10</b>	<b>1.11</b>	<b>1.21</b>	<b>1.02</b>	<b>0.97</b>	<b>0.98</b>	<b>1.05</b>	<b>0.97</b>	<b>1.00</b>	<b>1.01</b>	<b>1.06</b>	<b>0.88</b>	<b>0.93</b>	<b>0.81</b>	
<b>Operating Ratio</b>	<b>1.97</b>	<b>1.81</b>	<b>2.51</b>	<b>1.01</b>	<b>0.61</b>	<b>0.57</b>	<b>1.24</b>	<b>0.53</b>	<b>0.52</b>	<b>0.50</b>	<b>1.10</b>	<b>1.88</b>	<b>2.19</b>	<b>0.83</b>	

### AGS Benefit/Cost at 20% Federal Funding

Technology	High Speed Maglev						Medium Speed Maglev			High Speed Rail			Notes		
	Full System, ICS + AGS, A-5a	Full System, ICS + AGS, A-5a	Full System, ICS + AGS, B-2a	DIA to ECRA	West Suburban to Breckenridge	West Suburban to Breckenridge	DIA to Breckenridge, ICS + AGS	DIA to Breckenridge	West Suburban to Breckenridge	West Suburban to Breckenridge	DIA to Breckenridge, ICS + AGS	Full System, ICS + AGS, B-2a		Full System, ICS + AGS, B-2a	DIA to Breckenridge, ICS + AGS
Alternative Alignment Through Denver	I-76	I-76	C-470/E-470	I-76	N/A	N/A	I-76	I-76	N/A	N/A	I-76	C-470/E-470	C-470/E-470	I-76	
Fare	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	
<b>Costs</b>															
CAPEX	\$13,337,490,000	\$13,337,490,000	\$13,337,490,000	\$16,537,490,000	\$6,801,837,000	\$6,801,837,000	\$10,001,840,000	\$10,001,840,000	\$5,544,557,000	\$5,544,557,000	\$8,744,560,000	\$32,392,800,000	\$32,392,800,000	\$35,592,800,000	AGS Only. Suburban Station to west. MOS is to Breckendridge
Annual OPEX	\$62,762,000	\$62,762,000	\$62,762,000	\$78,481,000	\$36,466,000	\$36,466,000	\$53,799,000	\$53,799,000	\$35,103,000	\$35,103,000	\$51,788,000	\$72,882,000	\$72,882,000	\$70,379,000	AGS only. Based on train miles only within AGS Corridor.
OPEX Cost (30 year)	\$1,085,154,980	\$1,085,154,980	\$1,085,154,980	\$1,356,936,490	\$630,497,140	\$630,497,140	\$930,184,710	\$930,184,710	\$606,930,870	\$606,930,870	\$895,414,520	\$1,260,129,780	\$1,260,129,780	\$1,216,852,910	
Interest payments	\$4,792,760,344	\$4,792,760,344	\$4,792,760,344	\$5,942,664,344	\$2,444,206,117	\$2,444,206,117	\$3,594,111,195	\$3,594,111,195	\$1,992,408,835	\$1,992,408,835	\$3,142,313,913	\$11,640,190,716	\$11,640,190,716	\$12,790,094,716	50% of CAPEX, 4% Interest, 30 years
<b>Total Cost</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$23,837,090,834</b>	<b>\$9,876,540,257</b>	<b>\$9,876,540,257</b>	<b>\$14,526,135,905</b>	<b>\$14,526,135,905</b>	<b>\$8,143,896,705</b>	<b>\$8,143,896,705</b>	<b>\$12,782,288,433</b>	<b>\$45,293,120,496</b>	<b>\$45,293,120,496</b>	<b>\$49,599,747,626</b>	
<b>Benefits</b>															
<b>Basic Data</b>															
Ridership	3,636,914	4,635,464	6,211,251	3,585,120	1,236,174	1,535,031	2,906,471	1,775,726	1,026,172	1,284,913	2,508,416	4,340,584	6,349,807	2,676,462	Only for trips having origin or destination within I-70 Mountain Corridor
Ticket Revenue	\$123,745,259	\$113,911,654	\$157,280,243	\$79,037,296	\$22,247,496	\$20,851,174	\$66,493,427	\$28,723,660	\$18,408,144	\$17,418,946	\$56,779,587	\$137,364,179	\$159,912,578	\$58,278,195	Only for trips having origin or destination within I-70 Mountain Corridor
Reduction in Vehicle-Miles <sup>1</sup>	162,980,029	191,432,412	266,031,869	152,226,347	38,624,456	47,583,933	96,935,072	57,495,203	31,873,037	39,696,174	82,730,444	186,041,118	289,257,126	89,843,332	Only for trips having origin or destination within I-70 Mountain Corridor
Reduction in Vehicle-Hours <sup>1</sup>	640,580	675,455	950,985	852,987	175,603	215,174	29,116	210,468	56,846	69,420	(148,742)	812,467	1,151,656	(28,874)	Only for trips having origin or destination within I-70 Mountain Corridor
VMT Benefit	\$91,268,816	\$107,202,151	\$148,977,847	\$85,246,754	\$21,629,695	\$26,647,002	\$54,283,640	\$32,197,314	\$17,848,901	\$22,229,857	\$46,329,049	\$104,183,026	\$161,983,991	\$50,312,266	Only for trips having origin or destination within I-70 Mountain Corridor
VHT Benefit	\$14,733,340	\$15,535,465	\$21,872,655	\$19,618,701	\$4,038,869	\$4,949,002	\$669,668	\$4,840,764	\$1,307,458	\$1,596,660	(\$3,421,066)	\$18,686,741	\$26,488,088	(\$664,102)	Only for trips having origin or destination within I-70 Mountain Corridor
Fatality Avoided	\$11,115,238	\$13,055,690	\$18,143,373	\$10,381,837	\$2,634,188	\$3,245,224	\$6,610,972	\$3,921,173	\$2,173,741	\$2,707,279	\$5,642,216	\$12,688,004	\$19,727,336	\$6,127,315	Only for trips having origin or destination within I-70 Mountain Corridor
<b>Calculated Benefits (PW basis)</b>															
Increase in Real Estate Value - one time deal, no PW calc.	\$2,590,000,000	\$2,590,000,000	\$2,590,000,000	\$3,330,000,000	\$1,480,000,000	\$1,480,000,000	\$2,220,000,000	\$2,220,000,000	\$1,480,000,000	\$1,480,000,000	\$2,220,000,000	\$2,220,000,000	\$2,220,000,000	\$2,220,000,000	\$370 million/station
Fare Box Revenue (30 year)	\$2,139,555,528	\$1,969,532,498	\$2,719,375,401	\$1,366,554,848	\$384,659,206	\$360,516,798	\$1,149,671,353	\$496,632,081	\$318,276,810	\$301,173,576	\$981,719,059	\$2,375,026,655	\$2,764,888,474	\$1,007,629,992	
PW of VMT	\$1,578,037,833	\$1,853,525,186	\$2,575,826,968	\$1,473,916,382	\$373,977,433	\$460,726,673	\$938,564,141	\$556,691,554	\$308,607,493	\$384,354,235	\$801,029,251	\$1,801,324,521	\$2,800,703,197	\$869,899,078	
PW of VHT	\$254,739,449	\$268,608,190	\$378,178,205	\$339,207,340	\$69,832,045	\$85,568,245	\$11,578,560	\$83,696,810	\$22,605,949	\$27,606,251	-\$59,150,231	\$323,093,752	\$457,979,042	-\$11,482,324	
PW of Fatality Avoided	\$192,182,465	\$225,732,889	\$313,698,927	\$179,501,959	\$45,545,109	\$56,109,927	\$114,303,704	\$67,797,078	\$37,583,984	\$46,808,855	\$97,553,919	\$219,375,593	\$341,085,639	\$105,941,281	1.1 fatalities per 100 million miles driven.
Pollution benefits	\$560,767,016	\$658,663,414	\$915,338,512	\$523,766,714	\$132,895,552	\$163,722,514	\$333,525,472	\$197,824,320	\$109,665,877	\$136,583,023	\$284,651,466	\$640,113,535	\$995,249,886	\$309,124,851	Based on \$.199 per VMT removed.
PW of Operations Jobs	\$542,577,490	\$542,577,490	\$542,577,490	\$678,468,245	\$315,248,570	\$315,248,570	\$465,092,355	\$465,092,355	\$303,465,435	\$303,465,435	\$447,707,260	\$630,064,890	\$630,064,890	\$608,426,455	
PW of Non-basic jobs (1.5 multiplier)	\$271,288,745	\$271,288,745	\$271,288,745	\$339,234,123	\$157,624,285	\$157,624,285	\$232,546,178	\$232,546,178	\$151,732,718	\$151,732,718	\$223,853,630	\$315,032,445	\$315,032,445	\$304,213,228	Ops jobs pay the same but we add only 50 % more.
20% Federal funding	\$2,667,498,000	\$2,667,498,000	\$2,667,498,000	\$3,307,498,000	\$1,360,367,400	\$1,360,367,400	\$2,000,368,000	\$2,000,368,000	\$1,108,911,400	\$1,108,911,400	\$1,748,912,000	\$6,478,560,000	\$6,478,560,000	\$7,118,560,000	
Multiplier effect of Federal Funding (2.0 multiplier)	\$5,334,996,000	\$5,334,996,000	\$5,334,996,000	\$6,614,996,000	\$2,720,734,800	\$2,720,734,800	\$4,000,736,000	\$4,000,736,000	\$2,217,822,800	\$2,217,822,800	\$3,497,824,000	\$12,957,120,000	\$12,957,120,000	\$14,237,120,000	
Construction Employment	\$5,408,352,195	\$5,408,352,195	\$5,408,352,195	\$6,705,952,195	\$2,758,144,904	\$2,758,144,904	\$4,055,746,120	\$4,055,746,120	\$2,248,317,864	\$2,248,317,864	\$3,545,919,080	\$13,135,280,400	\$13,135,280,400	\$14,432,880,400	Construction employment equals 50 % of construction value.
Non-basic jobs (2.0 multiplier)	\$3,569,512,449	\$3,569,512,449	\$3,569,512,449	\$4,425,928,449	\$1,820,375,636	\$1,820,375,636	\$2,676,792,439	\$2,676,792,439	\$1,483,889,790	\$1,483,889,790	\$2,340,306,593	\$8,669,285,064	\$8,669,285,064	\$9,525,701,064	Number of jobs is the same but the average salary = 66% of construction labor
<b>Total Benefits</b>	<b>\$25,109,507,168</b>	<b>\$25,360,287,055</b>	<b>\$27,286,642,893</b>	<b>\$29,285,024,255</b>	<b>\$11,619,404,939</b>	<b>\$11,739,139,752</b>	<b>\$18,198,924,321</b>	<b>\$17,053,922,935</b>	<b>\$9,790,880,119</b>	<b>\$9,890,665,947</b>	<b>\$16,130,326,027</b>	<b>\$49,764,276,855</b>	<b>\$51,765,249,036</b>	<b>\$50,728,014,024</b>	
<b>Sum of Benefits (PW Cost Basis)</b>	<b>\$25,109,507,168</b>	<b>\$25,360,287,055</b>	<b>\$27,286,642,893</b>	<b>\$29,285,024,255</b>	<b>\$11,619,404,939</b>	<b>\$11,739,139,752</b>	<b>\$18,198,924,321</b>	<b>\$17,053,922,935</b>	<b>\$9,790,880,119</b>	<b>\$9,890,665,947</b>	<b>\$16,130,326,027</b>	<b>\$49,764,276,855</b>	<b>\$51,765,249,036</b>	<b>\$50,728,014,024</b>	
<b>Sum of Costs (PW Cost Basis)</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$23,837,090,834</b>	<b>\$9,876,540,257</b>	<b>\$9,876,540,257</b>	<b>\$14,526,135,905</b>	<b>\$14,526,135,905</b>	<b>\$8,143,896,705</b>	<b>\$8,143,896,705</b>	<b>\$12,782,288,433</b>	<b>\$45,293,120,496</b>	<b>\$45,293,120,496</b>	<b>\$49,599,747,626</b>	
<b>B/C Ratio</b>	<b>1.31</b>	<b>1.32</b>	<b>1.42</b>	<b>1.23</b>	<b>1.18</b>	<b>1.19</b>	<b>1.25</b>	<b>1.17</b>	<b>1.20</b>	<b>1.21</b>	<b>1.26</b>	<b>1.10</b>	<b>1.14</b>	<b>1.02</b>	
<b>Operating Ratio</b>	<b>1.97</b>	<b>1.81</b>	<b>2.51</b>	<b>1.01</b>	<b>0.61</b>	<b>0.57</b>	<b>1.24</b>	<b>0.53</b>	<b>0.52</b>	<b>0.50</b>	<b>1.10</b>	<b>1.88</b>	<b>2.19</b>	<b>0.83</b>	

**AGS Benefit/Cost at 30% Federal Funding**

Technology	High Speed Maglev								Medium Speed Maglev			High Speed Rail			Notes
	Full System, ICS + AGS, A-5a	Full System, ICS + AGS, A-5a	Full System, ICS + AGS, B-2a	DIA to ECRA	West Suburban to Breckenridge	West Suburban to Breckenridge	DIA to Breckenridge, ICS + AGS	DIA to Breckenridge	West Suburban to Breckenridge	West Suburban to Breckenridge	DIA to Breckenridge, ICS + AGS	Full System, ICS + AGS, B-2a	Full System, ICS + AGS, B-2a	DIA to Breckenridge, ICS + AGS	
Alternative Alignment Through Denver	I-76	I-76	C-470/E-470	I-76	N/A	N/A	I-76	I-76	N/A	N/A	I-76	C-470/E-470	C-470/E-470	I-76	
Fare	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	
<b>Costs</b>															
CAPEX	\$13,337,490,000	\$13,337,490,000	\$13,337,490,000	\$16,537,490,000	\$6,801,837,000	\$6,801,837,000	\$10,001,840,000	\$10,001,840,000	\$5,544,557,000	\$5,544,557,000	\$8,744,560,000	\$32,392,800,000	\$32,392,800,000	\$35,592,800,000	AGS Only. Suburban Station to west. MOS is to Breckendirdge
Annual OPEX	\$62,762,000	\$62,762,000	\$62,762,000	\$78,481,000	\$36,466,000	\$36,466,000	\$53,799,000	\$53,799,000	\$35,103,000	\$35,103,000	\$51,788,000	\$72,882,000	\$72,882,000	\$70,379,000	AGS only. Based on train miles only within AGS Corridor.
OPEX Cost (30 year)	\$1,085,154,980	\$1,085,154,980	\$1,085,154,980	\$1,356,936,490	\$630,497,140	\$630,497,140	\$930,184,710	\$930,184,710	\$606,930,870	\$606,930,870	\$895,414,520	\$1,260,129,780	\$1,260,129,780	\$1,216,852,910	
Interest payments	\$4,792,760,344	\$4,792,760,344	\$4,792,760,344	\$5,942,664,344	\$2,444,206,117	\$2,444,206,117	\$3,594,111,195	\$3,594,111,195	\$1,992,408,835	\$1,992,408,835	\$3,142,313,913	\$11,640,190,716	\$11,640,190,716	\$12,790,094,716	50% of CAPEX, 4% Interest, 30 years
<b>Total Cost</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$23,837,090,834</b>	<b>\$9,876,540,257</b>	<b>\$9,876,540,257</b>	<b>\$14,526,135,905</b>	<b>\$14,526,135,905</b>	<b>\$8,143,896,705</b>	<b>\$8,143,896,705</b>	<b>\$12,782,288,433</b>	<b>\$45,293,120,496</b>	<b>\$45,293,120,496</b>	<b>\$49,599,747,626</b>	
<b>Benefits</b>															
<b>Basic Data</b>															
Ridership	3,636,914	4,635,464	6,211,251	3,585,120	1,236,174	1,535,031	2,906,471	1,775,726	1,026,172	1,284,913	2,508,416	4,340,584	6,349,807	2,676,462	Only for trips having origin or destination within I-70 Mountain Corrdior
Ticket Revenue	\$123,745,259	\$113,911,654	\$157,280,243	\$79,037,296	\$22,247,496	\$20,851,174	\$66,493,427	\$28,723,660	\$18,408,144	\$17,418,946	\$56,779,587	\$137,364,179	\$159,912,578	\$58,278,195	Only for trips having origin or destination within I-70 Mountain Corrdior
Reduction in Vehicle-Miles <sup>1</sup>	162,980,029	191,432,412	266,031,869	152,226,347	38,624,456	47,583,933	96,935,072	57,495,203	31,873,037	39,696,174	82,730,444	186,041,118	289,257,126	89,843,332	Only for trips having origin or destination within I-70 Mountain Corrdior
Reduction in Vehicle-Hours <sup>1</sup>	640,580	675,455	950,985	852,987	175,603	215,174	29,116	210,468	56,846	69,420	(148,742)	812,467	1,151,656	(28,874)	Only for trips having origin or destination within I-70 Mountain Corrdior
VMT Benefit	\$91,268,816	\$107,202,151	\$148,977,847	\$85,246,754	\$21,629,695	\$26,647,002	\$54,283,640	\$32,197,314	\$17,848,901	\$22,229,857	\$46,329,049	\$104,183,026	\$161,983,991	\$50,312,266	Only for trips having origin or destination within I-70 Mountain Corrdior
VHT Benefit	\$14,733,340	\$15,535,465	\$21,872,655	\$19,618,701	\$4,038,869	\$4,949,002	\$669,668	\$4,840,764	\$1,307,458	\$1,596,660	(\$3,421,066)	\$18,686,741	\$26,488,088	(\$664,102)	Only for trips having origin or destination within I-70 Mountain Corrdior
Fatality Avoided	\$11,115,238	\$13,055,690	\$18,143,373	\$10,381,837	\$2,634,188	\$3,245,224	\$6,610,972	\$3,921,173	\$2,173,741	\$2,707,279	\$5,642,216	\$12,688,004	\$19,727,336	\$6,127,315	Only for trips having origin or destination within I-70 Mountain Corrdior
<b>Calculated Benefits (PW basis)</b>															
Increase in Real Estate Value - one time deal, no PW calc.	\$2,590,000,000	\$2,590,000,000	\$2,590,000,000	\$3,330,000,000	\$1,480,000,000	\$1,480,000,000	\$2,220,000,000	\$2,220,000,000	\$1,480,000,000	\$1,480,000,000	\$2,220,000,000	\$2,220,000,000	\$2,220,000,000	\$2,220,000,000	\$370 million/station
Fare Box Revenue (30 year)	\$2,139,555,528	\$1,969,532,498	\$2,719,375,401	\$1,366,554,848	\$384,659,206	\$360,516,798	\$1,149,671,353	\$496,632,081	\$318,276,810	\$301,173,576	\$981,719,059	\$2,375,026,655	\$2,764,888,474	\$1,007,629,992	
PW of VMT	\$1,578,037,833	\$1,853,525,186	\$2,575,826,968	\$1,473,916,382	\$373,977,433	\$460,726,673	\$938,564,141	\$556,691,554	\$308,607,493	\$384,354,235	\$801,029,251	\$1,801,324,521	\$2,800,703,197	\$869,899,078	
PW of VHT	\$254,739,449	\$268,608,190	\$378,178,205	\$339,207,340	\$69,832,045	\$85,568,245	\$11,578,560	\$83,696,810	\$22,605,949	\$27,606,251	-\$59,150,231	\$323,093,752	\$457,979,042	-\$11,482,324	
PW of Fatality Avoided	\$192,182,465	\$225,732,889	\$313,698,927	\$179,501,959	\$45,545,109	\$56,109,927	\$114,303,704	\$67,797,078	\$37,583,984	\$46,808,855	\$97,553,919	\$219,375,593	\$341,085,639	\$105,941,281	1.1 fatalities per 100 million miles driven.
Pollution benefits	\$560,767,016	\$658,663,414	\$915,338,512	\$523,766,714	\$132,895,552	\$163,722,514	\$333,525,472	\$197,824,320	\$109,665,877	\$136,583,023	\$284,651,466	\$640,113,535	\$995,249,886	\$309,124,851	Based on \$.199 per VMT removed.
PW of Operations Jobs	\$542,577,490	\$542,577,490	\$542,577,490	\$678,468,245	\$315,248,570	\$315,248,570	\$465,092,355	\$465,092,355	\$303,465,435	\$303,465,435	\$447,707,260	\$630,064,890	\$630,064,890	\$608,426,455	
PW of Non-basic jobs (1.5 multiplier)	\$271,288,745	\$271,288,745	\$271,288,745	\$339,234,123	\$157,624,285	\$157,624,285	\$232,546,178	\$232,546,178	\$151,732,718	\$151,732,718	\$223,853,630	\$315,032,445	\$315,032,445	\$304,213,228	Ops jobs pay the same but we add only 50 % more.
30% Federal funding	\$4,001,647,165	\$4,001,647,165	\$4,001,647,165	\$4,961,743,174	\$2,040,755,176	\$2,040,755,176	\$3,000,852,085	\$3,000,852,085	\$1,663,533,453	\$1,663,533,453	\$2,623,630,363	\$9,718,811,881	\$9,718,811,881	\$10,678,907,891	
Multiplier effect of Federal Funding (2.0 multiplier)	\$8,003,294,329	\$8,003,294,329	\$8,003,294,329	\$9,923,486,349	\$4,081,510,351	\$4,081,510,351	\$6,001,704,170	\$6,001,704,170	\$3,327,066,907	\$3,327,066,907	\$5,247,260,726	\$19,437,623,762	\$19,437,623,762	\$21,357,815,782	
Construction Employment	\$5,408,352,195	\$5,408,352,195	\$5,408,352,195	\$6,705,952,195	\$2,758,144,904	\$2,758,144,904	\$4,055,746,120	\$4,055,746,120	\$2,248,317,864	\$2,248,317,864	\$3,545,919,080	\$13,135,280,400	\$13,135,280,400	\$14,432,880,400	Construction employment equals 50 % of construction value.
Non-basic jobs (2.0 multiplier)	\$3,569,512,449	\$3,569,512,449	\$3,569,512,449	\$4,425,928,449	\$1,820,375,636	\$1,820,375,636	\$2,676,792,439	\$2,676,792,439	\$1,483,889,790	\$1,483,889,790	\$2,340,306,593	\$8,669,285,064	\$8,669,285,064	\$9,525,701,064	Number of jobs is the same but the average salary = 66% of construction labor
<b>Total Benefits</b>	<b>\$29,111,954,663</b>	<b>\$29,362,734,549</b>	<b>\$31,289,090,387</b>	<b>\$34,247,759,778</b>	<b>\$13,660,568,266</b>	<b>\$13,780,303,078</b>	<b>\$21,200,376,577</b>	<b>\$20,055,375,190</b>	<b>\$11,454,746,279</b>	<b>\$11,554,532,107</b>	<b>\$18,754,481,116</b>	<b>\$59,485,032,499</b>	<b>\$61,486,004,680</b>	<b>\$61,409,057,696</b>	
<b>Sum of Benefits (PW Cost Basis)</b>	<b>\$29,111,954,663</b>	<b>\$29,362,734,549</b>	<b>\$31,289,090,387</b>	<b>\$34,247,759,778</b>	<b>\$13,660,568,266</b>	<b>\$13,780,303,078</b>	<b>\$21,200,376,577</b>	<b>\$20,055,375,190</b>	<b>\$11,454,746,279</b>	<b>\$11,554,532,107</b>	<b>\$18,754,481,116</b>	<b>\$59,485,032,499</b>	<b>\$61,486,004,680</b>	<b>\$61,409,057,696</b>	
<b>Sum of Costs (PW Cost Basis)</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$23,837,090,834</b>	<b>\$9,876,540,257</b>	<b>\$9,876,540,257</b>	<b>\$14,526,135,905</b>	<b>\$14,526,135,905</b>	<b>\$8,143,896,705</b>	<b>\$8,143,896,705</b>	<b>\$12,782,288,433</b>	<b>\$45,293,120,496</b>	<b>\$45,293,120,496</b>	<b>\$49,599,747,626</b>	
<b>B/C Ratio</b>	<b>1.52</b>	<b>1.53</b>	<b>1.63</b>	<b>1.44</b>	<b>1.38</b>	<b>1.40</b>	<b>1.46</b>	<b>1.38</b>	<b>1.41</b>	<b>1.42</b>	<b>1.47</b>	<b>1.31</b>	<b>1.36</b>	<b>1.24</b>	
<b>Operating Ratio</b>	<b>1.97</b>	<b>1.81</b>	<b>2.51</b>	<b>1.01</b>	<b>0.61</b>	<b>0.57</b>	<b>1.24</b>	<b>0.53</b>	<b>0.52</b>	<b>0.50</b>	<b>1.10</b>	<b>1.88</b>	<b>2.19</b>	<b>0.83</b>	

### AGS Benefit/Cost at 40% Federal Funding

Technology	High Speed Maglev								Medium Speed Maglev			High Speed Rail			Notes
	Full System, ICS + AGS, A-5a	Full System, ICS + AGS, A-5a	Full System, ICS + AGS, B-2a	DIA to ECRA	West Suburban to Breckenridge	West Suburban to Breckenridge	DIA to Breckenridge, ICS + AGS	DIA to Breckenridge	West Suburban to Breckenridge	West Suburban to Breckenridge	DIA to Breckenridge, ICS + AGS	Full System, ICS + AGS, B-2a	Full System, ICS + AGS, B-2a	DIA to Breckenridge, ICS + AGS	
Alternative	I-76	I-76	C-470/E-470	I-76	N/A	N/A	I-76	I-76	N/A	N/A	I-76	C-470/E-470	C-470/E-470	I-76	
Fare	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	
<b>Costs</b>															
CAPEX	\$13,337,490,000	\$13,337,490,000	\$13,337,490,000	\$16,537,490,000	\$6,801,837,000	\$6,801,837,000	\$10,001,840,000	\$10,001,840,000	\$5,544,557,000	\$5,544,557,000	\$8,744,560,000	\$32,392,800,000	\$32,392,800,000	\$35,592,800,000	AGS Only. Suburban Station to west. MOS is to Breckenridge
Annual OPEX	\$62,762,000	\$62,762,000	\$62,762,000	\$78,481,000	\$36,466,000	\$36,466,000	\$53,799,000	\$53,799,000	\$35,103,000	\$35,103,000	\$51,788,000	\$72,882,000	\$72,882,000	\$70,379,000	AGS only. Based on train miles only within AGS Corridor.
OPEX Cost (30 year)	\$1,085,154,980	\$1,085,154,980	\$1,085,154,980	\$1,356,936,490	\$630,497,140	\$630,497,140	\$930,184,710	\$930,184,710	\$606,930,870	\$606,930,870	\$895,414,520	\$1,260,129,780	\$1,260,129,780	\$1,216,852,910	
Interest payments	\$4,792,760,344	\$4,792,760,344	\$4,792,760,344	\$5,942,664,344	\$2,444,206,117	\$2,444,206,117	\$3,594,111,195	\$3,594,111,195	\$1,992,408,835	\$1,992,408,835	\$3,142,313,913	\$11,640,190,716	\$11,640,190,716	\$12,790,094,716	50% of CAPEX, 4% Interest, 30 years
Total Cost	\$19,215,405,324	\$19,215,405,324	\$19,215,405,324	\$23,837,090,834	\$9,876,540,257	\$9,876,540,257	\$14,526,135,905	\$14,526,135,905	\$8,143,896,705	\$8,143,896,705	\$12,782,288,433	\$45,293,120,496	\$45,293,120,496	\$49,599,747,626	
<b>Benefits</b>															
<b>Basic Data</b>															
Ridership	3,636,914	4,635,464	6,211,251	3,585,120	1,236,174	1,535,031	2,906,471	1,775,726	1,026,172	1,284,913	2,508,416	4,340,584	6,349,807	2,676,462	Only for trips having origin or destination within I-70 Mountain Corridor
Ticket Revenue	\$123,745,259	\$113,911,654	\$157,280,243	\$79,037,296	\$22,247,496	\$20,851,174	\$66,493,427	\$28,723,660	\$18,408,144	\$17,418,946	\$56,779,587	\$137,364,179	\$159,912,578	\$58,278,195	Only for trips having origin or destination within I-70 Mountain Corridor
Reduction in Vehicle-Miles <sup>1</sup>	162,980,029	191,432,412	266,031,869	152,226,347	38,624,456	47,583,933	96,935,072	57,495,203	31,873,037	39,696,174	82,730,444	186,041,118	289,257,126	89,843,332	Only for trips having origin or destination within I-70 Mountain Corridor
Reduction in Vehicle-Hours <sup>1</sup>	640,580	675,455	950,985	852,987	175,603	215,174	29,116	210,468	56,846	69,420	(148,742)	812,467	1,151,656	(28,874)	Only for trips having origin or destination within I-70 Mountain Corridor
VMT Benefit	\$91,268,816	\$107,202,151	\$148,977,847	\$85,246,754	\$21,629,695	\$26,647,002	\$54,283,640	\$32,197,314	\$17,848,901	\$22,229,857	\$46,329,049	\$104,183,026	\$161,983,991	\$50,312,266	Only for trips having origin or destination within I-70 Mountain Corridor
VHT Benefit	\$14,733,340	\$15,535,465	\$21,872,655	\$19,618,701	\$4,038,869	\$4,949,002	\$669,668	\$4,840,764	\$1,307,458	\$1,596,660	(\$3,421,066)	\$18,686,741	\$26,488,088	(\$664,102)	Only for trips having origin or destination within I-70 Mountain Corridor
Fatality Avoided	\$11,115,238	\$13,055,690	\$18,143,373	\$10,381,837	\$2,634,188	\$3,245,224	\$6,610,972	\$3,921,173	\$2,173,741	\$2,707,279	\$5,642,216	\$12,688,004	\$19,727,336	\$6,127,315	Only for trips having origin or destination within I-70 Mountain Corridor
<b>Calculated Benefits (PW basis)</b>															
Increase in Real Estate Value - one time deal, no PW calc.	\$2,590,000,000	\$2,590,000,000	\$2,590,000,000	\$3,330,000,000	\$1,480,000,000	\$1,480,000,000	\$2,220,000,000	\$2,220,000,000	\$1,480,000,000	\$1,480,000,000	\$2,220,000,000	\$2,220,000,000	\$2,220,000,000	\$2,220,000,000	\$370 million/station
Fare Box Revenue (30 year)	\$2,139,555,528	\$1,969,532,498	\$2,719,375,401	\$1,366,554,848	\$384,659,206	\$360,516,798	\$1,149,671,353	\$496,632,081	\$318,276,810	\$301,173,576	\$981,719,059	\$2,375,026,655	\$2,764,888,474	\$1,007,629,992	
PW of VMT	\$1,578,037,833	\$1,853,525,186	\$2,575,826,968	\$1,473,916,382	\$373,977,433	\$460,726,673	\$938,564,141	\$556,691,554	\$308,607,493	\$384,354,235	\$801,029,251	\$1,801,324,521	\$2,800,703,197	\$869,899,078	
PW of VHT	\$254,739,449	\$268,608,190	\$378,178,205	\$339,207,340	\$69,832,045	\$85,568,245	\$11,578,560	\$83,696,810	\$22,605,949	\$27,606,251	-\$59,150,231	\$323,093,752	\$457,979,042	-\$11,482,324	
PW of Fatality Avoided	\$192,182,465	\$225,732,889	\$313,698,927	\$179,501,959	\$45,545,109	\$56,109,927	\$114,303,704	\$67,797,078	\$37,583,984	\$46,808,855	\$97,553,919	\$219,375,593	\$341,085,639	\$105,941,281	1.1 fatalities per 100 million miles driven.
Pollution benefits	\$560,767,016	\$658,663,414	\$915,338,512	\$523,766,714	\$132,895,552	\$163,722,514	\$333,525,472	\$197,824,320	\$109,665,877	\$136,583,023	\$284,651,466	\$640,113,535	\$995,249,886	\$309,124,851	Based on \$.199 per VMT removed.
PW of Operations Jobs	\$542,577,490	\$542,577,490	\$542,577,490	\$678,468,245	\$315,248,570	\$315,248,570	\$465,092,355	\$465,092,355	\$303,465,435	\$303,465,435	\$447,707,260	\$630,064,890	\$630,064,890	\$608,426,455	
PW of Non-basic jobs (1.5 multiplier)	\$271,288,745	\$271,288,745	\$271,288,745	\$339,234,123	\$157,624,285	\$157,624,285	\$232,546,178	\$232,546,178	\$151,732,718	\$151,732,718	\$223,853,630	\$315,032,445	\$315,032,445	\$304,213,228	Ops jobs pay the same but we add only 50 % more.
40% Federal funding	\$5,334,996,000	\$5,334,996,000	\$5,334,996,000	\$6,614,996,000	\$2,720,734,800	\$2,720,734,800	\$4,000,736,000	\$4,000,736,000	\$2,217,822,800	\$2,217,822,800	\$3,497,824,000	\$12,957,120,000	\$12,957,120,000	\$14,237,120,000	
Multiplier effect of Federal Funding (2.0 multiplier)	\$10,669,992,000	\$10,669,992,000	\$10,669,992,000	\$13,229,992,000	\$5,441,469,600	\$5,441,469,600	\$8,001,472,000	\$8,001,472,000	\$4,435,645,600	\$4,435,645,600	\$6,995,648,000	\$25,914,240,000	\$25,914,240,000	\$28,474,240,000	
Construction Employment	\$5,408,352,195	\$5,408,352,195	\$5,408,352,195	\$6,705,952,195	\$2,758,144,904	\$2,758,144,904	\$4,055,746,120	\$4,055,746,120	\$2,248,317,864	\$2,248,317,864	\$3,545,919,080	\$13,135,280,400	\$13,135,280,400	\$14,432,880,400	Construction employment equals 50 % of construction value.
Non-basic jobs (2.0 multiplier)	\$3,569,512,449	\$3,569,512,449	\$3,569,512,449	\$4,425,928,449	\$1,820,375,636	\$1,820,375,636	\$2,676,792,439	\$2,676,792,439	\$1,483,889,790	\$1,483,889,790	\$2,340,306,593	\$8,669,285,064	\$8,669,285,064	\$9,525,701,064	Number of jobs is the same but the average salary = 66% of construction labor
Total Benefits	\$33,112,001,168	\$33,362,781,055	\$35,289,136,893	\$39,207,518,255	\$15,700,507,139	\$15,820,241,952	\$24,200,028,321	\$23,055,026,935	\$13,117,614,319	\$13,217,400,147	\$21,377,062,027	\$69,199,956,855	\$71,200,929,036	\$72,083,694,024	
Sum of Benefits (PW Cost Basis)	\$33,112,001,168	\$33,362,781,055	\$35,289,136,893	\$39,207,518,255	\$15,700,507,139	\$15,820,241,952	\$24,200,028,321	\$23,055,026,935	\$13,117,614,319	\$13,217,400,147	\$21,377,062,027	\$69,199,956,855	\$71,200,929,036	\$72,083,694,024	
Sum of Costs (PW Cost Basis)	\$19,215,405,324	\$19,215,405,324	\$19,215,405,324	\$23,837,090,834	\$9,876,540,257	\$9,876,540,257	\$14,526,135,905	\$14,526,135,905	\$8,143,896,705	\$8,143,896,705	\$12,782,288,433	\$45,293,120,496	\$45,293,120,496	\$49,599,747,626	
B/C Ratio	1.72	1.74	1.84	1.64	1.59	1.60	1.67	1.59	1.61	1.62	1.67	1.53	1.57	1.45	
Operating Ratio	1.97	1.81	2.51	1.01	0.61	0.57	1.24	0.53	0.52	0.50	1.10	1.88	2.19	0.83	

### AGS Benefit/Cost at 50% Federal Funding

Technology	High Speed Maglev								Medium Speed Maglev			High Speed Rail			Notes
	Full System, ICS + AGS, A-5a	Full System, ICS + AGS, A-5a	Full System, ICS + AGS, B-2a	DIA to ECRA	West Suburban to Breckenridge	West Suburban to Breckenridge	DIA to Breckenridge, ICS + AGS	DIA to Breckenridge	West Suburban to Breckenridge	West Suburban to Breckenridge	DIA to Breckenridge, ICS + AGS	Full System, ICS + AGS, B-2a	Full System, ICS + AGS, B-2a	DIA to Breckenridge, ICS + AGS	
Alternative Alignment Through Denver	I-76	I-76	C-470/E-470	I-76	N/A	N/A	I-76	I-76	N/A	N/A	I-76	C-470/E-470	C-470/E-470	I-76	
Fare	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	\$0.35/Mile	\$0.26/Mile	\$0.26/Mile	
<b>Costs</b>															
CAPEX	\$13,337,490,000	\$13,337,490,000	\$13,337,490,000	\$16,537,490,000	\$6,801,837,000	\$6,801,837,000	\$10,001,840,000	\$10,001,840,000	\$5,544,557,000	\$5,544,557,000	\$8,744,560,000	\$32,392,800,000	\$32,392,800,000	\$35,592,800,000	AGS Only. Suburban Station to west. MOS is to Breckendirdge
Annual OPEX	\$62,762,000	\$62,762,000	\$62,762,000	\$78,481,000	\$36,466,000	\$36,466,000	\$53,799,000	\$53,799,000	\$35,103,000	\$35,103,000	\$51,788,000	\$72,882,000	\$72,882,000	\$70,379,000	AGS only. Based on train miles only within AGS Corridor.
OPEX Cost (30 year)	\$1,085,154,980	\$1,085,154,980	\$1,085,154,980	\$1,356,936,490	\$630,497,140	\$630,497,140	\$930,184,710	\$930,184,710	\$606,930,870	\$606,930,870	\$895,414,520	\$1,260,129,780	\$1,260,129,780	\$1,216,852,910	
Interest payments	\$4,792,760,344	\$4,792,760,344	\$4,792,760,344	\$5,942,664,344	\$2,444,206,117	\$2,444,206,117	\$3,594,111,195	\$3,594,111,195	\$1,992,408,835	\$1,992,408,835	\$3,142,313,913	\$11,640,190,716	\$11,640,190,716	\$12,790,094,716	50% of CAPEX, 4% Interest, 30 years
<b>Total Cost</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$23,837,090,834</b>	<b>\$9,876,540,257</b>	<b>\$9,876,540,257</b>	<b>\$14,526,135,905</b>	<b>\$14,526,135,905</b>	<b>\$8,143,896,705</b>	<b>\$8,143,896,705</b>	<b>\$12,782,288,433</b>	<b>\$45,293,120,496</b>	<b>\$45,293,120,496</b>	<b>\$49,599,747,626</b>	
<b>Benefits</b>															
<b>Basic Data</b>															
Ridership	3,636,914	4,635,464	6,211,251	3,585,120	1,236,174	1,535,031	2,906,471	1,775,726	1,026,172	1,284,913	2,508,416	4,340,584	6,349,807	2,676,462	Only for trips having origin or destination within I-70 Mountain Corrdior
Ticket Revenue	\$123,745,259	\$113,911,654	\$157,280,243	\$79,037,296	\$22,247,496	\$20,851,174	\$66,493,427	\$28,723,660	\$18,408,144	\$17,418,946	\$56,779,587	\$137,364,179	\$159,912,578	\$58,278,195	Only for trips having origin or destination within I-70 Mountain Corrdior
Reduction in Vehicle-Miles <sup>1</sup>	162,980,029	191,432,412	266,031,869	152,226,347	38,624,456	47,583,933	96,935,072	57,495,203	31,873,037	39,696,174	82,730,444	186,041,118	289,257,126	89,843,332	Only for trips having origin or destination within I-70 Mountain Corrdior
Reduction in Vehicle-Hours <sup>1</sup>	640,580	675,455	950,985	852,987	175,603	215,174	29,116	210,468	56,846	69,420	(148,742)	812,467	1,151,656	(28,874)	Only for trips having origin or destination within I-70 Mountain Corrdior
VMT Benefit	\$91,268,816	\$107,202,151	\$148,977,847	\$85,246,754	\$21,629,695	\$26,647,002	\$54,283,640	\$32,197,314	\$17,848,901	\$22,229,857	\$46,329,049	\$104,183,026	\$161,983,991	\$50,312,266	Only for trips having origin or destination within I-70 Mountain Corrdior
VHT Benefit	\$14,733,340	\$15,535,465	\$21,872,655	\$19,618,701	\$4,038,869	\$4,949,002	\$669,668	\$4,840,764	\$1,307,458	\$1,596,660	(\$3,421,066)	\$18,686,741	\$26,488,088	(\$664,102)	Only for trips having origin or destination within I-70 Mountain Corrdior
Fatality Avoided	\$11,115,238	\$13,055,690	\$18,143,373	\$10,381,837	\$2,634,188	\$3,245,224	\$6,610,972	\$3,921,173	\$2,173,741	\$2,707,279	\$5,642,216	\$12,688,004	\$19,727,336	\$6,127,315	Only for trips having origin or destination within I-70 Mountain Corrdior
<b>Calculated Benefits (PW basis)</b>															
Increase in Real Estate Value - one time deal, no PW calc.	\$2,590,000,000	\$2,590,000,000	\$2,590,000,000	\$3,330,000,000	\$1,480,000,000	\$1,480,000,000	\$2,220,000,000	\$2,220,000,000	\$1,480,000,000	\$1,480,000,000	\$2,220,000,000	\$2,220,000,000	\$2,220,000,000	\$2,220,000,000	\$370 million/station
Fare Box Revenue (30 year)	\$2,139,555,528	\$1,969,532,498	\$2,719,375,401	\$1,366,554,848	\$384,659,206	\$360,516,798	\$1,149,671,353	\$496,632,081	\$318,276,810	\$301,173,576	\$981,719,059	\$2,375,026,655	\$2,764,888,474	\$1,007,629,992	
PW of VMT	\$1,578,037,833	\$1,853,525,186	\$2,575,826,968	\$1,473,916,382	\$373,977,433	\$460,726,673	\$938,564,141	\$556,691,554	\$308,607,493	\$384,354,235	\$801,029,251	\$1,801,324,521	\$2,800,703,197	\$869,899,078	
PW of VHT	\$254,739,449	\$268,608,190	\$378,178,205	\$339,207,340	\$69,832,045	\$85,568,245	\$11,578,560	\$83,696,810	\$22,605,949	\$27,606,251	-\$59,150,231	\$323,093,752	\$457,979,042	-\$11,482,324	
PW of Fatality Avoided	\$192,182,465	\$225,732,889	\$313,698,927	\$179,501,959	\$45,545,109	\$56,109,927	\$114,303,704	\$67,797,078	\$37,583,984	\$46,808,855	\$97,553,919	\$219,375,593	\$341,085,639	\$105,941,281	1.1 fatalities per 100 million miles driven.
Pollution benefits	\$560,767,016	\$658,663,414	\$915,338,512	\$523,766,714	\$132,895,552	\$163,722,514	\$333,525,472	\$197,824,320	\$109,665,877	\$136,583,023	\$284,651,466	\$640,113,535	\$995,249,886	\$309,124,851	Based on \$.199 per VMT removed.
PW of Operations Jobs	\$542,577,490	\$542,577,490	\$542,577,490	\$678,468,245	\$315,248,570	\$315,248,570	\$465,092,355	\$465,092,355	\$303,465,435	\$303,465,435	\$447,707,260	\$630,064,890	\$630,064,890	\$608,426,455	
PW of Non-basic jobs (1.5 multiplier)	\$271,288,745	\$271,288,745	\$271,288,745	\$339,234,123	\$157,624,285	\$157,624,285	\$232,546,178	\$232,546,178	\$151,732,718	\$151,732,718	\$223,853,630	\$315,032,445	\$315,032,445	\$304,213,228	Ops jobs pay the same but we add only 50 % more.
50% Federal funding	\$6,668,745,000	\$6,668,745,000	\$6,668,745,000	\$8,268,745,000	\$3,400,918,500	\$3,400,918,500	\$5,000,920,000	\$5,000,920,000	\$2,772,278,500	\$2,772,278,500	\$4,372,280,000	\$16,196,400,000	\$16,196,400,000	\$17,796,400,000	
Multiplier effect of Federal Funding (2.0 multiplier)	\$13,337,490,000	\$13,337,490,000	\$13,337,490,000	\$16,537,490,000	\$6,801,837,000	\$6,801,837,000	\$10,001,840,000	\$10,001,840,000	\$5,544,557,000	\$5,544,557,000	\$8,744,560,000	\$32,392,800,000	\$32,392,800,000	\$35,592,800,000	
Construction Employment	\$5,408,352,195	\$5,408,352,195	\$5,408,352,195	\$6,705,952,195	\$2,758,144,904	\$2,758,144,904	\$4,055,746,120	\$4,055,746,120	\$2,248,317,864	\$2,248,317,864	\$3,545,919,080	\$13,135,280,400	\$13,135,280,400	\$14,432,880,400	Construction employment equals 50 % of construction value.
Non-basic jobs (2.0 multiplier)	\$3,569,512,449	\$3,569,512,449	\$3,569,512,449	\$4,425,928,449	\$1,820,375,636	\$1,820,375,636	\$2,676,792,439	\$2,676,792,439	\$1,483,889,790	\$1,483,889,790	\$2,340,306,593	\$8,669,285,064	\$8,669,285,064	\$9,525,701,064	Number of jobs is the same but the average salary = 66% of construction labor
<b>Total Benefits</b>	<b>\$37,113,248,168</b>	<b>\$37,364,028,055</b>	<b>\$39,290,383,893</b>	<b>\$44,168,765,255</b>	<b>\$17,741,058,239</b>	<b>\$17,860,793,052</b>	<b>\$27,200,580,321</b>	<b>\$26,055,578,935</b>	<b>\$14,780,981,419</b>	<b>\$14,880,767,247</b>	<b>\$24,000,430,027</b>	<b>\$78,917,796,855</b>	<b>\$80,918,769,036</b>	<b>\$82,761,534,024</b>	
<b>Sum of Benefits (PW Cost Basis)</b>	<b>\$37,113,248,168</b>	<b>\$37,364,028,055</b>	<b>\$39,290,383,893</b>	<b>\$44,168,765,255</b>	<b>\$17,741,058,239</b>	<b>\$17,860,793,052</b>	<b>\$27,200,580,321</b>	<b>\$26,055,578,935</b>	<b>\$14,780,981,419</b>	<b>\$14,880,767,247</b>	<b>\$24,000,430,027</b>	<b>\$78,917,796,855</b>	<b>\$80,918,769,036</b>	<b>\$82,761,534,024</b>	
<b>Sum of Costs (PW Cost Basis)</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$19,215,405,324</b>	<b>\$23,837,090,834</b>	<b>\$9,876,540,257</b>	<b>\$9,876,540,257</b>	<b>\$14,526,135,905</b>	<b>\$14,526,135,905</b>	<b>\$8,143,896,705</b>	<b>\$8,143,896,705</b>	<b>\$12,782,288,433</b>	<b>\$45,293,120,496</b>	<b>\$45,293,120,496</b>	<b>\$49,599,747,626</b>	
<b>B/C Ratio</b>	<b>1.93</b>	<b>1.94</b>	<b>2.04</b>	<b>1.85</b>	<b>1.80</b>	<b>1.81</b>	<b>1.87</b>	<b>1.79</b>	<b>1.81</b>	<b>1.83</b>	<b>1.88</b>	<b>1.74</b>	<b>1.79</b>	<b>1.67</b>	
<b>Operating Ratio</b>	<b>1.97</b>	<b>1.81</b>	<b>2.51</b>	<b>1.01</b>	<b>0.61</b>	<b>0.57</b>	<b>1.24</b>	<b>0.53</b>	<b>0.52</b>	<b>0.50</b>	<b>1.10</b>	<b>1.88</b>	<b>2.19</b>	<b>0.83</b>	