I-70 Traffic & Revenue Study

LEVEL 1 BASE COST ESTIMATES

Draft 2/17/2014

Prepared by Parsons Transportation Group

General Assumptions

- Costs are in 2014 dollars.
- Roadway, Structures, & Tunnels Construction line items are based on PEIS Estimates; Additional items added to reflect recently developed options & replace some allowances with specific line items.
- Advanced Guideway System estimates are from 2013 AGS Study.
- Bus Rapid Transit (BRT) costs were developed from "ground-up" assumptions for rolling stock and stations. Construction line items aligned with roadway and structure line items.
- Circulator/Connector Bus Systems are based on costs from existing systems (Summit Stage, RFTA). Scaled to match T&R options.
- Mitigation for historic, wildlife protection, and water quality based on PEIS data and updated by Issue Task Forces.
- Right-of-Way is estimated per Federal Regulations.
- Operations and maintenance costs are from CDOT cost data for items currently maintained by CDOT. Other items are estimates from similar projects. Concepts carried through Issue Task Force.
- Design, Environmental Clearances, and Construction Management costs are based on percentage of capital costs. CSS cost information provided by CDOT.
- Cost risk assessment is applied to unit items and allowances in summary spreadsheets.

I-70 Cost Estimate Build-Up **Alt01_Opt01**

2 tolled reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct structure from East Idaho Springs to Floyd Hill in order to maintain 65 mph design speed. General Purpose lanes designed at 55 mph except from East Idaho Springs to Floyd Hill, where existing design speeds and lanes will remain.

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**		**Unit Cost**		**Cost**
Structures - Basic	SF	1,038,825	$	150	$	155,823,750
Special Structures - Complex	SF	439,625	$	200	$	87,925,000
Special Structures - Fly-Over	SF	212,625	$	225	$	47,840,625
Special Structures - Viaduct	SF	964,650	$	225	$	217,046,250
Interchanges	LS	1	$	207,116,990	$	207,116,990
Wildlife Crossings - Structures	LS	1	$	172,025,000	$	172,025,000
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$	10,696,000	$	10,696,000
Walls - Cut	SF	586,220	$	75	$	43,966,500
Walls - Fill	SF	1,682,140	$	50	$	84,107,000
Excavation - Rock Cut	CY	5,153,580	$	50	$	257,679,000
Embankment	CY	3,328,210	$	6	$	19,969,260
Pavement Resurfacing	Ton	188,750	$	80	$	15,100,000
Pavement - Full Depth	Ton	1,423,800	$	70	$	99,666,000
Base Course	CY	807,090	$	25	$	20,177,250
Barrier - Type 7	LF	655,590	$	50	$	32,779,500
Barrier - Retaining	LF	280,970	$	125	$	35,121,250
Guardrail - Type 3	LF	77,450	$	20	$	1,549,000
ITS	LS	1	$	55,100,000	$	55,100,000
Transportation & Operation Center	LS	1	$	24,600,000	$	24,600,000
Tolling, Gates, & Controls	LS	1	$	33,500,000	$	33,500,000
Maintenance Equipment (Special)	LS	1	$	1,650,000	$	1,650,000
Roadway & Structures Subtotal					$	1,623,438,375

Roadway & Structures Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	5%	$	81,171,919
Seeding, Wetlands, Stream and Site Impacts	LS	$ 10,167,100	$	10,167,100
Utilities	LS	$ 10,300,000	$	10,300,000
Drainage & Water Quality (Permanent)	LS	$ 44,282,670	$	44,282,670
Water Quality (Construction)	LS	$ 7,932,500	$	7,932,500
Signing & Striping (General)	1% - 5%	1.5%	$	24,351,576
Traffic Control (Construction) excluding Viaduct	5% - 25%	3%	$	42,191,764
Mobilization & Staging	4% - 10%	10%	$	162,343,838
Right-of-Way	LS	$ 5,000,000	$	5,000,000
CSS Contingency	15%	15%	$	243,515,756
Total of Roadway & Structures Allowances			$	631,257,122
Total of Roadway & Structures Items & Allowances			$	2,254,695,497

Tunnel Components	**Units**	**Quantity**		**Unit Cost**		**Cost**
Twin Tunnels - New Bore	LF	1,300	$	35,833	$	46,582,900
Twin Tunnels Cross Passages	LS	1	$	1,316,890	$	1,316,890
Twin Tunnels - New Bore Systems	LS	1	$	6,601,000	$	6,601,000
Hidden Valley Tunnels (1) (EB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) Cross Passages	LS	-	$	-	$	-
Hidden Valley Tunnels (1) Systems	LS	-	$	-	$	-
Hidden Valley Tunnel (2) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnel (2) Cross Passage	LS	-	$	-	$	-
Hidden Valley Tunnel (2) Systems	LS	-	$	-	$	-
EJMT Approaches	LF	5,200	$	25,000	$	130,000,000
EJMT North Bore	LF	8,700	$	57,446	$	499,780,200
EJMT Cross Passages	LS	1	$	24,189,190	$	24,189,190
EJMT Systems	LS	1	$	55,025,500	$	55,025,500
Tunnel Components Subtotal					$	763,495,680

Tunnel Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	4%	$	30,539,827
Seeding, Wetlands, Stream and Site Impacts	LS	$ 22,350	$	22,350
Utilities	LS	$ 15,000,000	$	15,000,000
Drainage & Water Quality (Permanent)	LS	$ 9,887,000	$	9,887,000
Water Quality (Construction)	LS	$ 191,500	$	191,500
Signing & Striping (General)	1% - 2%	0.5%	$	3,817,478
Traffic Control (Construction)	1% - 2%	1.0%	$	7,634,957
Mobilization & Staging	5% - 15%	10%	$	76,349,568
Right-of-Way	LS	$ -	$	-
CSS Contingency	15%	15%	$	114,524,352
Total of Tunnel Allowances			$	257,967,032
Total of Tunnel Components & Allowances			$	1,021,462,712

I-70 Cost Estimate Build-Up **Alt01_Opt01**

2 tolled reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct structure from East Idaho Springs to Floyd Hill in order to maintain 65 mph design speed. General Purpose lanes designed at 55 mph except from East Idaho Springs to Floyd Hill, where existing design speeds and lanes will remain.

CAPITAL COSTS

Transit Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Vehicles	EA	22	$ 600,000	$ 13,200,000
Infrastructure	LS	1		$ -
Stations - Basic	EA	11	$ 1,850,000	$ 20,350,000
Stations - Major	EA	1	$ 8,000,000	$ 8,000,000
Maintenance Barn	EA	1	$ 15,000,000	$ 15,000,000
Transit Components Subtotal				$ 56,550,000

Transit Allowances	**% Range or Units**	**% Cost or Cost**	**Cost**
Allowances (Unallocated Items)	1% - 10%	20%	$ 11,310,000
Seeding, Wetlands, Stream and Site Impacts	LS	$ 10,000,000	$ 10,000,000
Utilities	LS	$ 2,167,500	$ 2,167,500
Drainage & Water Quality (Permanent)	LS	$ 4,335,000	$ 4,335,000
Water Quality (Construction)	LS	$ 433,500	$ 433,500
Signing & Striping (General)	1% - 5%		$ -
Traffic Control (Construction)	4% - 10%	5%	$ 2,827,500
Mobilization & Staging	4% - 10%	4%	$ 2,262,000
Right-of-Way	LS	$ 3,054,000	$ 3,054,000
CSS Contingency	15%	15%	$ 8,482,500
Transit Allowance Total			$ 44,872,000
Transit Components & Allowance Total			$ 101,422,000

SUMMARY OF CAPITAL COSTS	**Cost**
Roadway & Structures & Allowances	$ 2,254,695,497
Tunnel Components & Allowances	$ 1,021,462,712
Transit Components & Allowances	$ 101,422,000
Roadway, Structures, Tunnels, Transit Construction Total	$ 3,377,580,209

DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**	**Cost**
NEPA	LS	$ -	$ 19,506,960
Roadway & Structures Preliminary & Final Design	8% - 12%	12%	$ 270,563,460
Tunnels Preliminary & Final Design	8% - 12%	10%	$ 102,146,271
Transit Preliminary & Final Design	8% - 12%	8%	$ 8,113,760
CSS Design Contingency	19%	19%	$ 72,356,463
Preliminary & Final Design Total			$ 472,686,914
Roadway & Structures Construction Engineering	6% - 10%	8%	$ 180,375,640
Tunnels Construction Engineering	6% - 10%	8%	$ 81,717,017
Transit Construction Engineering	4% - 10%	4%	$ 4,056,880
Construction Engineering Total			$ 266,149,537
Preliminary & Final Design & Construction Engineering Total			$ 738,836,451

Project Capital, Design, & Construction Engineering Total	$ 4,116,416,660

I-70 Cost Estimate Build-Up **Alt01_Opt01**

2 tolled reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct structure from East Idaho Springs to Floyd Hill in order to maintain 65 mph design speed. General Purpose lanes designed at 55 mph except from East Idaho Springs to Floyd Hill, where existing design speeds and lanes will remain.

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	107	$	10,030	$	1,077,237
Routine Maintenance	LM	107	$	9,754	$	1,047,610
Pavement Rehabilitation	LM	107	$	14,132	$	1,517,734
ITS Operations	LS	1	$	4,400,000	$	4,400,000
Tolling Operations	LS	1	$	2,700,000	$	2,700,000
Long Term Capital Replacement	LS	1	$	5,773,762	$	5,773,762
Roadway, Structures O&M Total Cost per Year					$	16,516,343

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	4	$	812,826	$	3,161,893
Pavement Rehabilitation	LM	3	$	14,132	$	48,047
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	3,209,941

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	11,994,813	$	11,994,813
Vehicle Maintenance	LS	1	$	3,271,313	$	3,271,313
Infrastructure Maintenance	LS	1	$	2,617,050	$	2,617,050
Long Term Capital Replacement	LS	1	$	8,112,719	$	8,112,719
General & Administrative	LS	1	$	3,925,575	$	3,925,575
Transit O&M Total Costs per Year					$	29,921,470

Project Operations & Maintenance Total per year	$	49,647,753

I-70 Cost Estimate Build-Up **Alt01_Opt02**

2 tolled reversible managed lanes and I-70 designed at 65 mph. This option matches Alt01_ Opt01 except from East Idaho Springs to Floyd Hill, where the reversible managed lanes and I-70 will be reconstructed to meet a 65 mph design speed.

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**		**Unit Cost**		**Cost**
Structures - Basic	SF	976,025	$	150	$	146,403,750
Special Structures - Complex	SF	1,075,000	$	200	$	215,000,000
Special Structures - Fly-Over	SF	212,650	$	225	$	47,846,250
Special Structures - Viaduct	SF	494,975	$	225	$	111,369,375
Interchanges	LS	1	$	325,097,600	$	325,097,600
Wildlife Crossings - Structures	LS	1	$	174,250,000	$	174,250,000
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$	10,696,000	$	10,696,000
Walls - Cut	SF	599,160	$	75	$	44,937,000
Walls - Fill	SF	1,838,500	$	50	$	91,925,000
Excavation - Rock Cut	CY	6,323,780	$	50	$	316,189,000
Embankment	CY	3,824,760	$	6	$	22,948,560
Pavement Resurfacing	Ton	188,750	$	80	$	15,100,000
Pavement - Full Depth	Ton	1,460,530	$	70	$	102,237,100
Base Course	CY	827,800	$	25	$	20,695,000
Barrier - Type 7	LF	613,900	$	50	$	30,695,000
Barrier - Retaining	LF	263,100	$	125	$	32,887,500
Guardrail - Type 3	LF	79,700	$	20	$	1,594,000
ITS	LS	1	$	55,100,000	$	55,100,000
Transportation & Operation Center	LS	1	$	24,600,000	$	24,600,000
Tolling, Gates, & Controls	LS	1	$	33,500,000	$	33,500,000
Maintenance Equipment (Special)	LS	1	$	1,650,000	$	1,650,000
Roadway & Structures Subtotal					$	1,824,721,135

Roadway & Structures Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	5%	$	91,236,057
Seeding, Wetlands, Stream and Site Impacts	LS	$ 10,167,100	$	10,167,100
Utilities	LS	$ 10,500,000	$	10,500,000
Drainage & Water Quality (Permanent)	LS	$ 46,018,626	$	46,018,626
Water Quality (Construction)	LS	$ 7,932,500	$	7,932,500
Signing & Striping (General)	1% - 5%	1.5%	$	27,370,817
Traffic Control (Construction)	5% - 25%	4%	$	72,988,845
Mobilization & Staging	4% - 10%	10%	$	182,472,114
Right-of-Way	LS	$ 5,000,000	$	5,000,000
CSS Contingency	15%	15%	$	273,708,170
Total of Roadway & Structures Allowances			$	727,394,229
Total of Roadway & Structures Items & Allowances			$	2,552,115,364

Tunnel Components	**Units**	**Quantity**		**Unit Cost**		**Cost**
Twin Tunnels - New Bore	LF	1,300	$	35,833	$	46,582,900
Twin Tunnels Cross Passages	LS	1	$	1,316,890	$	1,316,890
Twin Tunnels - New Bore Systems	LS	1	$	6,601,000	$	6,601,000
Hidden Valley Tunnels (1) (EB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) Cross Passages	LS	-	$	-	$	-
Hidden Valley Tunnels (1) Systems	LS	-	$	-	$	-
Hidden Valley Tunnel (2) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnel (2) Cross Passage	LS	-	$	-	$	-
Hidden Valley Tunnel (2) Systems	LS	-	$	-	$	-
EJMT Approaches	LF	5,200	$	25,000	$	130,000,000
EJMT North Bore	LF	8,700	$	57,446	$	499,780,200
EJMT Cross Passages	LS	1	$	24,189,130	$	24,189,130
EJMT Systems	LS	1	$	55,025,500	$	55,025,500
Tunnel Components Subtotal					$	763,495,620

Tunnel Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	4%	$	30,539,825
Seeding, Wetlands, Stream and Site Impacts	LS	$ 22,350	$	22,350
Utilities	LS	$ 15,000,000	$	15,000,000
Drainage & Water Quality (Permanent)	LS	$ 9,887,000	$	9,887,000
Water Quality (Construction)	LS	$ 191,500	$	191,500
Signing & Striping (General)	1% - 2%	0.5%	$	3,817,478
Traffic Control (Construction)	1% - 2%	1.0%	$	7,634,956
Mobilization & Staging	5% - 15%	10%	$	76,349,562
Right-of-Way	LS	$ -	$	-
CSS Contingency	15%	15%	$	114,524,343
Total of Tunnel Allowances			$	257,967,014
Total of Tunnel Components & Allowances			$	1,021,462,634

I-70 Cost Estimate Build-Up **Alt01_Opt02**

2 tolled reversible managed lanes and I-70 designed at 65 mph. This option matches Alt01_ Opt01 except from East Idaho Springs to Floyd Hill, where the reversible managed lanes and I-70 will be reconstructed to meet a 65 mph design speed.

CAPITAL COSTS

Transit Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Vehicles	EA	22	$ 600,000	$ 13,200,000
Infrastructure	LS	1		$ -
Stations - Basic	EA	11	$ 1,850,000	$ 20,350,000
Stations - Major	EA	1	$ 8,000,000	$ 8,000,000
Maintenance Barn	EA	1	$ 15,000,000	$ 15,000,000
Transit Components Subtotal				$ 56,550,000

Transit Allowances	**% Range or Units**	**% Cost or Cost**	**Cost**
Allowances (Unallocated Items)	1% - 10%	20%	$ 11,310,000
Seeding, Wetlands, Stream and Site Impacts	LS	$ 10,000,000	$ 10,000,000
Utilities	LS	$ 2,167,500	$ 2,167,500
Drainage & Water Quality (Permanent)	LS	$ 4,335,000	$ 4,335,000
Water Quality (Construction)	LS	$ 433,500	$ 433,500
Signing & Striping (General)	1% - 5%		$ -
Traffic Control (Construction)	5% - 25%	5%	$ 2,827,500
Mobilization & Staging	4% - 10%	4%	$ 2,262,000
Right-of-Way	LS	$ 3,054,000	$ 3,054,000
CSS Contingency	15%	15%	$ 8,482,500
Transit Allowance Total			$ 44,872,000
Transit Components & Allowance Total			$ 101,422,000

SUMMARY OF CAPITAL COSTS	**Cost**
Roadway & Structures & Allowances	$ 2,552,115,364
Tunnel Components & Allowances	$ 1,021,462,634
Transit Components & Allowances	$ 101,422,000
Roadway, Structures, Tunnels, Transit Construction Total	$ 3,674,999,998

DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**	**Cost**
NEPA	LS	$ -	$ 19,506,960
Roadway & Structures Preliminary & Final Design	8% - 12%	12%	$ 306,253,844
Tunnels Preliminary & Final Design	8% - 12%	10%	$ 102,146,263
Transit Preliminary & Final Design	8% - 12%	8%	$ 8,113,760
CSS Design Contingency	19%	19%	$ 79,137,635
Preliminary & Final Design Total			$ 515,158,462
Roadway & Structures Construction Engineering	6% - 10%	8%	$ 204,169,229
Tunnels Construction Engineering	6% - 10%	8%	$ 81,717,011
Transit Construction Engineering	4% - 10%	4%	$ 4,056,880
Construction Engineering Total			$ 289,943,120
Preliminary & Final Design & Construction Engineering Total			$ 805,101,582

Project Capital, Design, & Construction Engineering Total	$ 4,480,101,580

I-70 Cost Estimate Build-Up **Alt01_Opt02**

2 tolled reversible managed lanes and I-70 designed at 65 mph. This option matches Alt01_ Opt01 except from East Idaho Springs to Floyd Hill, where the reversible managed lanes and I-70 will be reconstructed to meet a 65 mph design speed.

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	107	$	10,030	$	1,077,237
Routine Maintenance	LM	107	$	9,754	$	1,047,610
Pavement Rehabilitation	LM	107	$	14,132	$	1,517,734
ITS Operations	LS	1	$	4,400,000	$	4,400,000
Tolling Operations	LS	1	$	2,700,000	$	2,700,000
Long Term Capital Replacement	LS	1	$	5,896,853	$	5,896,853
Roadway, Structures O&M Total Cost per Year					$	16,639,434

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	4	$	812,826	$	3,161,893
Pavement Rehabilitation	LM	3	$	14,132	$	48,047
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	3,209,941

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	11,994,813	$	11,994,813
Vehicle Maintenance	LS	1	$	3,271,313	$	3,271,313
Infrastructure Maintenance	LS	1	$	2,617,050	$	2,617,050
Long Term Capital Replacement	LS	1	$	8,112,719	$	8,112,719
General & Administrative	LS	1	$	3,925,575	$	3,925,575
Transit O&M Total Costs per Year					$	29,921,470

Project Operations & Maintenance Total per year	$	49,770,844

I-70 Cost Estimate Build-Up **Alt02_Opt01**

3 tolled reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct from East Idaho Springs to Floyd Hill in order to maintain 65 mph design speed. General Purpose lanes designed at 55 mph except from East Idaho Springs to Floyd Hill, where existing design speeds and lanes will remain.

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**		**Unit Cost**		**Cost**
Structures - Basic	SF	2,543,800	$	150	$	381,570,000
Special Structures - Complex	SF	519,750	$	200	$	103,950,000
Special Structures - Fly-Over	SF	396,000	$	225	$	89,100,000
Special Structures - Viaduct	SF	51,050	$	225	$	11,486,250
Interchanges	LS	1	$	457,755,880	$	457,755,880
Wildlife Crossings - Structures	LS	1	$	181,900,000	$	181,900,000
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$	10,812,000	$	10,812,000
Walls - Cut	SF	831,260	$	75	$	62,344,500
Walls - Fill	SF	2,114,440	$	50	$	105,722,000
Excavation - Rock Cut	CY	5,633,500	$	50	$	281,675,000
Embankment	CY	3,603,020	$	6	$	21,618,120
Pavement Resurfacing	Ton	138,500	$	80	$	11,080,000
Pavement - Full Depth	Ton	1,598,460	$	70	$	111,892,200
Base Course	CY	890,190	$	25	$	22,254,750
Barrier - Type 7	LF	759,280	$	50	$	37,964,000
Barrier - Retaining	LF	325,410	$	125	$	40,676,250
Guardrail - Type 3	LF	56,020	$	20	$	1,120,400
ITS	LS	1	$	55,700,000	$	55,700,000
Transportation & Operation Center	LS	1	$	25,000,000	$	25,000,000
Tolling, Gates, & Controls	LS	1	$	36,300,000	$	36,300,000
Maintenance Equipment (Special)	LS	1	$	1,650,000	$	1,650,000
Roadway & Structures Subtotal					$	2,051,571,350

Roadway & Structures Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	5%	$	102,578,568
Seeding, Wetlands, Stream and Site Impacts	LS	$ 11,251,387	$	11,251,387
Utilities	LS	$ 10,500,000	$	10,500,000
Drainage & Water Quality (Permanent)	LS	$ 44,555,924	$	44,555,924
Water Quality (Construction)	LS	$ 8,627,500	$	8,627,500
Signing & Striping (General)	1% - 5%	1.5%	$	30,773,570
Traffic Control (Construction) Excluding Viaduct	5% - 25%	3%	$	61,202,553
Mobilization & Staging	4% - 10%	10%	$	205,157,135
Right-of-Way	LS	$ 10,000,000	$	10,000,000
CSS Contingency	15%	15%	$	307,735,703
Total of Roadway & Structures Allowances			$	792,382,339
Total of Roadway & Structures Items & Allowances			$	2,843,953,689

Tunnel Components	**Units**	**Quantity**		**Unit Cost**		**Cost**
Twin Tunnels - New Bore	LF	1,650	$	44,752	$	73,840,800
Twin Tunnels Cross Passages	LS	1	$	1,663,440	$	1,663,440
Twin Tunnels - New Bore Systems	LS	1	$	7,750,000	$	7,750,000
Hidden Valley Tunnels (1) (EB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) Cross Passages	LS	-	$	-	$	-
Hidden Valley Tunnels (1) Systems	LS	-	$	-	$	-
Hidden Valley Tunnel (2) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnel (2) Cross Passage	LS	-	$	-	$	-
Hidden Valley Tunnel (2) Systems	LS	-	$	-	$	-
EJMT Approaches	LF	5,200	$	25,000	$	130,000,000
EJMT North Bore	LF	8,700	$	72,363	$	629,558,100
EJMT Cross Passages	LS	1	$	24,119,880	$	24,119,880
EJMT Systems	LS	1	$	59,247,500	$	59,247,500
Tunnel Components Subtotal					$	926,179,720

Tunnel Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	4%	$	37,047,189
Seeding, Wetlands, Stream and Site Impacts	LS	$ 22,500	$	22,500
Utilities	LS	$ 15,000,000	$	15,000,000
Drainage & Water Quality (Permanent)	LS	$ 10,592,000	$	10,592,000
Water Quality (Construction)	LS	$ 191,500	$	191,500
Signing & Striping (General)	1% - 2%	0.5%	$	4,630,899
Traffic Control (Construction)	1% - 2%	1.0%	$	9,261,797
Mobilization & Staging	5% - 15%	10%	$	92,617,972
Right-of-Way	LS	$ -	$	-
CSS Contingency	15%	15%	$	138,926,958
Total of Tunnel Allowances			$	308,290,815
Total of Tunnel Components & Allowances			$	1,234,470,535

I-70 Cost Estimate Build-Up **Alt02_Opt01**

3 tolled reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct from East Idaho Springs to Floyd Hill in order to maintain 65 mph design speed. General Purpose lanes designed at 55 mph except from East Idaho Springs to Floyd Hill, where existing design speeds and lanes will remain.

CAPITAL COSTS

Transit Components	**Units**	**Quantity**		**Unit Cost**		**Cost**
Vehicles	EA	22	$	600,000	$	13,200,000
Infrastructure	LS	1			$	-
Stations - Basic	EA	11	$	1,850,000	$	20,350,000
Stations - Major	EA	1	$	8,000,000	$	8,000,000
Maintenance Barn	EA	1	$	15,000,000	$	15,000,000
Transit Components Subtotal					$	56,550,000
Transit Allowances		**% Range or Units**		**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)		1% - 10%		20%	$	11,310,000
Seeding, Wetlands, Stream and Site Impacts		LS	$	10,000,000	$	10,000,000
Utilities		LS	$	2,167,500	$	2,167,500
Drainage & Water Quality (Permanent)		LS	$	4,335,000	$	4,335,000
Water Quality (Construction)		LS	$	433,500	$	433,500
Signing & Striping (General)		1% - 5%			$	-
Traffic Control (Construction)		5% - 25%		5%	$	2,827,500
Mobilization & Staging		4% - 10%		4%	$	2,262,000
Right-of-Way		LS	$	3,054,000	$	3,054,000
CSS Contingency		15%		15%	$	8,482,500
Transit Allowance Total					$	44,872,000
Transit Components & Allowance Total					$	101,422,000

SUMMARY OF CAPITAL COSTS		**Cost**
Roadway & Structures & Allowances	$	2,843,953,689
Tunnel Components & Allowances	$	1,234,470,535
Transit Components & Allowances	$	101,422,000
Roadway, Structures, Tunnels, Transit Construction Total	$	4,179,846,224

DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**		**Cost**
NEPA	LS	$	-	$ 19,506,960
Roadway & Structures Preliminary & Final Design	8% - 12%	12%		$ 341,274,443
Tunnels Preliminary & Final Design	8% - 12%	10%		$ 123,447,053
Transit Preliminary & Final Design	8% - 12%	8%		$ 8,113,760
CSS Design Contingency	19%	19%		$ 89,838,699
Preliminary & Final Design Total				$ 582,180,915
Roadway & Structures Construction Engineering	6% - 10%	8%		$ 227,516,295
Tunnels Construction Engineering	6% - 10%	8%		$ 98,757,643
Transit Construction Engineering	4% - 10%	4%		$ 4,056,880
Construction Engineering Total				$ 330,330,818
Preliminary & Final Design & Construction Engineering Total				$ 912,511,733

Project Capital, Design, & Construction Engineering Total	$	5,092,357,957

I-70 Cost Estimate Build-Up **Alt02_Opt01**

3 tolled reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct from East Idaho Springs to Floyd Hill in order to maintain 65 mph design speed. General Purpose lanes designed at 55 mph except from East Idaho Springs to Floyd Hill, where existing design speeds and lanes will remain.

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	161	$	8,758	$	1,410,854
Routine Maintenance	LM	161	$	9,364	$	1,508,584
Pavement Rehabilitation	LM	161	$	14,132	$	2,276,601
ITS Operations	LS	1	$	4,500,000	$	4,500,000
Tolling Operations	LS	1	$	2,900,000	$	2,900,000
Long Term Capital Replacement	LS	1	$	6,503,259	$	6,503,259
Roadway, Structures O&M Total Cost per Year					$	19,099,298

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	6	$	789,565	$	4,768,973
Pavement Rehabilitation	LM	5	$	14,132	$	72,071
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	4,841,044

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	11,994,813	$	11,994,813
Vehicle Maintenance	LS	1	$	3,271,313	$	3,271,313
Infrastructure Maintenance	LS	1	$	2,617,050	$	2,617,050
Long Term Capital Replacement	LS	1	$	8,112,719	$	8,112,719
General & Administrative	LS	1	$	3,925,575	$	3,925,575
Transit O&M Total Costs per Year					$	29,921,470

Project Operations & Maintenance Total per year	$	53,861,812

I-70 Cost Estimate Build-Up **Alt02_Opt02**

3 tolled reversible managed lanes designed at 65 mph. This option matches Alt02_ Opt01 except from East Idaho Springs to Floyd Hill, where the reversible managed lanes and I-70 General Purpose lanes will be reconstructed to meet a 65 mph design speed.

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**		**Unit Cost**		**Cost**
Structures - Basic	SF	1,907,550	$	150	$	286,132,500
Special Structures - Complex	SF	1,299,400	$	200	$	259,880,000
Special Structures - Fly-Over	SF	394,000	$	225	$	88,650,000
Special Structures - Viaduct	SF	599,250	$	225	$	134,831,250
Interchanges	LS	1	$	341,145,390	$	341,145,390
Wildlife Crossings - Structures	LS	1	$	204,000,000	$	204,000,000
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$	10,812,000	$	10,812,000
Walls - Cut	SF	855,450	$	75	$	64,158,750
Walls - Fill	SF	2,260,240	$	50	$	113,012,000
Excavation - Rock Cut	CY	6,874,090	$	50	$	343,704,500
Embankment	CY	4,240,540	$	6	$	25,443,240
Pavement Resurfacing	Ton	138,120	$	80	$	11,049,600
Pavement - Full Depth	Ton	1,657,490	$	70	$	116,024,300
Base Course	CY	924,230	$	25	$	23,105,750
Barrier - Type 7	LF	710,640	$	50	$	35,532,000
Barrier - Retaining	LF	304,560	$	125	$	38,070,000
Guardrail - Type 3	LF	59,920	$	20	$	1,198,400
ITS	LS	1	$	55,700,000	$	55,700,000
Transportation & Operation Center	LS	1	$	25,000,000	$	25,000,000
Tolling, Gates, & Controls	LS	1	$	36,300,000	$	36,300,000
Maintenance Equipment (Special)	LS	1	$	1,650,000	$	1,650,000
Roadway & Structures Subtotal					$	2,215,399,680

Roadway & Structures Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	5%	$	110,769,984
Seeding, Wetlands, Stream and Site Impacts	LS	$ 11,251,387	$	11,251,387
Utilities	LS	$ 11,100,000	$	11,100,000
Drainage & Water Quality (Permanent)	LS	$ 46,431,440	$	46,431,440
Water Quality (Construction)	LS	$ 8,627,500	$	8,627,500
Signing & Striping (General)	1% - 5%	1.5%	$	33,230,995
Traffic Control (Construction)	5% - 25%	4%	$	88,615,987
Mobilization & Staging	4% - 10%	10%	$	221,539,968
Right-of-Way	LS	$ 10,000,000	$	10,000,000
CSS Contingency	15%	15%	$	332,309,952
Total of Roadway & Structures Allowances			$	873,877,213
Total of Roadway & Structures Items & Allowances			$	3,089,276,893

Tunnel Components	**Units**	**Quantity**		**Unit Cost**		**Cost**
Twin Tunnels - New Bore	LF	1,650	$	44,752	$	73,840,800
Twin Tunnels Cross Passages	LS	1	$	1,663,440	$	1,663,440
Twin Tunnels - New Bore Systems	LS	1	$	7,750,000	$	7,750,000
Hidden Valley Tunnels (1) (EB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) Cross Passages	LS	-	$	-	$	-
Hidden Valley Tunnels (1) Systems	LS	-	$	-	$	-
Hidden Valley Tunnel (2) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnel (2) Cross Passage	LS	-	$	-	$	-
Hidden Valley Tunnel (2) Systems	LS	-	$	-	$	-
EJMT Approaches	LF	5,200	$	25,000	$	130,000,000
EJMT North Bore	LF	8,700	$	72,363	$	629,558,100
EJMT Cross Passages	LS	1	$	24,119,880	$	24,119,880
EJMT Systems	LS	1	$	59,247,500	$	59,247,500
Tunnel Components Subtotal					$	926,179,720

Tunnel Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	4%	$	37,047,189
Seeding, Wetlands, Stream and Site Impacts	LS		$	22,500
Utilities	LS	$ 15,000,000	$	15,000,000
Drainage & Water Quality (Permanent)	LS	$ 10,592,000	$	10,592,000
Water Quality (Construction)	LS	$ 191,500	$	191,500
Signing & Striping (General)	1% - 2%	0.5%	$	4,630,899
Traffic Control (Construction)	1% - 2%	1.0%	$	9,261,797
Mobilization & Staging	5% - 15%	10%	$	92,617,972
Right-of-Way	LS	$ -	$	-
CSS Contingency	15%	15%	$	138,926,958
Total of Tunnel Allowances			$	308,290,815
Total of Tunnel Components & Allowances			$	1,234,470,535

I-70 Cost Estimate Build-Up **Alt02_Opt02**

3 tolled reversible managed lanes designed at 65 mph. This option matches Alt02_ Opt01 except from East Idaho Springs to Floyd Hill, where the reversible managed lanes and I-70 General Purpose lanes will be reconstructed to meet a 65 mph design speed.

CAPITAL COSTS

Transit Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Vehicles	EA	22	$ 600,000	$ 13,200,000
Infrastructure	LS	1		$ -
Stations - Basic	EA	11	$ 1,850,000	$ 20,350,000
Stations - Major	EA	1	$ 8,000,000	$ 8,000,000
Maintenance Barn	EA	1	$ 15,000,000	$ 15,000,000
Transit Components Subtotal				$ 56,550,000

Transit Allowances	**% Range or Units**	**% Cost or Cost**	**Cost**
Allowances (Unallocated Items)	1% - 10%	20%	$ 11,310,000
Seeding, Wetlands, Stream and Site Impacts	LS	$ 10,000,000	$ 10,000,000
Utilities	LS	$ 2,167,500	$ 2,167,500
Drainage & Water Quality (Permanent)	LS	$ 4,335,000	$ 4,335,000
Water Quality (Construction)	LS	$ 433,500	$ 433,500
Signing & Striping (General)	1% - 5%		$ -
Traffic Control (Construction)	5% - 25%	5%	$ 2,827,500
Mobilization & Staging	4% - 10%	4%	$ 2,262,000
Right-of-Way	LS	$ 3,054,000	$ 3,054,000
CSS Contingency	15%	15%	$ 8,482,500
Transit Allowance Total			$ 44,872,000
Transit Components & Allowance Total			$ 101,422,000

SUMMARY OF CAPITAL COSTS	**Cost**
Roadway & Structures & Allowances	$ 3,089,276,893
Tunnel Components & Allowances	$ 1,234,470,535
Transit Components & Allowances	$ 101,422,000
Roadway, Structures, Tunnels, Transit Construction Total	$ 4,425,169,428

DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**	**Cost**
NEPA	LS	$ -	$ 19,506,960
Roadway & Structures Preliminary & Final Design	8% - 12%	12%	$ 370,713,227
Tunnels Preliminary & Final Design	8% - 12%	10%	$ 123,447,053
Transit Preliminary & Final Design	8% - 12%	8%	$ 8,113,760
CSS Design Contingency	19%	19%	$ 95,432,068
Preliminary & Final Design Total			$ 617,213,068
Roadway & Structures Construction Engineering	6% - 10%	8%	$ 247,142,151
Tunnels Construction Engineering	6% - 10%	8%	$ 98,757,643
Transit Construction Engineering	4% - 10%	4%	$ 4,056,880
Construction Engineering Total			$ 349,956,674
Preliminary & Final Design & Construction Engineering Total			$ 967,169,743

Project Capital, Design, & Construction Engineering Total	$ 5,392,339,171

I-70 Cost Estimate Build-Up **Alt02_Opt02**

3 tolled reversible managed lanes designed at 65 mph. This option matches Alt02_ Opt01 except from East Idaho Springs to Floyd Hill, where the reversible managed lanes and I-70 General Purpose lanes will be reconstructed to meet a 65 mph design speed.

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	161	$	8,758	$	1,410,854
Routine Maintenance	LM	161	$	9,364	$	1,508,584
Pavement Rehabilitation	LM	161	$	14,132	$	2,276,601
ITS Operations	LS	1	$	4,500,000	$	4,500,000
Tolling Operations	LS	1	$	2,900,000	$	2,900,000
Long Term Capital Replacement	LS	1	$	6,774,608	$	6,774,608
Roadway, Structures O&M Total Cost per Year					$	19,370,647

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	6	$	789,565	$	4,768,973
Pavement Rehabilitation	LM	5	$	14,132	$	72,071
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	4,841,044

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	11,994,813	$	11,994,813
Vehicle Maintenance	LS	1	$	3,271,313	$	3,271,313
Infrastructure Maintenance	LS	1	$	2,617,050	$	2,617,050
Long Term Capital Replacement	LS	1	$	8,112,719	$	8,112,719
General & Administrative	LS	1	$	3,925,575	$	3,925,575
Transit O&M Total Costs per Year					$	29,921,470

Project Operations & Maintenance Total per year	$	54,133,161

I-70 Cost Estimate Build-Up **Alt02_Opt03**

3 tolled reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct structure from West Idaho Springs to Floyd Hill to minimize impacts. General Purpose lanes designed at 65 mph except from West Idaho Springs to Floyd Hill where existing design speeds and lanes will remain. This option matches Alt02_ Opt01 except viaduct extends to West Idaho Springs.

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**		**Unit Cost**		**Cost**
Structures - Basic	SF	3,188,500	$	150	$	478,275,000
Special Structures - Complex	SF	435,175	$	200	$	87,035,000
Special Structures - Fly-Over	SF	365,225	$	225	$	82,175,625
Special Structures - Viaduct	SF	51,025	$	225	$	11,480,625
Interchanges	LS	1	$	453,252,100	$	453,252,100
Wildlife Crossings - Structures	LS	1	$	181,900,000	$	181,900,000
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$	10,812,000	$	10,812,000
Walls - Cut	SF	697,480	$	75	$	52,311,000
Walls - Fill	SF	2,043,650	$	50	$	102,182,500
Excavation - Rock Cut	CY	5,193,120	$	50	$	259,656,000
Embankment	CY	3,467,220	$	6	$	20,803,320
Pavement Resurfacing	Ton	143,230	$	80	$	11,458,400
Pavement - Full Depth	Ton	1,503,850	$	70	$	105,269,500
Base Course	CY	833,840	$	25	$	20,846,000
Barrier - Type 7	LF	738,220	$	50	$	36,911,000
Barrier - Retaining	LF	316,380	$	125	$	39,547,500
Guardrail - Type 3	LF	48,880	$	20	$	977,600
ITS	LS	1	$	55,700,000	$	55,700,000
Transportation & Operation Center	LS	1	$	25,000,000	$	25,000,000
Tolling, Gates, & Controls	LS	1	$	36,300,000	$	36,300,000
Maintenance Equipment (Special)	LS	1	$	1,650,000	$	1,650,000
Roadway & Structures Subtotal					$	2,073,543,170

Roadway & Structures Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	5%	$	103,677,159
Seeding, Wetlands, Stream and Site Impacts	LS	$ 11,251,387	$	11,251,387
Utilities	LS	$ 9,900,000	$	9,900,000
Drainage & Water Quality (Permanent)	LS	$ 44,555,924	$	44,555,924
Water Quality (Construction)	LS	$ 8,627,500	$	8,627,500
Signing & Striping (General)	1% - 5%	1.5%	$	31,103,148
Traffic Control (Construction) Excluding Viaduct	5% - 25%	4%	$	82,482,502
Mobilization & Staging	4% - 10%	10%	$	207,354,317
Right-of-Way	LS	$ 10,000,000	$	10,000,000
CSS Contingency	15%	15%	$	311,031,476
Total of Roadway & Structures Allowances			$	819,983,411
Total of Roadway & Structures Items & Allowances			$	2,893,526,581

Tunnel Components	**Units**	**Quantity**		**Unit Cost**		**Cost**
Twin Tunnels - New Bore	LF	1,650	$	44,752	$	73,840,800
Twin Tunnels Cross Passages	LS	1	$	1,663,440	$	1,663,440
Twin Tunnels - New Bore Systems	LS	1	$	7,750,000	$	7,750,000
Hidden Valley Tunnels (1) (EB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) Cross Passages	LS	-	$	-	$	-
Hidden Valley Tunnels (1) Systems	LS	-	$	-	$	-
Hidden Valley Tunnel (2) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnel (2) Cross Passage	LS	-	$	-	$	-
Hidden Valley Tunnel (2) Systems	LS	-	$	-	$	-
EJMT Approaches	LF	5,200	$	25,000	$	130,000,000
EJMT North Bore	LF	8,700	$	72,363	$	629,558,100
EJMT Cross Passages	LS	1	$	24,119,880	$	24,119,880
EJMT Systems	LS	1	$	59,247,500	$	59,247,500
Tunnel Components Subtotal					$	926,179,720

Tunnel Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	4%	$	37,047,189
Seeding, Wetlands, Stream and Site Impacts	LS	$ 22,500	$	22,500
Utilities	LS	$ 15,000,000	$	15,000,000
Drainage & Water Quality (Permanent)	LS	$ 10,592,000	$	10,592,000
Water Quality (Construction)	LS	$ 191,500	$	191,500
Signing & Striping (General)	1% - 2%	0.5%	$	4,630,899
Traffic Control (Construction)	1% - 2%	1.0%	$	9,261,797
Mobilization & Staging	5% - 15%	10%	$	92,617,972
Right-of-Way	LS	$ -	$	-
CSS Contingency	15%	15%	$	138,926,958
Total of Tunnel Allowances			$	308,290,815
Total of Tunnel Components & Allowances			$	1,234,470,535

I-70 Cost Estimate Build-Up **Alt02_Opt03**

3 tolled reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct structure from West Idaho Springs to Floyd Hill to minimize impacts. General Purpose lanes designed at 65 mph except from West Idaho Springs to Floyd Hill where existing design speeds and lanes will remain. This option matches Alt02_ Opt01 except viaduct extends to West Idaho Springs.

CAPITAL COSTS

Transit Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Vehicles	EA	22	$ 600,000	$ 13,200,000
Infrastructure	LS	1		$ -
Stations - Basic	EA	11	$ 1,850,000	$ 20,350,000
Stations - Major	EA	1	$ 8,000,000	$ 8,000,000
Maintenance Barn	EA	1	$ 15,000,000	$ 15,000,000
Transit Components Subtotal				$ 56,550,000

Transit Allowances	**% Range or Units**	**% Cost or Cost**	**Cost**
Allowances (Unallocated Items)	1% - 10%	20%	$ 11,310,000
Seeding, Wetlands, Stream and Site Impacts	LS	$ 10,000,000	$ 10,000,000
Utilities	LS	$ 2,167,500	$ 2,167,500
Drainage & Water Quality (Permanent)	LS	$ 4,335,000	$ 4,335,000
Water Quality (Construction)	LS	$ 433,500	$ 433,500
Signing & Striping (General)	1% - 5%		$ -
Traffic Control (Construction)	5% - 25%	5%	$ 2,827,500
Mobilization & Staging	4% - 10%	4%	$ 2,262,000
Right-of-Way	LS	$ 3,054,000	$ 3,054,000
CSS Contingency	15%	15%	$ 8,482,500
Transit Allowance Total			$ 44,872,000
Transit Components & Allowance Total			$ 101,422,000

SUMMARY OF CAPITAL COSTS	**Cost**
Roadway & Structures & Allowances	$ 2,893,526,581
Tunnel Components & Allowances	$ 1,234,470,535
Transit Components & Allowances	$ 101,422,000
Roadway, Structures, Tunnels, Transit Construction Total	$ 4,229,419,116

DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**	**Cost**
NEPA	LS	$ -	$ 19,506,960
Roadway & Structures Preliminary & Final Design	8% - 12%	12%	$ 347,223,190
Tunnels Preliminary & Final Design	8% - 12%	10%	$ 123,447,053
Transit Preliminary & Final Design	8% - 12%	8%	$ 8,113,760
CSS Design Contingency	19%	19%	$ 90,968,961
Preliminary & Final Design Total			$ 589,259,924
Roadway & Structures Construction Engineering	6% - 10%	8%	$ 231,482,127
Tunnels Construction Engineering	6% - 10%	8%	$ 98,757,643
Transit Construction Engineering	4% - 10%	4%	$ 4,056,880
Construction Engineering Total			$ 334,296,649
Preliminary & Final Design & Construction Engineering Total			$ 923,556,573

Project Capital, Design, & Construction Engineering Total	$ 5,152,975,689

I-70 Cost Estimate Build-Up **Alt02_Opt03**

3 tolled reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct structure from West Idaho Springs to Floyd Hill to minimize impacts. General Purpose lanes designed at 65 mph except from West Idaho Springs to Floyd Hill where existing design speeds and lanes will remain. This option matches Alt02_ Opt01 except viaduct extends to West Idaho Springs.

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	161	$	8,758	$	1,410,854
Routine Maintenance	LM	161	$	9,364	$	1,508,584
Pavement Rehabilitation	LM	161	$	14,132	$	2,276,601
ITS Operations	LS	1	$	4,500,000	$	4,500,000
Tolling Operations	LS	1	$	2,900,000	$	2,900,000
Long Term Capital Replacement	LS	1	$	6,711,542	$	6,711,542
Roadway, Structures O&M Total Cost per Year					$	19,307,581

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	6	$	789,565	$	4,768,973
Pavement Rehabilitation	LM	5	$	14,132	$	72,071
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	4,841,044

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	11,994,813	$	11,994,813
Vehicle Maintenance	LS	1	$	3,271,313	$	3,271,313
Infrastructure Maintenance	LS	1	$	2,617,050	$	2,617,050
Long Term Capital Replacement	LS	1	$	8,112,719	$	8,112,719
General & Administrative	LS	1	$	3,925,575	$	3,925,575
Transit O&M Total Costs per Year					$	29,921,470

Project Operations & Maintenance Total per year		$	54,070,095

I-70 Cost Estimate Build-Up **Alt03_Opt01**

Minimum program per PEIS with 55 mph design speed including a 3rd bore at EJMT. Minimum program is generally localized auxillary lane improvements.

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**		**Unit Cost**		**Cost**
Structures - Basic	SF	118,975	$	150	$	17,846,250
Special Structures - Complex	SF	137,725	$	200	$	27,545,000
Special Structures - Fly-Over	SF	-	$	225	$	-
Special Structures - Viaduct	SF	-	$	225	$	-
Interchanges	LS	1	$	38,053,600	$	38,053,600
Wildlife Crossings - Structures	LS	1	$	43,825,000	$	43,825,000
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$	4,685,000	$	4,685,000
Walls - Cut	SF	130,930	$	75	$	9,819,750
Walls - Fill	SF	231,550	$	50	$	11,577,500
Excavation - Rock Cut	CY	1,292,100	$	50	$	64,605,000
Embankment	CY	469,630	$	6	$	2,817,780
Pavement Resurfacing	Ton	82,500	$	80	$	6,600,000
Pavement - Full Depth	Ton	286,860	$	70	$	20,080,200
Base Course	CY	167,400	$	25	$	4,185,000
Barrier - Type 7	LF	73,580	$	50	$	3,679,000
Barrier - Retaining	LF	-	$	125	$	-
Guardrail - Type 3	LF	34,780	$	20	$	695,600
ITS	LS	1	$	30,700,000	$	30,700,000
Transportation & Operation Center	LS	1	$	15,200,000	$	15,200,000
Tolling, Gates, & Controls	LS	1	$	3,400,000	$	3,400,000
Maintenance Equipment (Special)	LS	1	$	650,000	$	650,000
Roadway & Structures Subtotal					$	305,964,680

Roadway & Structures Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	5%	$	15,298,234
Seeding, Wetlands, Stream and Site Impacts	LS	$ 1,612,997	$	1,612,997
Utilities	LS	$ 4,200,000	$	4,200,000
Drainage & Water Quality (Permanent)	LS	$ 20,373,662	$	20,373,662
Water Quality (Construction)	LS	$ 2,818,000	$	2,818,000
Signing & Striping (General)	1% - 5%	1.5%	$	4,589,470
Traffic Control (Construction)	5% - 25%	7%	$	21,417,528
Mobilization & Staging	4% - 10%	10%	$	30,596,468
Right-of-Way	LS	$ 650,000	$	650,000
CSS Contingency	15%	15%	$	45,894,702
Total of Roadway & Structures Allowances			$	147,451,061
Total of Roadway & Structures Items & Allowances			$	453,415,741

Tunnel Components	**Units**	**Quantity**		**Unit Cost**		**Cost**
Twin Tunnels - New Bore	LF	-	$	-	$	-
Twin Tunnels Cross Passages	LS	-	$	-	$	-
Twin Tunnels - New Bore Systems	LS	-	$	-	$	-
Hidden Valley Tunnels (1) (EB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) Cross Passages	LS	-	$	-	$	-
Hidden Valley Tunnels (1) Systems	LS	-	$	-	$	-
Hidden Valley Tunnel (2) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnel (2) Cross Passage	LS	-	$	-	$	-
Hidden Valley Tunnel (2) Systems	LS	-	$	-	$	-
EJMT Approaches	LF	5,200	$	25,000	$	130,000,000
EJMT North Bore	LF	8,700	$	79,628	$	692,763,600
EJMT Cross Passages	LS	1	$	24,119,880	$	24,119,880
EJMT Systems	LS	1	$	58,093,500	$	58,093,500
Tunnel Components Subtotal					$	904,976,980

Tunnel Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	4%	$	36,199,079
Seeding, Wetlands, Stream and Site Impacts	LS	$ 22,350	$	22,350
Utilities	LS	$ 15,000,000	$	15,000,000
Drainage & Water Quality (Permanent)	LS	$ 9,021,000	$	9,021,000
Water Quality (Construction)	LS	$ 191,500	$	191,500
Signing & Striping (General)	1% - 2%	0.5%	$	4,524,885
Traffic Control (Construction)	1% - 2%	1.0%	$	9,049,770
Mobilization & Staging	5% - 15%	10%	$	90,497,698
Right-of-Way	LS	$ -	$	-
CSS Contingency	15%	15%	$	135,746,547
Total of Tunnel Allowances			$	300,252,829
Total of Tunnel Components & Allowances			$	1,205,229,809

I-70 Cost Estimate Build-Up **Alt03_Opt01**

Minimum program per PEIS with 55 mph design speed including a 3rd bore at EJMT. Minimum program is generally localized auxillary lane improvements.

CAPITAL COSTS

Transit Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Vehicles	EA	15		
Infrastructure	LS	1		
Stations - Basic	EA	2		
Stations - Major	EA	2		
Maintenance Barn	EA	1		
Transit Components Subtotal				
Transit Allowances		**% Range or Units**		
Allowances (Unallocated Items)		1% - 10%		
Seeding, Wetlands, Stream and Site Impacts		LS		
Utilities		LS		
Drainage & Water Quality (Permanent)		LS		
Water Quality (Construction)		LS		
Signing & Striping (General)		1% - 5%		
Traffic Control (Construction)		5% - 25%		
Mobilization & Staging		4% - 10%		
Right-of-Way		LS		
CSS Contingency		15%		
Transit Allowance Total				
Transit Components & Allowance Total				$ 5,812,440,000

SUMMARY OF CAPITAL COSTS	**Cost**
Roadway & Structures & Allowances	$ 453,415,741
Tunnel Components & Allowances	$ 1,205,229,809
Transit Components & Allowances (from AGS Study)	$ 5,812,440,000
Roadway, Structures, Tunnels, Transit Construction Total	$ 7,471,085,550

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DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**	**Cost**
NEPA	LS	$ -	$ 13,008,600
Roadway & Structures Preliminary & Final Design	8% - 12%	12%	$ 54,409,889
Tunnels Preliminary & Final Design	8% - 12%	10%	$ 120,522,981
Transit Preliminary & Final Design (Included in AGS Study)	LS		$ 552,181,800
CSS Design Contingency	19%	19%	$ 33,237,245
Preliminary & Final Design Total			$ 773,360,515
Roadway & Structures Construction Engineering	6% - 10%	8%	$ 36,273,259
Tunnels Construction Engineering	6% - 10%	8%	$ 96,418,385
Transit Construction Engineering (Included in AGS Study)	LS		$ 437,218,200
Construction Engineering Total			$ 569,909,844
Preliminary & Final Design & Construction Engineering Total			$ 1,343,270,359

Project Capital, Design, & Construction Engineering Total	$ 8,814,355,909

I-70 Cost Estimate Build-Up **Alt03_Opt01**

Minimum program per PEIS with 55 mph design speed including a 3rd bore at EJMT. Minimum program is generally localized auxillary lane improvements.

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	32	$	6,213	$	195,698
Routine Maintenance	LM	32	$	12,573	$	396,064
Pavement Rehabilitation	LM	32	$	14,132	$	445,145
ITS Operations	LS	1	$	2,500,000	$	2,500,000
Tolling Operations	LS	1	$	275,000	$	275,000
Long Term Capital Replacement	LS	1	$	2,165,964	$	2,165,964
Roadway, Structures O&M Total Cost per Year					$	5,977,871

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	5	$	915,109	$	4,667,056
Pavement Rehabilitation	LM	5	$	14,132	$	72,071
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	4,739,127

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	10,358,040	$	10,358,040
Vehicle Maintenance	LS	1	$	3,816,120	$	3,816,120
Infrastructure Maintenance	LS	1	$	7,087,080	$	7,087,080
Long Term Capital Replacement - annualized	LS	1	$	31,987,212	$	31,987,212
General & Administrative	LS	1	$	5,996,760	$	5,996,760
Transit O&M Total Costs per Year					$	59,245,212

Project Operations & Maintenance Total per year	$	69,962,210

I-70 Cost Estimate Build-Up **Alt03_Opt02**

Minimum program per PEIS with 65 mph design speed including a 3rd bore at EJMT. Minimum program is generally localized auxillary lane improvements.

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**	**Unit Cost**	**Cost**
Structures - Basic	SF	118,975	$ 150	$ 17,846,250
Special Structures - Complex	SF	137,725	$ 200	$ 27,545,000
Special Structures - Fly-Over	SF	-	$ 225	$ -
Special Structures - Viaduct	SF	-	$ 225	$ -
Interchanges	LS	1	$ 38,725,930	$ 38,725,930
Wildlife Crossings - Structures	LS	1	$ 57,575,000	$ 57,575,000
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$ 4,685,000	$ 4,685,000
Walls - Cut	SF	145,650	$ 75	$ 10,923,750
Walls - Fill	SF	211,220	$ 50	$ 10,561,000
Excavation - Rock Cut	CY	1,184,360	$ 50	$ 59,218,000
Embankment	CY	485,610	$ 6	$ 2,913,660
Pavement Resurfacing	Ton	79,420	$ 80	$ 6,353,600
Pavement - Full Depth	Ton	267,900	$ 70	$ 18,753,000
Base Course	CY	156,900	$ 25	$ 3,922,500
Barrier - Type 7	LF	73,900	$ 50	$ 3,695,000
Barrier - Retaining	LF	-	$ 125	$ -
Guardrail - Type 3	LF	29,960	$ 20	$ 599,200
ITS	LS	1	$ 30,700,000	$ 30,700,000
Transportation & Operation Center	LS	1	$ 15,200,000	$ 15,200,000
Tolling, Gates, & Controls	LS	1	$ 3,400,000	$ 3,400,000
Maintenance Equipment (Special)	LS	1	$ 650,000	$ 650,000
Roadway & Structures Subtotal				$ 313,266,890

Roadway & Structures Allowances	**% Range or Units**	**% Cost or Cost**	**Cost**
Allowances (Unallocated Items)	1% - 10%	5%	$ 15,663,345
Seeding, Wetlands, Stream and Site Impacts	LS	$ 1,603,991	$ 1,603,991
Utilities	LS	$ 3,700,000	$ 3,700,000
Drainage & Water Quality (Permanent)	LS	$ 5,879,000	$ 20,373,662
Water Quality (Construction)	LS	$ 2,818,000	$ 2,818,000
Signing & Striping (General)	1% - 5%	1.5%	$ 4,699,003
Traffic Control (Construction)	5% - 25%	8%	$ 25,061,351
Mobilization & Staging	4% - 10%	10%	$ 31,326,689
Right-of-Way	LS	$ 650,000	$ 650,000
CSS Contingency	15%	15%	$ 46,990,034
Total of Roadway & Structures Allowances			$ 152,886,075
Total of Roadway & Structures Items & Allowances			$ 466,152,965

Tunnel Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Twin Tunnels - New Bore	LF	-	$ -	$ -
Twin Tunnels Cross Passages	LS	-	$ -	$ -
Twin Tunnels - New Bore Systems	LS	-	$ -	$ -
Hidden Valley Tunnels (1) (EB)	LF	980	$ 49,113	$ 48,130,740
Hidden Valley Tunnels (1) (WB)	LF	1,070	$ 56,838	$ 60,816,660
Hidden Valley Tunnels (1) Cross Passages	LS	1	$ 69,310	$ 69,310
Hidden Valley Tunnels (1) Systems	LS	1	$ 13,427,000	$ 13,427,000
Hidden Valley Tunnel (2) (WB)	LF	1,650	$ 57,127	$ 94,259,550
Hidden Valley Tunnel (2) Cross Passage	LS	1	$ 3,950,370	$ 3,950,370
Hidden Valley Tunnel (2) Systems	LS	1	$ 8,508,250	$ 8,508,250
EJMT Approaches	LF	5,200	$ 25,000	$ 130,000,000
EJMT North Bore	LF	8,700	$ 79,628	$ 692,763,600
EJMT Cross Passages	LS	1	$ 24,119,880	$ 24,119,880
EJMT Systems	LS	1	$ 58,093,500	$ 58,093,500
Tunnel Components Subtotal				$ 1,134,138,860

Tunnel Allowances	**% Range or Units**	**% Cost or Cost**	**Cost**
Allowances (Unallocated Items)	1% - 10%	4%	$ 45,365,554
Seeding, Wetlands, Stream and Site Impacts	LS	$ 22,350	$ 22,350
Utilities	LS	$ 15,000,000	$ 15,000,000
Drainage & Water Quality (Permanent)	LS	$ 13,000,000	$ 13,000,000
Water Quality (Construction)	LS	$ 268,100	$ 268,100
Signing & Striping (General)	1% - 2%	0.5%	$ 5,670,694
Traffic Control (Construction)	1% - 2%	1.0%	$ 11,341,389
Mobilization & Staging	5% - 15%	10%	$ 113,413,886
Right-of-Way	LS	$ -	$ -
CSS Contingency	15%	15%	$ 170,120,829
Total of Tunnel Allowances			$ 374,202,802
Total of Tunnel Components & Allowances			$ 1,508,341,662

I-70 Cost Estimate Build-Up **Alt03_Opt02**

Minimum program per PEIS with 65 mph design speed including a 3rd bore at EJMT. Minimum program is generally localized auxillary lane improvements.

CAPITAL COSTS

Transit Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Vehicles	EA	15		
Infrastructure	LS	1		
Stations - Basic	EA	2		
Stations - Major	EA	2		
Maintenance Barn	EA	1		
Transit Components Subtotal				
Transit Allowances		**% Range or Units**		
Allowances (Unallocated Items)		1% - 10%		
Seeding, Wetlands, Stream and Site Impacts		LS		
Utilities		LS		
Drainage & Water Quality (Permanent)		LS		
Water Quality (Construction)		LS		
Signing & Striping (General)		1% - 5%		
Traffic Control (Construction)		5% - 25%		
Mobilization & Staging		4% - 10%		
Right-of-Way		LS		
CSS Contingency		15%		
Transit Allowance Total				
Transit Components & Allowance Total				$ 5,812,440,000

SUMMARY OF CAPITAL COSTS	**Cost**
Roadway & Structures & Allowances	$ 466,152,965
Tunnel Components & Allowances	$ 1,508,341,662
Transit Components & Allowances (from AGS Study)	$ 5,812,440,000
Roadway, Structures, Tunnels, Transit Construction Total	$ 7,786,934,627

DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**	**Cost**
NEPA	LS	$ -	$ 13,008,600
Roadway & Structures Preliminary & Final Design	8% - 12%	12%	$ 55,938,356
Tunnels Preliminary & Final Design	8% - 12%	10%	$ 150,834,166
Transit Preliminary & Final Design (Included in AGS Study)	LS		$ 552,181,800
CSS Design Contingency	19%	19%	$ 39,286,779
Preliminary & Final Design Total			$ 811,249,701
Roadway & Structures Construction Engineering	6% - 10%	8%	$ 37,292,237
Tunnels Construction Engineering	6% - 10%	8%	$ 120,667,333
Transit Construction Engineering (Included in AGS Study)	LS		$ 437,218,200
Construction Engineering Total			$ 595,177,770
Preliminary & Final Design & Construction Engineering Total			$ 1,406,427,471

Project Capital, Design, & Construction Engineering Total	$ 9,193,362,098

I-70 Cost Estimate Build-Up **Alt03_Opt02**

Minimum program per PEIS with 65 mph design speed including a 3rd bore at EJMT. Minimum program is generally localized auxillary lane improvements.

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	32	$	6,213	$	195,698
Routine Maintenance	LM	32	$	12,573	$	396,064
Pavement Rehabilitation	LM	32	$	14,132	$	445,145
ITS Operations	LS	1	$	2,500,000	$	2,500,000
Tolling Operations	LS	1	$	275,000	$	275,000
Long Term Capital Replacement	LS	1	$	2,165,964	$	2,165,964
Roadway, Structures O&M Total Cost per Year					$	5,977,871

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	7	$	673,155	$	4,900,568
Pavement Rehabilitation	LM	5	$	14,132	$	72,071
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	4,972,640

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	10,358,040	$	10,358,040
Vehicle Maintenance	LS	1	$	3,816,120	$	3,816,120
Infrastructure Maintenance	LS	1	$	7,087,080	$	7,087,080
Long Term Capital Replacement	LS	1	$	31,987,212	$	31,987,212
General & Administrative	LS	1	$	5,996,760	$	5,996,760
Transit O&M Total Costs per Year					$	59,245,212

Project Operations & Maintenance Total per year		$	70,195,723

I-70 Cost Estimate Build-Up **Alt03_Opt03**

Minimum program per PEIS with 55 mph design speed without a 3rd bore at EJMT. Minimum program is generally localized auxillary lane improvements. Option is similar to Alt03_Opt01 without 3rd bore at EJMT.

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**	**Unit Cost**	**Cost**
Structures - Basic	SF	110,725	$ 150	$ 16,608,750
Special Structures - Complex	SF	137,725	$ 200	$ 27,545,000
Special Structures - Fly-Over	SF	-	$ 225	$ -
Special Structures - Viaduct	SF	-	$ 225	$ -
Interchanges	LS	1	$ 36,853,600	$ 36,853,600
Wildlife Crossings - Structures	LS	1	$ 43,825,000	$ 43,825,000
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$ 4,685,000	$ 4,685,000
Walls - Cut	SF	92,390	$ 75	$ 6,929,250
Walls - Fill	SF	231,550	$ 50	$ 11,577,500
Excavation - Rock Cut	CY	1,175,320	$ 50	$ 58,766,000
Embankment	CY	425,500	$ 6	$ 2,553,000
Pavement Resurfacing	Ton	148,170	$ 80	$ 11,853,600
Pavement - Full Depth	Ton	282,270	$ 70	$ 19,758,900
Base Course	CY	163,840	$ 25	$ 4,096,000
Barrier - Type 7	LF	66,000	$ 50	$ 3,300,000
Barrier - Retaining	LF	-	$ 125	$ -
Guardrail - Type 3	LF	33,550	$ 20	$ 671,000
ITS	LS	1	$ 28,300,000	$ 28,300,000
Transportation & Operation Center	LS	1	$ 15,000,000	$ 15,000,000
Tolling, Gates, & Controls	LS	1	$ 1,800,000	$ 1,800,000
Maintenance Equipment (Special)	LS	1	$ 650,000	$ 650,000
Roadway & Structures Subtotal				$ 294,772,600

Roadway & Structures Allowances	**% Range or Units**	**% Cost or Cost**	**Cost**
Allowances (Unallocated Items)	1% - 10%	5%	$ 14,738,630
Seeding, Wetlands, Stream and Site Impacts	LS	$ 1,635,341	$ 1,635,341
Utilities	LS	$ 2,000,000	$ 2,000,000
Drainage & Water Quality (Permanent)	LS		$ 20,373,662
Water Quality (Construction)	LS	$ 2,818,000	$ 2,818,000
Signing & Striping (General)	1% - 5%	1.5%	$ 4,421,589
Traffic Control (Construction)	5% - 25%	10%	$ 29,477,260
Mobilization & Staging	4% - 10%	10%	$ 29,477,260
Right-of-Way	LS	$ 650,000	$ 650,000
CSS Contingency	15%	15%	$ 44,215,890
Total of Roadway & Structures Allowances			$ 149,807,632
Total of Roadway & Structures Items & Allowances			$ 444,580,232

Tunnel Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Twin Tunnels - New Bore	LF	-		$ -
Twin Tunnels Cross Passages	LS	-		$ -
Twin Tunnels - New Bore Systems	LS	-		$ -
Hidden Valley Tunnels (1) (EB)	LF	-		$ -
Hidden Valley Tunnels (1) (WB)	LF	-		$ -
Hidden Valley Tunnels (1) Cross Passages	LS	-		$ -
Hidden Valley Tunnels (1) Systems	LS	-		$ -
Hidden Valley Tunnel (2) (WB)	LF	-		$ -
Hidden Valley Tunnel (2) Cross Passage	LS	-		$ -
Hidden Valley Tunnel (2) Systems	LS	-		$ -
EJMT Approaches	LF	-		$ -
EJMT North Bore	LF	-		$ -
EJMT Cross Passages	LS	-		$ -
EJMT Systems	LS	-		$ -
Tunnel Components Subtotal				$ -

Tunnel Allowances	**% Range or Units**	**% Cost or Cost**	**Cost**
Allowances (Unallocated Items)	1% - 10%		$ -
Seeding, Wetlands, Stream and Site Impacts	LS		$ -
Utilities	LS		$ -
Drainage & Water Quality (Permanent)	LS		$ -
Water Quality (Construction)	LS		$ -
Signing & Striping (General)	1% - 2%		$ -
Traffic Control (Construction)	1% - 2%		$ -
Mobilization & Staging	5% - 15%		$ -
Right-of-Way	LS		$ -
CSS Contingency	15%	15%	$ -
Total of Tunnel Allowances			$ -
Total of Tunnel Components & Allowances			$ -

I-70 Cost Estimate Build-Up **Alt03_Opt03**

Minimum program per PEIS with 55 mph design speed without a 3rd bore at EJMT. Minimum program is generally localized auxillary lane improvements. Option is similar to Alt03_Opt01 without 3rd bore at EJMT.

CAPITAL COSTS

Transit Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Vehicles	EA	15		
Infrastructure	LS	1		
Stations - Basic	EA	2		
Stations - Major	EA	2		
Maintenance Barn	EA	1		
Transit Components Subtotal				
Transit Allowances		**% Range or Units**		
Allowances (Unallocated Items)		1% - 10%		
Seeding, Wetlands, Stream and Site Impacts		LS		
Utilities		LS		
Drainage & Water Quality (Permanent)		LS		
Water Quality (Construction)		LS		
Signing & Striping (General)		1% - 5%		
Traffic Control (Construction)		5% - 25%		
Mobilization & Staging		4% - 10%		
Right-of-Way		LS		
CSS Contingency		15%		
Transit Allowance Total				
Transit Components & Allowance Total				$ 5,812,440,000

SUMMARY OF CAPITAL COSTS	**Cost**
Roadway & Structures & Allowances	$ 444,580,232
Tunnel Components & Allowances	$ -
Transit Components & Allowances (from AGS Study)	$ 5,812,440,000
Roadway, Structures, Tunnels, Transit Construction Total	$ 6,257,020,232

DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**	**Cost**
NEPA	LS	$ -	$ 13,008,600
Roadway & Structures Preliminary & Final Design	8% - 12%	12%	$ 53,349,628
Tunnels Preliminary & Final Design	8% - 12%	10%	$ -
Transit Preliminary & Final Design (Included in AGS Study)	LS		$ 552,181,800
CSS Design Contingency	19%	19%	$ 10,136,429
Preliminary & Final Design Total			$ 628,676,457
Roadway & Structures Construction Engineering	6% - 10%	8%	$ 35,566,419
Tunnels Construction Engineering	6% - 10%	8%	$ -
Transit Construction Engineering (Included in AGS Study)	LS		$ 437,218,200
Construction Engineering Total			$ 472,784,619
Preliminary & Final Design & Construction Engineering Total			$ 1,101,461,076

Project Capital, Design, & Construction Engineering Total	$ 7,358,481,308

I-70 Cost Estimate Build-Up **Alt03_Opt03**

Minimum program per PEIS with 55 mph design speed without a 3rd bore at EJMT. Minimum program is generally localized auxillary lane improvements. Option is similar to Alt03_Opt01 without 3rd bore at EJMT.

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	32	$	6,213	$	195,698
Routine Maintenance	LM	32	$	12,573	$	396,064
Pavement Rehabilitation	LM	32	$	14,132	$	445,145
ITS Operations	LS	1	$	2,300,000	$	2,300,000
Tolling Operations	LS	1	$	145,000	$	145,000
Long Term Capital Replacement	LS	1	$	1,968,784	$	1,968,784
Roadway, Structures O&M Total Cost per Year					$	5,450,691

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	-	$	-	$	-
Pavement Rehabilitation	LM	-	$	-	$	-
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	-

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	10,358,040	$	10,358,040
Vehicle Maintenance	LS	1	$	3,816,120	$	3,816,120
Infrastructure Maintenance	LS	1	$	7,087,080	$	7,087,080
Long Term Capital Replacement - annualized	LS	1	$	31,987,212	$	31,987,212
General & Administrative	LS	1	$	5,996,760	$	5,996,760
Transit O&M Total Costs per Year					$	59,245,212

Project Operations & Maintenance Total per year	$	64,695,903

I-70 Cost Estimate Build-Up **Alt03_Opt04**

Minimum program per PEIS with 65 mph design speed without a 3rd bore at EJMT. Minimum program is generally localized auxillary lane improvements. Option is similar to Alt03_Opt02 without 3rd bore at EJMT.

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**	**Unit Cost**	**Cost**
Structures - Basic	SF	174,300	$ 150	$ 26,145,000
Special Structures - Complex	SF	95,600	$ 200	$ 19,120,000
Special Structures - Fly-Over	SF	-	$ 225	$ -
Special Structures - Viaduct	SF	-	$ 225	$ -
Interchanges	LS	1	$ 30,525,930	$ 30,525,930
Wildlife Crossings - Structures	LS	1	$ 57,575,000	$ 57,575,000
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$ 4,685,000	$ 4,685,000
Walls - Cut	SF	125,540	$ 75	$ 9,415,500
Walls - Fill	SF	211,220	$ 50	$ 10,561,000
Excavation - Rock Cut	CY	1,057,690	$ 50	$ 52,884,500
Embankment	CY	505,510	$ 6	$ 3,033,060
Pavement Resurfacing	Ton	178,360	$ 80	$ 14,268,800
Pavement - Full Depth	Ton	396,430	$ 70	$ 27,750,100
Base Course	CY	70,630	$ 25	$ 1,765,750
Barrier - Type 7	LF	66,320	$ 50	$ 3,316,000
Barrier - Retaining	LF	-	$ 125	$ -
Guardrail - Type 3	LF	28,730	$ 20	$ 574,600
ITS	LS	1	$ 28,300,000	$ 28,300,000
Transportation & Operation Center	LS	1	$ 15,000,000	$ 15,000,000
Tolling, Gates, & Controls	LS	1	$ 1,800,000	$ 1,800,000
Maintenance Equipment (Special)	LS	1	$ 650,000	$ 650,000
Roadway & Structures Subtotal				$ 307,370,240

Roadway & Structures Allowances	**% Range or Units**	**% Cost or Cost**	**Cost**
Allowances (Unallocated Items)	1% - 10%	5%	$ 15,368,512
Seeding, Wetlands, Stream and Site Impacts	LS	$ 1,603,122	$ 1,603,122
Utilities	LS	$ 1,500,000	$ 1,500,000
Drainage & Water Quality (Permanent)	LS	$ 20,373,662	$ 20,373,662
Water Quality (Construction)	LS	$ 2,818,000	$ 2,818,000
Signing & Striping (General)	1% - 5%	1.5%	$ 4,610,554
Traffic Control (Construction)	5% - 25%	12%	$ 36,884,429
Mobilization & Staging	4% - 10%	10%	$ 30,737,024
Right-of-Way	LS	$ 650,000	$ 650,000
CSS Contingency	15%	15%	$ 46,105,536
Total of Roadway & Structures Allowances			$ 160,650,838
Total of Roadway & Structures Items & Allowances			$ 468,021,078

Tunnel Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Twin Tunnels - New Bore	LF	-	$ -	$ -
Twin Tunnels Cross Passages	LS	-	$ -	$ -
Twin Tunnels - New Bore Systems	LS	-	$ -	$ -
Hidden Valley Tunnels (1) (EB)	LF	980	$ 49,113	$ 48,130,740
Hidden Valley Tunnels (1) (WB)	LF	1,070	$ 56,838	$ 60,816,660
Hidden Valley Tunnels (1) Cross Passages	LS	1	$ 69,310	$ 69,310
Hidden Valley Tunnels (1) Systems	LS	1	$ 13,427,000	$ 13,427,000
Hidden Valley Tunnel (2) (WB)	LF	1,650	$ 57,127	$ 94,259,550
Hidden Valley Tunnel (2) Cross Passage	LS	1	$ 3,950,670	$ 3,950,670
Hidden Valley Tunnel (2) Systems	LS	1	$ 8,505,250	$ 8,505,250
EJMT Approaches	LF	-	$ -	$ -
EJMT North Bore	LF	-	$ -	$ -
EJMT Cross Passages	LS	-	$ -	$ -
EJMT Systems	LS	-	$ -	$ -
Tunnel Components Subtotal				$ 229,159,180

Tunnel Allowances	**% Range or Units**	**% Cost or Cost**	**Cost**
Allowances (Unallocated Items)	1% - 10%	5%	$ 11,457,959
Seeding, Wetlands, Stream and Site Impacts	LS	$ 22,350	$ 22,350
Utilities	LS		$ -
Drainage & Water Quality (Permanent)	LS	$ 3,983,000	$ 3,983,000
Water Quality (Construction)	LS	$ 100,000	$ 100,000
Signing & Striping (General)	1% - 2%	0.5%	$ 1,145,796
Traffic Control (Construction)	1% - 2%	1.0%	$ 2,291,592
Mobilization & Staging	5% - 15%	10%	$ 22,915,918
Right-of-Way	LS	$ -	$ -
CSS Contingency	15%	15%	$ 34,373,877
Total of Tunnel Allowances			$ 76,290,492
Total of Tunnel Components & Allowances			$ 305,449,672

I-70 Cost Estimate Build-Up **Alt03_Opt04**

Minimum program per PEIS with 65 mph design speed without a 3rd bore at EJMT. Minimum program is generally localized auxillary lane improvements. Option is similar to Alt03_Opt02 without 3rd bore at EJMT.

CAPITAL COSTS

Transit Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Vehicles	EA	15		
Infrastructure	LS	1		
Stations - Basic	EA	2		
Stations - Major	EA	2		
Maintenance Barn	EA	1		
Transit Components Subtotal				
Transit Allowances		**% Range or Units**		
Allowances (Unallocated Items)		1% - 10%		
Seeding, Wetlands, Stream and Site Impacts		LS		
Utilities		LS		
Drainage & Water Quality (Permanent)		LS		
Water Quality (Construction)		LS		
Signing & Striping (General)		1% - 5%		
Traffic Control (Construction)		5% - 25%		
Mobilization & Staging		4% - 10%		
Right-of-Way		LS		
CSS Contingency		15%		
Transit Allowance Total				
Transit Components & Allowance Total				$ 5,812,440,000

SUMMARY OF CAPITAL COSTS	**Cost**
Roadway & Structures & Allowances	$ 468,021,078
Tunnel Components & Allowances	$ 305,449,672
Transit Components & Allowances (from AGS Study)	$ 5,812,440,000
Roadway, Structures, Tunnels, Transit Construction Total	$ 6,585,910,750

DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**	**Cost**
NEPA	LS	$ -	$ 13,008,600
Roadway & Structures Preliminary & Final Design	8% - 12%	12%	$ 56,162,529
Tunnels Preliminary & Final Design	8% - 12%	10%	$ 30,544,967
Transit Preliminary & Final Design (Included in AGS Study)	LS		$ 552,181,800
CSS Design Contingency	19%	19%	$ 16,474,424
Preliminary & Final Design Total			$ 668,372,321
Roadway & Structures Construction Engineering	6% - 10%	8%	$ 37,441,686
Tunnels Construction Engineering	6% - 10%	8%	$ 24,435,974
Transit Construction Engineering (Included in AGS Study)	LS		$ 437,218,200
Construction Engineering Total			$ 499,095,860
Preliminary & Final Design & Construction Engineering Total			$ 1,167,468,181

Project Capital, Design, & Construction Engineering Total	$ 7,753,378,931

I-70 Cost Estimate Build-Up **Alt03_Opt04**

Minimum program per PEIS with 65 mph design speed without a 3rd bore at EJMT. Minimum program is generally localized auxillary lane improvements. Option is similar to Alt03_Opt02 without 3rd bore at EJMT.

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	32	$	6,213	$	195,698
Routine Maintenance	LM	32	$	12,573	$	396,064
Pavement Rehabilitation	LM	32	$	14,132	$	445,145
ITS Operations	LS	1	$	2,300,000	$	2,300,000
Tolling Operations	LS	1	$	145,000	$	145,000
Long Term Capital Replacement	LS	1	$	1,977,225	$	1,977,225
Roadway, Structures O&M Total Cost per Year					$	5,459,132

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	2	$	106,605	$	232,399
Pavement Rehabilitation	LM	-	$	-	$	-
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	232,399

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	10,358,040	$	10,358,040
Vehicle Maintenance	LS	1	$	3,816,120	$	3,816,120
Infrastructure Maintenance	LS	1	$	7,087,080	$	7,087,080
Long Term Capital Replacement	LS	1	$	31,987,212	$	31,987,212
General & Administrative	LS	1	$	5,996,760	$	5,996,760
Transit O&M Total Costs per Year					$	59,245,212

Project Operations & Maintenance Total per year			64,936,743

I-70 Cost Estimate Build-Up **Alt04_Opt01**

Maximum program per PEIS with 55 mph design speed including a 3rd bore at EJMT. Maximum program includes one additional non-reversible tolled lane (EB & WB) between EJMT and Floyd Hill.

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**		**Unit Cost**		**Cost**
Structures - Basic	SF	436,475	$	150	$	65,471,250
Special Structures - Complex	SF	125,525	$	200	$	25,105,000
Special Structures - Fly-Over	SF	-	$	225	$	-
Special Structures - Viaduct	SF	-	$	225	$	-
Interchanges	LS	1	$	66,405,170	$	66,405,170
Wildlife Crossings - Structures	LS	1	$	88,775,000	$	88,775,000
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$	7,787,000	$	7,787,000
Walls - Cut	SF	326,280	$	75	$	24,471,000
Walls - Fill	SF	1,117,890	$	50	$	55,894,500
Excavation - Rock Cut	CY	3,690,050	$	50	$	184,502,500
Embankment	CY	1,857,360	$	6	$	11,144,160
Pavement Resurfacing	Ton	176,970	$	80	$	14,157,600
Pavement - Full Depth	Ton	631,770	$	70	$	44,223,900
Base Course	CY	369,730	$	25	$	9,243,250
Barrier - Type 7	LF	212,880	$	50	$	10,644,000
Barrier - Retaining	LF	37,570	$	125	$	4,696,250
Guardrail - Type 3	LF	141,880	$	20	$	2,837,600
ITS	LS	1	$	39,800,000	$	39,800,000
Transportation & Operation Center	LS	1	$	16,800,000	$	16,800,000
Tolling, Gates, & Controls	LS	1	$	13,600,000	$	13,600,000
Maintenance Equipment (Special)	LS	1	$	650,000	$	650,000
Roadway & Structures Subtotal					$	686,208,180

Roadway & Structures Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	5%	$	34,310,409
Seeding, Wetlands, Stream and Site Impacts	LS	$ 15,493,562	$	15,493,562
Utilities	LS	$ 8,100,000	$	8,100,000
Drainage & Water Quality (Permanent)	LS	$ 46,491,995	$	46,491,995
Water Quality (Construction)	LS	$ 5,408,000	$	5,408,000
Signing & Striping (General)	1% - 5%	1.5%	$	10,293,123
Traffic Control (Construction)	5% - 25%	7%	$	48,034,573
Mobilization & Staging	4% - 10%	10%	$	68,620,818
Right-of-Way	LS	$ 2,500,000	$	2,500,000
CSS Contingency	15%	15%	$	102,931,227
Total of Roadway & Structures Allowances			$	342,183,706
Total of Roadway & Structures Items & Allowances			$	1,028,391,886

Tunnel Components	**Units**	**Quantity**		**Unit Cost**		**Cost**
Twin Tunnels - New Bore	LF	-			$	-
Twin Tunnels Cross Passages	LS	-			$	-
Twin Tunnels - New Bore Systems	LS	-			$	-
Hidden Valley Tunnels (1) (EB)	LF	-			$	-
Hidden Valley Tunnels (1) (WB)	LF	-			$	-
Hidden Valley Tunnels (1) Cross Passages	LS	-			$	-
Hidden Valley Tunnels (1) Systems	LS	-			$	-
Hidden Valley Tunnel (2) (WB)	LF	-			$	-
Hidden Valley Tunnel (2) Cross Passage	LS	-			$	-
Hidden Valley Tunnel (2) Systems	LS	-			$	-
EJMT Approaches	LF	5,200	$	25,000	$	130,000,000
EJMT North Bore	LF	8,700	$	79,628	$	692,763,600
EJMT Cross Passages	LS	1	$	24,119,880	$	24,119,880
EJMT Systems	LS	1	$	58,093,500	$	58,093,500
Tunnel Components Subtotal					$	904,976,980

Tunnel Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	4%	$	36,199,079
Seeding, Wetlands, Stream and Site Impacts	LS	$ 22,350	$	22,350
Utilities	LS	$ 15,000,000	$	15,000,000
Drainage & Water Quality (Permanent)	LS	$ 9,021,000	$	9,021,000
Water Quality (Construction)	LS	$ 191,500	$	191,500
Signing & Striping (General)	1% - 2%	0.5%	$	4,524,885
Traffic Control (Construction)	1% - 2%	1.0%	$	9,049,770
Mobilization & Staging	5% - 15%	10%	$	90,497,698
Right-of-Way	LS	$ -	$	-
CSS Contingency	15%	15%	$	135,746,547
Total of Tunnel Allowances			$	300,252,829
Total of Tunnel Components & Allowances			$	1,205,229,809

I-70 Cost Estimate Build-Up **Alt04_Opt01**

Maximum program per PEIS with 55 mph design speed including a 3rd bore at EJMT. Maximum program includes one additional non-reversible tolled lane (EB & WB) between EJMT and Floyd Hill.

CAPITAL COSTS

Transit Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Vehicles	EA	15		
Infrastructure	LS	1		
Stations - Basic	EA	2		
Stations - Major	EA	2		
Maintenance Barn	EA	1		
Transit Components Subtotal				
Transit Allowances	**% Range or Units**			
Allowances (Unallocated Items)	1% - 10%			
Seeding, Wetlands, Stream and Site Impacts	LS			
Utilities	LS			
Drainage & Water Quality (Permanent)	LS			
Water Quality (Construction)	LS			
Signing & Striping (General)	1% - 5%			
Traffic Control (Construction)	5% - 25%			
Mobilization & Staging	4% - 10%			
Right-of-Way	LS			
CSS Contingency	15%			
Transit Allowance Total				
Transit Components & Allowance Total				$ 5,812,440,000

SUMMARY OF CAPITAL COSTS	**Cost**
Roadway & Structures & Allowances	$ 1,028,391,886
Tunnel Components & Allowances	$ 1,205,229,809
Transit Components & Allowances (from AGS Study)	$ 5,812,440,000
Roadway, Structures, Tunnels, Transit Construction Total	$ 8,046,061,695

DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**	**Cost**
NEPA	LS	$ -	$ 13,008,600
Roadway & Structures Preliminary & Final Design	8% - 12%	12%	$ 123,407,026
Tunnels Preliminary & Final Design	8% - 12%	10%	$ 120,522,981
Transit Preliminary & Final Design (Included in AGS Study)	LS		$ 552,181,800
CSS Design Contingency	19%	19%	$ 46,346,701
Preliminary & Final Design Total			$ 855,467,109
Roadway & Structures Construction Engineering	6% - 10%	8%	$ 82,271,351
Tunnels Construction Engineering	6% - 10%	8%	$ 96,418,385
Transit Construction Engineering (Included in AGS Study)	LS		$ 437,218,200
Construction Engineering Total			$ 615,907,936
Preliminary & Final Design & Construction Engineering Total			$ 1,471,375,044

Project Capital, Design, & Construction Engineering Total	$ 9,517,436,739

I-70 Cost Estimate Build-Up **Alt04_Opt01**

Maximum program per PEIS with 55 mph design speed including a 3rd bore at EJMT. Maximum program includes one additional non-reversible tolled lane (EB & WB) between EJMT and Floyd Hill.

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	71	$	6,213	$	439,233
Routine Maintenance	LM	71	$	10,362	$	732,567
Pavement Rehabilitation	LM	71	$	14,132	$	999,104
ITS Operations	LS	1	$	3,200,000	$	3,200,000
Tolling Operations	LS	1	$	1,100,000	$	1,100,000
Long Term Capital Replacement	LS	1	$	3,026,328	$	3,026,328
Roadway, Structures O&M Total Cost per Year					$	9,497,232

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	5	$	915,109	$	4,667,056
Pavement Rehabilitation	LM	5	$	14,132	$	72,071
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	4,739,127

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	10,358,040	$	10,358,040
Vehicle Maintenance	LS	1	$	3,816,120	$	3,816,120
Infrastructure Maintenance	LS	1	$	7,087,080	$	7,087,080
Long Term Capital Replacement	LS	1	$	31,987,212	$	31,987,212
General & Administrative	LS	1	$	5,996,760	$	5,996,760
Transit O&M Total Costs per Year					$	59,245,212

Project Operations & Maintenance Total per year	$	73,481,571

I-70 Cost Estimate Build-Up **Alt04_Opt02**

Maximum program per PEIS with 65 mph design speed including a 3rd bore at EJMT. Maximum program includes one additional non-reversible tolled lane (EB & WB) between EJMT and Floyd Hill.

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**		**Unit Cost**		**Cost**
Structures - Basic	SF	469,975	$	150	$	70,496,250
Special Structures - Complex	SF	98,125	$	200	$	19,625,000
Special Structures - Fly-Over	SF	-	$	225	$	-
Special Structures - Viaduct	SF	-	$	225	$	-
Interchanges	LS	1	$	71,097,140	$	71,097,140
Wildlife Crossings - Structures	LS	1	$	102,525,000	$	102,525,000
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$	7,787,000	$	7,787,000
Walls - Cut	SF	327,530	$	75	$	24,564,750
Walls - Fill	SF	998,260	$	50	$	49,913,000
Excavation - Rock Cut	CY	4,075,820	$	50	$	203,791,000
Embankment	CY	1,936,400	$	6	$	11,618,400
Pavement Resurfacing	Ton	188,030	$	80	$	15,042,400
Pavement - Full Depth	Ton	705,530	$	70	$	49,387,100
Base Course	CY	410,420	$	25	$	10,260,500
Barrier - Type 7	LF	204,360	$	50	$	10,218,000
Barrier - Retaining	LF	36,070	$	125	$	4,508,750
Guardrail - Type 3	LF	135,780	$	20	$	2,715,600
ITS	LS	1	$	39,800,000	$	39,800,000
Transportation & Operation Center	LS	1	$	16,800,000	$	16,800,000
Tolling, Gates, & Controls	LS	1	$	13,600,000	$	13,600,000
Maintenance Equipment (Special)	LS	1	$	650,000	$	650,000
Roadway & Structures Subtotal					$	724,399,890

Roadway & Structures Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 15%	5%	$	36,219,995
Seeding, Wetlands, Stream and Site Impacts	LS	$ 15,540,123	$	15,540,123
Utilities	LS	$ 7,400,000	$	7,400,000
Drainage & Water Quality (Permanent)	LS	$ 46,491,955	$	46,491,955
Water Quality (Construction)	LS	$ 5,408,000	$	5,408,000
Signing & Striping (General)	1% - 5%	1.5%	$	10,865,998
Traffic Control (Construction)	5% - 25%	8%	$	57,951,991
Mobilization & Staging	4% - 10%	10%	$	72,439,989
Right-of-Way	LS	$ 2,500,000	$	2,500,000
CSS Contingency	15%	15%	$	108,659,984
Total of Roadway & Structures Allowances			$	363,478,035
Total of Roadway & Structures Items & Allowances			$	1,087,877,925

Tunnel Components	**Units**	**Quantity**		**Unit Cost**		**Cost**
Twin Tunnels - New Bore	LF	-			$	-
Twin Tunnels Cross Passages	LS	-			$	-
Twin Tunnels - New Bore Systems	LS	-			$	-
Hidden Valley Tunnels (1) (EB)	LF	980	$	49,113	$	48,130,740
Hidden Valley Tunnels (1) (WB)	LF	1,070	$	56,838	$	60,816,660
Hidden Valley Tunnels (1) Cross Passages	LS	1	$	69,310	$	69,310
Hidden Valley Tunnels (1) Systems	LS	1	$	13,427,000	$	13,427,000
Hidden Valley Tunnel (2) (WB)	LF	1,650	$	57,127	$	94,259,550
Hidden Valley Tunnel (2) Cross Passage	LS	1	$	3,950,670	$	3,950,670
Hidden Valley Tunnel (2) Systems	LS	1	$	8,505,250	$	8,505,250
EJMT Approaches	LF	5,200	$	25,000	$	130,000,000
EJMT North Bore	LF	8,700	$	79,628	$	692,763,600
EJMT Cross Passages	LS	1	$	24,119,880	$	24,119,880
EJMT Systems	LS	1	$	58,093,500	$	58,093,500
Tunnel Components Subtotal					$	1,134,136,160

Tunnel Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	4%	$	45,365,446
Seeding, Wetlands, Stream and Site Impacts	LS	$ 22,350	$	22,350
Utilities	LS	$ 15,000,000	$	15,000,000
Drainage & Water Quality (Permanent)	LS	$ 13,000,000	$	13,000,000
Water Quality (Construction)	LS	$ 268,100	$	268,100
Signing & Striping (General)	1% - 2%	0.5%	$	5,670,681
Traffic Control (Construction)	1% - 2%	1.0%	$	11,341,362
Mobilization & Staging	5% - 15%	10%	$	113,413,616
Right-of-Way	LS	$ -	$	-
CSS Contingency	15%	15%	$	170,120,424
Total of Tunnel Allowances			$	374,201,979
Total of Tunnel Components & Allowances			$	1,508,338,139

I-70 Cost Estimate Build-Up **Alt04_Opt02**

Maximum program per PEIS with 65 mph design speed including a 3rd bore at EJMT. Maximum program includes one additional non-reversible tolled lane (EB & WB) between EJMT and Floyd Hill.

CAPITAL COSTS

Transit Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Vehicles	EA	15		
Infrastructure	LS	1		
Stations - Basic	EA	2		
Stations - Major	EA	2		
Maintenance Barn	EA	1		
Transit Components Subtotal				
Transit Allowances		**% Range or Units**		
Allowances (Unallocated Items)		1% - 10%		
Seeding, Wetlands, Stream and Site Impacts		LS		
Utilities		LS		
Drainage & Water Quality (Permanent)		LS		
Water Quality (Construction)		LS		
Signing & Striping (General)		1% - 5%		
Traffic Control (Construction)		5% - 25%		
Mobilization & Staging		4% - 10%		
Right-of-Way		LS		
CSS Contingency		15%		
Transit Allowance Total				
Transit Components & Allowance Total				$ 5,812,440,000

SUMMARY OF CAPITAL COSTS	**Cost**
Roadway & Structures & Allowances	$ 1,087,877,925
Tunnel Components & Allowances	$ 1,508,338,139
Transit Components & Allowances (from AGS Study)	$ 5,812,440,000
Roadway, Structures, Tunnels, Transit Construction Total	$ 8,408,656,063

DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**	**Cost**
NEPA	LS	$ -	$ 13,008,600
Roadway & Structures Preliminary & Final Design	8% - 12%	12%	$ 130,545,351
Tunnels Preliminary & Final Design	8% - 12%	10%	$ 150,833,814
Transit Preliminary & Final Design (Included in AGS Study)	LS		$ 552,181,800
CSS Design Contingency	19%	19%	$ 53,462,041
Preliminary & Final Design Total			$ 900,031,606
Roadway & Structures Construction Engineering	6% - 10%	8%	$ 87,030,234
Tunnels Construction Engineering	6% - 10%	8%	$ 120,667,051
Transit Construction Engineering (Included in AGS Study)	LS		$ 437,218,200
Construction Engineering Total			$ 644,915,485
Preliminary & Final Design & Construction Engineering Total			$ 1,544,947,091

Project Capital, Design, & Construction Engineering Total	$ 9,953,603,155

I-70 Cost Estimate Build-Up **Alt04_Opt02**

Maximum program per PEIS with 65 mph design speed including a 3rd bore at EJMT. Maximum program includes one additional non-reversible tolled lane (EB & WB) between EJMT and Floyd Hill.

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	71	$	6,213	$	439,233
Routine Maintenance	LM	71	$	10,362	$	732,567
Pavement Rehabilitation	LM	71	$	14,132	$	999,104
ITS Operations	LS	1	$	3,200,000	$	3,200,000
Tolling Operations	LS	1	$	1,100,000	$	1,100,000
Long Term Capital Replacement	LS	1	$	3,028,728	$	3,028,728
Roadway, Structures O&M Total Cost per Year					$	9,499,632

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	7	$	673,155	$	4,900,568
Pavement Rehabilitation	LM	5	$	14,132	$	72,071
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	4,972,640

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	10,358,040	$	10,358,040
Vehicle Maintenance	LS	1	$	3,816,120	$	3,816,120
Infrastructure Maintenance	LS	1	$	7,087,080	$	7,087,080
Long Term Capital Replacement - annualized	LS	1	$	31,987,212	$	31,987,212
General & Administrative	LS	1	$	5,996,760	$	5,996,760
Transit O&M Total Costs per Year					$	59,245,212

Project Operations & Maintenance Total per year	$	73,717,484

I-70 Cost Estimate Build-Up **Alt05_Opt01**

Permanent Peak Period Shoulder Lane EB and WB. Widen the existing roadway to accommodate one additional left side managed lane (EB & WB) for use during peak times; during non-peak times operates as a standard shoulder. Provide full width shoulder on right side.

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**		**Unit Cost**		**Cost**
Structures - Basic	SF	219,175	$	150	$	32,876,250
Special Structures - Complex	SF	70,150	$	200	$	14,030,000
Special Structures - Fly-Over	SF	-	$	225	$	-
Special Structures - Viaduct	SF	-	$	225	$	-
Interchanges	LS	1	$	39,209,130	$	39,209,130
Wildlife Crossings - Structures	LS	1	$	44,700,000	$	44,700,000
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$	5,892,000	$	5,892,000
Walls - Cut	SF	144,450	$	75	$	10,833,750
Walls - Fill	SF	409,590	$	50	$	20,479,500
Excavation - Rock Cut	CY	1,141,120	$	50	$	57,056,000
Embankment	CY	485,160	$	6	$	2,910,960
Pavement Resurfacing	Ton	286,880	$	80	$	22,950,400
Pavement - Full Depth	Ton	198,380	$	70	$	13,886,600
Base Course	CY	144,090	$	25	$	3,602,250
Barrier - Type 7	LF	77,540	$	50	$	3,877,000
Barrier - Retaining	LF	13,690	$	125	$	1,711,250
Guardrail - Type 3	LF	58,970	$	20	$	1,179,400
ITS	LS	1	$	50,000,000	$	50,000,000
Transportation & Operation Center	LS	1	$	16,800,000	$	16,800,000
Tolling, Gates, & Controls	LS	1	$	13,600,000	$	13,600,000
Maintenance Equipment (Special)	LS	1	$	650,000	$	650,000
Roadway & Structures Subtotal					$	356,244,490

Roadway & Structures Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	5%	$	17,812,225
Seeding, Wetlands, Stream and Site Impacts	LS	$ 15,540,123	$	15,540,123
Utilities	LS	$ 6,100,000	$	6,100,000
Drainage & Water Quality (Permanent)	LS	$ 26,757,658	$	26,757,658
Water Quality (Construction)	LS	$ 4,188,500	$	4,188,500
Signing & Striping (General)	1% - 5%	1.5%	$	5,343,667
Traffic Control (Construction)	5% - 25%	12%	$	42,749,339
Mobilization & Staging	4% - 10%	10%	$	35,624,449
Right-of-Way	LS	$ 700,000	$	700,000
CSS Contingency	15%	15%	$	53,436,674
Total of Roadway & Structures Allowances			$	208,252,634
Total of Roadway & Structures Items & Allowances			$	564,497,124

Tunnel Components	**Units**	**Quantity**		**Unit Cost**		**Cost**
Twin Tunnels - New Bore	LF	-	$	-	$	-
Twin Tunnels Cross Passages	LS	-	$	-	$	-
Twin Tunnels - New Bore Systems	LS	-	$	-	$	-
Hidden Valley Tunnels (1) (EB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) Cross Passages	LS	-	$	-	$	-
Hidden Valley Tunnels (1) Systems	LS	-	$	-	$	-
Hidden Valley Tunnel (2) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnel (2) Cross Passage	LS	-	$	-	$	-
Hidden Valley Tunnel (2) Systems	LS	-	$	-	$	-
EJMT Approaches	LF	5,200	$	25,000	$	130,000,000
EJMT North Bore	LF	8,700	$	65,604	$	570,754,800
EJMT Cross Passages	LS	1	$	24,189,190	$	24,189,190
EJMT Systems	LS	1	$	56,585,500	$	56,585,500
Tunnel Components Subtotal					$	781,529,490

Tunnel Allowances	**% Range or Units**	**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%	4%	$	31,261,180
Seeding, Wetlands, Stream and Site Impacts	LS	$ 22,350	$	22,350
Utilities	LS	$ 15,000,000	$	15,000,000
Drainage & Water Quality (Permanent)	LS	$ 8,816,429	$	8,816,429
Water Quality (Construction)	LS	$ 100,000	$	100,000
Signing & Striping (General)	1% - 2%	0.5%	$	3,907,647
Traffic Control (Construction)	1% - 2%	1.0%	$	7,815,295
Mobilization & Staging	5% - 15%	10%	$	78,152,949
Right-of-Way	LS	$ -	$	-
CSS Contingency	15%	15%	$	117,229,424
Total of Tunnel Allowances			$	262,305,273
Total of Tunnel Components & Allowances			$	1,043,834,763

I-70 Cost Estimate Build-Up **Alt05_Opt01**

Permanent Peak Period Shoulder Lane EB and WB. Widen the existing roadway to accommodate one additional left side managed lane (EB & WB) for use during peak times; during non-peak times operates as a standard shoulder. Provide full width shoulder on right side.

CAPITAL COSTS

Transit Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Vehicles	EA	15		
Infrastructure	LS	1		
Stations - Basic	EA	2		
Stations - Major	EA	2		
Maintenance Barn	EA	1		
Transit Components Subtotal				
Transit Allowances		**% Range or Units**		
Allowances (Unallocated Items)		1% - 10%		
Seeding, Wetlands, Stream and Site Impacts		LS		
Utilities		LS		
Drainage & Water Quality (Permanent)		LS		
Water Quality (Construction)		LS		
Signing & Striping (General)		1% - 5%		
Traffic Control (Construction)		5% - 25%		
Mobilization & Staging		4% - 10%		
Right-of-Way		LS		
CSS Contingency		15%		
Transit Allowance Total				
Transit Components & Allowance Total				$ 5,812,440,000

SUMMARY OF CAPITAL COSTS	**Cost**
Roadway & Structures & Allowances	$ 564,497,124
Tunnel Components & Allowances	$ 1,043,834,763
Transit Components & Allowances (from AGS Study)	$ 5,812,440,000
Roadway, Structures, Tunnels, Transit Construction Total	$ 7,420,771,888

DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**	**Cost**
NEPA	LS	$ -	$ 17,344,800
Roadway & Structures Preliminary & Final Design	8% - 12%	12%	$ 67,739,655
Tunnels Preliminary & Final Design	8% - 12%	10%	$ 104,383,476
Transit Preliminary & Final Design (Included in AGS Study)	LS		$ 552,181,800
CSS Design Contingency	19%	19%	$ 32,703,395
Preliminary & Final Design Total			$ 774,353,126
Roadway & Structures Construction Engineering	6% - 10%	8%	$ 45,159,770
Tunnels Construction Engineering	6% - 10%	8%	$ 83,506,781
Transit Construction Engineering (Included in AGS Study)	LS		$ 437,218,200
Construction Engineering Total			$ 565,884,751
Preliminary & Final Design & Construction Engineering Total			$ 1,340,237,877

Project Capital, Design, & Construction Engineering Total	$ 8,761,009,765

I-70 Cost Estimate Build-Up **Alt05_Opt01**

Permanent Peak Period Shoulder Lane EB and WB. Widen the existing roadway to accommodate one additional left side managed lane (EB & WB) for use during peak times; during non-peak times operates as a standard shoulder. Provide full width shoulder on right side.

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	63	$	6,213	$	389,532
Routine Maintenance	LM	63	$	10,588	$	663,893
Pavement Rehabilitation	LM	63	$	14,132	$	886,051
ITS Operations	LS	1	$	4,000,000	$	4,000,000
Tolling Operations	LS	1	$	1,100,000	$	1,100,000
Long Term Capital Replacement	LS	1	$	3,611,553	$	3,611,553
Roadway, Structures O&M Total Cost per Year					$	10,651,029

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	3	$	915,109	$	3,111,371
Pavement Rehabilitation	LM	3	$	14,132	$	48,047
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	3,159,418

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	10,358,040	$	10,358,040
Vehicle Maintenance	LS	1	$	3,816,120	$	3,816,120
Infrastructure Maintenance	LS	1	$	7,087,080	$	7,087,080
Long Term Capital Replacement - annualized	LS	1	$	31,987,212	$	31,987,212
General & Administrative	LS	1	$	5,996,760	$	5,996,760
Transit O&M Total Costs per Year					$	59,245,212

Project Operations & Maintenance Total per year	$	73,055,659

I-70 Cost Estimate Build-Up **Alt06_Opt01**

Temporary Peak Period Shoulder Lane. Using the existing roadway, accommodate one additional WB left side managed lane for use during peak times; during non-peak times operates as a standard shoulder. No twelve foot wide shoulders are available during peak periods. Construction of WB peak period lane is from Empire to Floyd Hill only. (Assumes EB peak period lane from Empire to Floyd Hill is constructed.)

CAPITAL COSTS

Roadway & Structures	**Units**	**Quantity**		**Unit Cost**		**Cost**
Structures - Basic	SF	-	$	150	$	-
Special Structures - Complex	SF	-	$	200	$	-
Special Structures - Fly-Over	SF	-	$	225	$	-
Special Structures - Viaduct	SF	-	$	225	$	-
Interchanges	LS	1	$	442,780	$	442,780
Wildlife Crossings - Structures	LS	1	$	-	$	-
Wildlife Crossings - Pipes, Fencing, Miscellaneous	LS	1	$	2,095,000	$	2,095,000
Walls - Cut	SF	-	$	75	$	-
Walls - Fill	SF	1,000	$	50	$	50,000
Excavation - Rock Cut	CY	64,000	$	50	$	3,200,000
Embankment	CY	13,780	$	6	$	82,680
Pavement Resurfacing	Ton	65,920	$	80	$	5,273,600
Pavement - Full Depth	Ton	4,320	$	70	$	302,400
Base Course	CY	5,200	$	25	$	130,000
Barrier - Type 7	LF	1,700	$	50	$	85,000
Barrier - Retaining	LF	-	$	125	$	-
Guardrail - Type 3	LF	5,360	$	20	$	107,200
ITS	LS	1	$	12,100,000	$	12,100,000
Transportation & Operation Center	LS	1	$	15,500,000	$	15,500,000
Tolling, Gates, & Controls	LS	1	$	5,000,000	$	5,000,000
Maintenance Equipment (Special)	LS	1	$	650,000	$	650,000
Roadway & Structures Subtotal					$	45,018,660

Roadway & Structures Allowances	**% Range or Units**		**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%		5%	$	2,250,933
Seeding, Wetlands, Stream and Site Impacts	LS	$	424,399	$	424,399
Utilities	LS	$	400,000	$	400,000
Drainage & Water Quality (Permanent)	LS	$	10,260,193	$	10,260,193
Water Quality (Construction)	LS	$	1,390,000	$	1,390,000
Signing & Striping (General)	1% - 5%		1.5%	$	675,280
Traffic Control (Construction)	5% - 25%		10%	$	4,501,866
Mobilization & Staging	4% - 10%		10%	$	4,501,866
Right-of-Way	LS	$	100,000	$	100,000
CSS Contingency	15%		15%	$	6,752,799
Total of Roadway & Structures Allowances				$	31,257,336
Total of Roadway & Structures Items & Allowances				$	76,275,996

Tunnel Components	**Units**	**Quantity**		**Unit Cost**		**Cost**
Twin Tunnels - New Bore	LF	-	$	-	$	-
Twin Tunnels Cross Passages	LS	-	$	-	$	-
Twin Tunnels - New Bore Systems	LS	-	$	-	$	-
Hidden Valley Tunnels (1) (EB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnels (1) Cross Passages	LS	-	$	-	$	-
Hidden Valley Tunnels (1) Systems	LS	-	$	-	$	-
Hidden Valley Tunnel (2) (WB)	LF	-	$	-	$	-
Hidden Valley Tunnel (2) Cross Passage	LS	-	$	-	$	-
Hidden Valley Tunnel (2) Systems	LS	-	$	-	$	-
EJMT Approaches	LF	-	$	-	$	-
EJMT North Bore	LF	-	$	-	$	-
EJMT Cross Passages	LS	-	$	-	$	-
EJMT Systems	LS	-	$	-	$	-
Tunnel Components Subtotal					$	-

Tunnel Allowances	**% Range or Units**		**% Cost or Cost**		**Cost**
Allowances (Unallocated Items)	1% - 10%		0%	$	-
Seeding, Wetlands, Stream and Site Impacts	LS	$	-	$	-
Utilities	LS	$	-	$	-
Drainage & Water Quality (Permanent)	LS	$	-	$	-
Water Quality (Construction)	LS	$	-	$	-
Signing & Striping (General)	1% - 2%		0.0%	$	-
Traffic Control (Construction)	1% - 2%		0.0%	$	-
Mobilization & Staging	5% - 15%		0%	$	-
Right-of-Way	LS	$	-	$	-
CSS Contingency	15%		15%	$	-
Total of Tunnel Allowances				$	-
Total of Tunnel Components & Allowances				$	-

I-70 Cost Estimate Build-Up **Alt06_Opt01**

Temporary Peak Period Shoulder Lane. Using the existing roadway, accommodate one additional WB left side managed lane for use during peak times; during non-peak times operates as a standard shoulder. No twelve foot wide shoulders are available during peak periods. Construction of WB peak period lane is from Empire to Floyd Hill only. (Assumes EB peak period lane from Empire to Floyd Hill is constructed.)

CAPITAL COSTS

Transit Components	**Units**	**Quantity**	**Unit Cost**	**Cost**
Vehicles	EA	15		
Infrastructure	LS	1		
Stations - Basic	EA	2		
Stations - Major	EA	2		
Maintenance Barn	EA	1		
Transit Components Subtotal				
Transit Allowances		**% Range or Units**		
Allowances (Unallocated Items)		1% - 10%		
Seeding, Wetlands, Stream and Site Impacts		LS		
Utilities		LS		
Drainage & Water Quality (Permanent)		LS		
Water Quality (Construction)		LS		
Signing & Striping (General)		1% - 5%		
Traffic Control (Construction)		5% - 25%		
Mobilization & Staging		4% - 10%		
Right-of-Way		LS		
CSS Contingency		15%		
Transit Allowance Total				
Transit Components & Allowance Total				$ 5,812,440,000

SUMMARY OF CAPITAL COSTS	**Cost**
Roadway & Structures & Allowances	$ 76,275,996
Tunnel Components & Allowances	$ -
Transit Components & Allowances (from AGS Study)	$ 5,812,440,000
Roadway, Structures, Tunnels, Transit Construction Total	$ 5,888,715,996

DESIGN & CONSTRUCTION ENGINEERING	**% Range or Units**	**% Cost or Cost**	**Cost**
NEPA	LS	$ -	$ 6,498,360
Roadway & Structures Preliminary & Final Design	8% - 12%	12%	$ 9,153,120
Tunnels Preliminary & Final Design	8% - 12%	10%	$ -
Transit Preliminary & Final Design (Included in AGS Study)	LS		$ 552,181,800
CSS Design Contingency	19%	19%	$ 1,739,093
Preliminary & Final Design Total			$ 569,572,372
Roadway & Structures Construction Engineering	6% - 10%	8%	$ 6,102,080
Tunnels Construction Engineering	6% - 10%	8%	$ -
Transit Construction Engineering (Included in AGS Study)	LS		$ 437,218,200
Construction Engineering Total			$ 443,320,280
Preliminary & Final Design & Construction Engineering Total			$ 1,012,892,652

Project Capital, Design, & Construction Engineering Total	$ 6,901,608,648

I-70 Cost Estimate Build-Up **Alt06_Opt01**

Temporary Peak Period Shoulder Lane. Using the existing roadway, accommodate one additional WB left side managed lane for use during peak times; during non-peak times operates as a standard shoulder. No twelve foot wide shoulders are available during peak periods. Construction of WB peak period lane is from Empire to Floyd Hill only. (Assumes EB peak period lane from Empire to Floyd Hill is constructed.)

OPERATIONS & MAINTENANCE

Roadway & Structures O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Snow Removal	LM	29	$	6,213	$	182,651
Routine Maintenance	LM	29	$	12,858	$	378,037
Pavement Rehabilitation	LM	29	$	14,132	$	415,469
ITS Operations	LS	1	$	1,000,000	$	1,000,000
Tolling Operations	LS	1	$	400,000	$	400,000
Long Term Capital Replacement	LS	1	$	1,087,674	$	1,087,674
Roadway, Structures O&M Total Cost per Year					$	3,463,832

Tunnel O&M	**Unit**	**Quantity**		**Unit Cost**		**Total**
Routine Maintenance	LM	-	$	-	$	-
Pavement Rehabilitation	LM	-	$	-	$	-
Tunnel Systems	LS	1			$	-
Long Term Capital Replacement	LS	1			$	-
Tunnel O&M Total Cost per Year					$	-

Transit O&M Costs	**Unit**	**Quantity**		**Unit Cost**		**Total**
Vehicle Operations	LS	1	$	10,358,040	$	10,358,040
Vehicle Maintenance	LS	1	$	3,816,120	$	3,816,120
Infrastructure Maintenance	LS	1	$	7,087,080	$	7,087,080
Long Term Capital Replacement - annualized	LS	1	$	31,987,212	$	31,987,212
General & Administrative	LS	1	$	5,996,760	$	5,996,760
Transit O&M Total Costs per Year					$	59,245,212

Project Operations & Maintenance Total per year		$	62,709,044