

CHESAPEAKE CONNECTOR FREIGHT AND PASSENGER RAIL BENEFITS STUDY

DATE: 01-10-11 DRAFT

ORDER OF MAGNITUDE CAPITAL COST ESTIMATE

Total RF: 33,500

Total Mi: 6.3

ALIGNMENT SEGMENT NAME: OPTION B; AT GRADE OPTION - DRAFT

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Cat. No.	Description	Unit	Quantity	Unit Cost	Base Amount	Allocated Contingency	Total Amount
10 GUIDEWAY & TRACK ELEMENTS							
TRACKWORK							
10.1	Trackway Preparation: At Grade - Ballasted, Open (includes 50' by 12" nominal topsoil / muck grading = 50cf per TF = 1.9cy/TF = @\$25/CY = \$48/TF)	TF	33,500	\$20	\$670,000	15%	\$770,500
10.2	Concrete Tie Track (Single Track) - at grade	TF	33,500	\$225	\$7,537,500	10%	\$8,291,250
10.3	No. 20 Concrete Tie Turnout	EA	3	\$365,000	\$1,095,000	15%	\$1,259,250
10.4	No. 20 Concrete Tie Cross-over	EA	1	\$805,000	\$805,000	15%	\$925,750
10.5	No. 10 Concrete Tie Turnout	EA	0	\$150,000	\$0	15%	\$0
10.6	Remove No. 20 Concrete Tie Cross-over	EA	1	\$0	\$0	15%	\$0
10.7	Remove No. 20 Concrete Tie Turnout	EA	1	\$0	\$0	15%	\$0
10.8	Shift Existing Track (Up to 8 feet)	TF	10,000	\$100	\$1,000,000	20%	\$1,200,000
Subtotal - Trackwork					\$11,107,500		\$12,446,750
STRUCTURAL WORK							
10.10	UG 51.030 North East Creek (ALLOWANCE for structural improvements 130 feet long by 20 feet wide)	SF	2,600	\$250	\$650,000	25%	\$812,500
10.11	UG 51.120 Culvert - includes rating the structure only	LS	1	\$8,000	\$8,000	15%	\$9,200
10.12	UG 51.140 McCullough Dr. / Railroad Ln.- New structure required for third track: 25 feet by 20 feet	SF	500	\$800	\$400,000	20%	\$480,000
10.13	UG 51.330 Ped Underpass / North Main Street- New structure required for third track: 25 feet by 20 feet	SF	500	\$800	\$400,000	20%	\$480,000
10.14	OH 51.430 Northeast Road / Maudlin Ave. - (MD RT 272) 40 foot long by 2.5 foot wide by 6 foot high crash wall addition	CY	23	\$2,000	\$46,000	20%	\$55,200
10.15	UG 51.880 Post Road - (MD RT 7) New structure required for third track: 75 feet by 20 feet	SF	1,500	\$800	\$1,200,000	20%	\$1,440,000
10.16	BA 51.940 Stoney Run (ALLOWANCE for structural improvements 25 feet long by 20 feet wide)	SF	500	\$250	\$125,000	25%	\$156,250
10.17	UG 52.640 Pedler's Run (ALLOWANCE for structural improvements 40 feet long by 20 feet wide)	SF	800	\$250	\$200,000	25%	\$250,000
10.18	UG 52.960 Broad Creek - New structure required for third track: 50 feet by 20 feet	SF	1,000	\$800	\$800,000	20%	\$960,000
10.19	OH 53.510 Heisler's Road / Bladen St. (MD RT 267) 40 foot long by 2.5 foot wide by 6 foot high crash wall addition	CY	23	\$2,000	\$46,000	20%	\$55,200
10.20	UG 54.290 Stream - New structure required for third track: 40 feet by 20 feet	SF	800	\$800	\$640,000	20%	\$768,000
10.21	OH 54.750 Weaver's RD / Ogle Rd. / Baltimore St. (MD RT 267) 40 foot long by 2.5 foot wide by 6 foot high crash wall addition	CY	23	\$2,000	\$46,000	20%	\$55,200

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10.22	UG 56.260 Long Hollow Creek- includes rating the structure only	LS	1	\$ 8,000	\$8,000	15%	\$9,200
10.23	UG 56.510 Carpenter Rd. / Mountain Hill Rd.- New structure required for third track: 50 feet by 20 feet	SF	1,000	\$ 800	\$800,000	20%	\$960,000
10.24	UG 56.920 Principo Creek- New structure required for third track: 80 feet by 20 feet	SF	1,600	\$ 800	\$1,280,000	20%	\$1,536,000
10.25	Retaining Wall Soldier Pile and Lagging (ALLOWANCE one Mile @ 8 feet high)	SF	42,240	\$ 300	\$12,672,000	25%	\$15,840,000
10.26	Retaining Wall Soldier Pile and Lagging at North East River (2600 LF by 8 feet high)	SF	20,880	\$ 500	\$10,440,000	30%	\$13,572,000
10.27	Retained Fill Structure - T- Wall - for grade separated option (3600 feet in length)	SF	0	\$ 65	\$0	15%	\$0
10.28	Bridge Structure Adjacent to NEC (7400 feet by 24 feet)	SF	0	\$ 500	\$0	15%	\$0
10.29	Bridge Structure Over NEC (500 feet by 24 feet)	SF	0	\$ 1,210	\$0	25%	\$0
Subtotal - Structural Work					\$29,761,000		\$37,438,750
TOTAL CATEGORY 10					\$40,868,500		\$49,885,500
20 STATIONS, STOPS, TERMINALS, INTERMODAL							
TOTAL CATEGORY 20					\$0		\$0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS							
TOTAL CATEGORY 30					\$0		\$0
40 SITEWORK & SPECIAL CONDITIONS							
40.1	Utility Relocation - FOU	MI	2	\$ 60,000	\$120,000	25%	\$150,000
40.2	Utility Relocation - ALLOWANCE	TF	33,500	\$ 350	\$11,725,000	25%	\$14,656,250
40.3	Clearing and Grubbing	AC	19	\$ 4,000	\$76,905	20%	\$92,287
40.4	Embankment Construction (@ 14 CY / TF - @ \$25/CY)	TF	12,500	\$ 350	\$4,375,000	20%	\$5,250,000
40.5	General Excavation (@9 CY / TF - \$20 / CY)	TF	6,700	\$ 180	\$1,206,000	20%	\$1,447,200
40.6	Ditch Excavation (@0.75 CY / TF - 20 / CY)	TF	19,200	\$ 15	\$288,000	20%	\$345,600
40.7	Drainage ALLOWANCE (Performed Pipe)	TF	5,280	\$ 15	\$79,200	20%	\$95,040
40.8	Drainage ALLOWANCE (Storm Sewer - Pipes Inlet Structures and Manholes)	TF	5,280	\$ 10	\$52,800	20%	\$63,360
40.9	Environmental (E&S)	TF	33,500	\$ 35	\$1,172,500	10%	\$1,289,750
40.10	Mobilization @ 3% of \$100MM	LS	1	\$ 3,000,000	\$3,000,000	15%	\$3,450,000
40.11	Temporary Maintenance of Traffic	LS	1	\$ 500,000	\$500,000	20%	\$600,000

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Cat. No.	Description	Unit	Quantity	Unit Cost	Base Amount	Allocated Contingency	Total Amount
40.12	Environmental Mitigation - ALLOWANCE @ \$100k / mi	LS	6	\$ 100,000	\$634,470	25%	\$793,087
40.13	Environmental Mitigation at North East River- ALLOWANCE	AC	4.5	\$ 200,000	\$900,000	50%	\$1,350,000
TOTAL CATEGORY 40					\$24,129,875		\$29,582,574
50 SYSTEMS							
50.1	Traction Power Substation Modifications - ALLOWANCE	EA	1	\$100,000	\$100,000	25%	\$125,000
50.2	Electrification - OCS Using Existing Structure (Wire and Hardware Only)	TF	33,500	\$100	\$3,350,000	15%	\$3,852,500
50.3	Electrification - OCS Using Proposed Cantilever Structure - Single Track	TF	0	\$350	\$0	15%	\$0
50.4	Remove and Install Catenary Structure (Cantilever Structure)	EA	50	\$90,000	\$4,500,000	20%	\$5,400,000
50.5	Remove and Install Catenary Portal Structure (3 - 4 Track Structure)	EA	15	\$275,000	\$4,125,000	20%	\$4,950,000
50.6	Train Control System (TCS) for New Track	MI	6.3	\$1,000,000	\$6,344,697	20%	\$7,613,636
50.7	Signal Modifications at Bacon Interlocking	LS	1	\$850,000	\$850,000	20%	\$1,020,000
50.8	Signal Modifications at Prince Interlocking	LS	1	\$850,000	\$850,000	20%	\$1,020,000
TOTAL CATEGORY 50					\$20,119,697		\$23,981,136
CONSTRUCTION SUBTOTAL (Sum Categories 10 - 50)					\$85,118,072		\$103,449,210
60 Right-of-Way							
60.1	Right-of-Way	AC	1	2,200,000	\$2,640,000	50%	\$3,960,000
60.2	Temporary Construction Easement	LS	1	\$ 1,000,000	\$1,000,000	50%	\$1,500,000
TOTAL CATEGORY 60					\$2,640,000		\$5,460,000
70 VEHICLES							
70.1	Vehicles	Ea	0		\$0		\$0
TOTAL CATEGORY 70					\$0		\$0
80 PROFESSIONAL SERVICES (Calc. on Subtotal 10 - 50)							
80.1	Preliminary Engineering	LS	1	3.0%	\$3,103,476	5%	\$3,258,650
80.2	Final Design	LS	1	9.0%	\$9,310,429	5%	\$9,775,950
80.3	OWNER, PM, CM, ADMIN, BOND	LS	1	13.0%	\$13,448,397	5%	\$14,120,817
80.4	Insurance	LS	1	4.0%	\$4,137,968	5%	\$4,344,867
80.5	Legal; Permits; Review Fees by other agencies, cities, etc.	LS	1	2.0%	\$2,068,984	5%	\$2,172,433

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80.6	Surveys, Testing, Investigation, Inspection	LS	1	2.0%	\$2,068,984	5%	\$2,172,433
80.7	Systems Testing (Percent of 50.1 - 50.7)	LS	1	2.0%	\$402,394	5%	\$422,514
TOTAL CATEGORY 80					\$34,540,633		\$36,267,665
90 UNALLOCATED CONTINGENCY (Calculated on Subtotal Cat. 10 - 70)							
90.1	Project Reserve	%	1	20%	\$17,023,614	1	\$17,023,614
TOTAL CATEGORY 90					\$17,023,614		\$17,023,614
Total Project		Mi	6.34		\$139,322,320		\$162,200,489
Cost (per Mile)					\$ 21,958,861		\$25,564,734

- Notes:**
1. Estimate does not include cost for railroad flag protection.
 2. Estimate in 2011 dollars. (not escalated)
 3. This estimate is based on a 5% engineering study effort. The estimate should not be used for purposed of applying for funding for construction.