

An aerial photograph of a town, overlaid with a semi-transparent blue filter. The image shows a multi-lane road curving through the center. To the left of the road is a large parking lot filled with cars. Further left, there are railroad tracks. In the foreground, a red building with a white roof and a white sign is visible. The background features a residential area with houses and a large green field. The text 'APPENDIX D: PRELIMINARY COST ESTIMATES' is centered over the image in white, bold, uppercase letters, with a white underline.

APPENDIX D: PRELIMINARY COST ESTIMATES



ORDER OF MAGNITUDE COST ESTIMATE
Resilient Bennington Street and Fredericks Park
Boston and Revere, MA

Job Number: 16234.01
Date: 6/11/2025
Preparer: Alex Boutin
Checked by: Mark Costa

Description		<u>2025 Cost</u>		<u>2030 Cost</u>
Bennington Street	\$	35,000,000	\$	42,500,000
Beachmont VFW	\$	2,700,000	\$	3,300,000
Beachmont Veterans Memorial School	\$	2,400,000	\$	2,900,000
Fredericks Park	\$	18,000,000	\$	21,800,000
Total Project Cost:	\$	58,100,000	\$	70,500,000

Note: 2030 pricing assumes escalation of 4% each year for 5 years



ORDER OF MAGNITUDE COST ESTIMATE
Bennington Street Roadway Design
Resilient Roadway Project
Boston, MA and Revere, MA

Job Number: 16234.01
Date: 6/4/2025
Preparer: A. Braley
Checked by: S. Kizza / C. Gregory

Preferred Alternative

Item Description	Unit Price	Quantity	Total Cost
Full Depth Pavement (At Grade)	\$214.00 /SY	671 SY	\$143,665.33
Full Depth Pavement (Fill)	\$217.00 /SY	4,670 SY	\$1,013,447.87
Shared Use Path (At Grade)	\$119.00 /SY	1,482 SY	\$176,389.73
Shared Use Path (Fill)	\$99.00 /SY	1,707 SY	\$169,016.10
Pavement Milling and Overlay	\$32.00 /SY	8,097 SY	\$259,105.03
HMA Drive (At Grade)	\$140.00 /SY	760 SY	\$106,404.67
HMA Drive (Fill)	\$120.00 /SY	2,503 SY	\$300,413.73
Cement Concrete Sidewalk (At Grade)	\$151.00 /SY	903 SY	\$136,364.74
Cement Concrete Sidewalk (Fill)	\$131.00 /SY	884 SY	\$115,790.90
Cement Concrete Ped Curb Ramp (At Grade)	\$191.00 /SY	147 SY	\$28,013.33
Cement Concrete Ped Curb Ramp (Fill)	\$171.00 /SY	18 SY	\$3,045.89
Loam & Seed (At Grade)	\$21.00 /SY	2,570 SY	\$53,978.17
Loam & Seed (Fill)	\$14.00 /SY	6,351 SY	\$88,911.51
Earth Excavation (Item 120.)	\$60.00 /CY	9,405 CY	\$564,300.00
Muck Excavation (Item 123.)	\$160.00 /CY	495 CY	\$79,200.00
Ordinary Borrow (Item 150.)	\$50.00 /CY	23,572 CY	\$1,178,575.00
Granite Curbing & Edging	\$441,000.00 /LS	1 LS	\$441,000.00
Drainage & Sewer Modifications	\$813,400.00 /LS	1 LS	\$813,400.00
Water Modifications	\$423,100.00 /LS	2 LS	\$846,200.00
Guardrail & Fence Modifications	\$166,900.00 /LS	1 LS	\$166,900.00
Buried Seawall	\$6,549,000.00 /LS	1 LS	\$6,549,000.00
Retaining Walls	\$2,825,000.00 /LS	2 LS	\$5,650,000.00
Culvert	\$895,000.00 /LS	1 LS	\$895,000.00
Lighting Modifications	\$1,228,100.00 /LS	1 LS	\$1,228,100.00
Signing & Striping	\$127,000.00 /LS	1 LS	\$127,000.00
Tree Removal	\$3,000.00 /EA	2 EA	\$6,000.00
Traffic Signal Modifications - Bennington St at Leverett Ave	\$51,000.00 /LS	1 LS	\$51,000.00
Traffic Signal Modifications - Bennington St at Everard St	\$66,000.00 /LS	1 LS	\$66,000.00
RRFB - Midblock Pedestrian Crossing	\$30,000.00 /LS	1 LS	\$30,000.00
Landscaping	\$200,000.00 /LS	1 LS	\$200,000.00
MBTA Station Entrance (Steps/Switchback ramp)	\$100,000.00 /LS	1 LS	\$100,000.00

Subtotal: \$21,586,222.01

Mobilization (3%):	\$647,586.66
Design Contingency (25%):	\$5,396,555.50
MassDOT Construction Engineering (5%):	\$1,079,311.10
MassDOT Construction Contingency (10%):	\$2,158,622.20
Traffic Management (10%):	\$2,158,622.20
Traffic Police (3.5%):	\$755,517.77
Roadway Flaggers (0.2%):	\$43,172.44
Utilities Force Account (5%):	\$1,079,311.10
Subtotal (2025):	\$34,904,920.99

SAY (2025): \$ 35,000,000

Escalation (4% each year for 5 years): \$7,562,252.44

Subtotal (2030): \$42,467,173.43

SAY (2030): \$ 42,500,000



ASSUMPTIONS

Bennington Street Roadway Design

6/4/2025

The estimate prepared is for construction costs only.

Additionally, The following assumptions were made in preparing the estimate:

Where practical, costs are based on prices found on the MassDOT website from median bids on state projects during the past 6 to 12 months.

Full Depth Pavement

As shown on the plans.

Milling & Overlay

Assume that pavement mill and overlay will be included for some area north end of project limits.

HMA Drive

As shown on the Plans and MBTA parking area. Depending on location of drive they could be under fill and at grade.

HMA Shared Use Path

As shown on plans.

Cement Concrete Walk

Assume that all proposed sidewalks shall be cement concrete.

Cement Concrete Pedestrian Curb Ramps

Assume that all proposed cement concrete PCR's are required at all road crossings.

Loam & Seed

Assume 4" loam and seed is used behind shared use paths and sidewalks, as well as within buffers and ROW as shown on the plans.

Sawcutting

Assume sawcuts are incidental in the respective items.

Additional Fill

Additional fill will be required in order to elevate Bennington Street to required elevation to provide flood protection.

Excavation costs for retaining wall and excavation depths of full depth pavement and HMA walks below finish grade are included in respective items.

Item 150. Ordinary Borrow was quantified by performing a volume analysis comparing existing ground with a surface generated from the proposed Civil 3D corridor model.



ASSUMPTIONS

6/4/2025

Bennington Street Roadway Design

Additional Excavation

Assume existing ground under the proposed berm shall be excavated to a depth of 2 feet below the surface. Assume 95% of this quantity shall be paid under Item 120. - Earth Excavation, and 5% shall be paid under Item 123. - Muck Excavation. Assume the void left after this excavation shall be filled with Item 150 Ordinary Borrow.

Granite Curbing

Assume granite curb VA4 quantity includes all straight curb, curved curb, transition pieces (for driveways and PCR) & curb inlets for drainage structures. Unused curbing impacted by proposed improvements will be discarded.

Assume 70% of all existing curbing will be reset (R&R), 15% will be removed (R&S), and 15% will be R&D

Drainage & Sewer Modifications

Assume 50 CY of Class B Trench Excavation will be required for drainage modifications.

Assume that all drainage within the limits of fill will need to be reconstructed.

Assume existing sewer structures within the limits of fill will be rebuilt.

Water Modifications

Assume existing 16" DI water will be replaced within the limits of fill.

Signing & Striping

Assume removal, stacking or resetting of existing signs are covered in contingencies. Assume shared use path striping will

Lighting System

Assume existing light poles and utility pole mounted lights within the fill area will be removed and reset. Assume all new conduit, wiring, pull boxes, and lighting load center. Assume new pedestrian level lighting along the shared use path.

Utility Pole Relocations

Utility Poles will need to be relocated, but cost is not included in conceptual design.

Sheet Pile Walls (Sea Wall and Wall 2)

Assume sheet pile thickness (12") and bottom elevation (-40.3') based on available information.

This estimate only includes sea wall within the Bennington Street corridor.

Steel Reinforcement

As shown on plans. Assume rebar size and spacing.

Shear Connectors

Assume connectors located in the "trough" of the sheet pile (12" spacing) in areas of concrete facing.



ASSUMPTIONS

6/4/2025

Bennington Street Roadway Design

Culverts

This estimate does not include flood control structures at each end.

This estimate includes full replacement of the Sales Creek Culvert.

Precast-prestressed Concrete Piles

Assume pile material, size, spacing (8'-0" O.C.), and length (24'-0").

Miscellaneous

Assume MBTA parking spots will be re-striped with reflective paint.

Work not listed above or on the Conceptual Construction Cost Estimate are considered part of contingencies.

This estimate does not include costs associated with design, permitting, private utility relocations, or right of way acquisitions.



ORDER OF MAGNITUDE COST ESTIMATE
VFW, Beachmont School, and Fredericks Park
Resilient Bennington Street Project
Revere, MA

Job Number: 16234.01
Date: 6/11/2025
Preparer: Alex Boutin
Checked by: Mark Costa

VFW

Description	Unit Price	Quantity	Total Cost
Full Depth Pavement (At Grade)	\$214.00 /SY	3,000 SY	\$642,000.00
Cement Concrete Sidewalk (At Grade)	\$151.00 /SY	900 SY	\$135,900.00
Cement Concrete Sidewalk (Fill)	\$131.00 /SY	0 SY	\$0.00
Cement Concrete Ped Curb Ramp (At Grade)	\$191.00 /SY	50 SY	\$9,550.00
Loam & Seed (At Grade)	\$21.00 /SY	200 SY	\$4,200.00
Loam & Seed (Fill)	\$14.00	1,600 SY	\$22,400.00
Granite Curbing & Edging	\$102,000.00 /LS	1 LS	\$102,000.00
Drainage & Sewer Modifications	\$127,800.00 /LS	1 LS	\$127,800.00
Signing & Striping	\$12,500.00 /LS	1 LS	\$12,500.00
Grading	\$310,000.00 /LS	1 LS	\$310,000.00
Concrete	\$75,000.00 /LS	1 LS	\$75,000.00
Cell Tower Relocation	\$300,000.00 /LS	1 LS	\$300,000.00
		Subtotal:	\$1,741,350.00

Mobilization (3%):	\$52,240.50
Contingencies (25%):	\$435,337.50
MassDOT Construction Engineering (10%):	\$174,135.00
Traffic Management (3%):	\$52,240.50
Landscaping (5%):	\$87,067.50
Utilities Force Account (8%):	\$139,308.00
Subtotal (2025):	\$2,681,679

SAY (2025)	\$2,700,000
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Escalation (4% each year for 5 years): \$580,994

Subtotal (2030):	\$3,262,673
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SAY (2030):	\$3,300,000
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ORDER OF MAGNITUDE COST ESTIMATE
VFW, Beachmont School, and Fredericks Park
Resilient Bennington Street Project
Revere, MA

Job Number: 16234.01
Date: 6/11/2025
Preparer: Alex Boutin
Checked by: Mark Costa

Beachmont School

Description	Unit Price	Quantity	Total Cost
Full Depth Pavement (At Grade)	\$214.00 /SY	5,000 SY	\$1,070,000.00
Cement Concrete Sidewalk (At Grade)	\$151.00 /SY	300 SY	\$45,300.00
Cement Concrete Sidewalk (Fill)	\$131.00 /SY	0	
Cement Concrete Ped Curb Ramp (At Grade)	\$191.00 /SY	50 SY	\$9,550.00
Loam & Seed (At Grade)	\$21.00 /SY	500 SY	\$10,500.00
Loam & Seed (Fill)	\$14.00 /SY	0	
Granite Curbing & Edging	\$130,000.00 /LS	1 LS	\$130,000.00
Drainage & Sewer Modifications	\$29,400.00 /LS	1 LS	\$29,400.00
Signing & Striping	\$18,700.00 /LS	1 LS	\$18,700.00
Grading	\$113,000.00 /LS	1 LS	\$113,000.00
Concrete	\$99,100.00 /LS	1 LS	\$99,100.00
		Subtotal:	\$1,525,550.00

Mobilization (3%):	\$45,766.50
Design Contingencies (25%):	\$381,387.50
MassDOT Construction Engineering (10%):	\$152,555.00
Traffic Management (3%):	\$45,766.50
Landscaping (5%):	\$76,277.50
Utilities Force Account (8%):	\$122,044.00
Subtotal (2025):	\$2,349,347
SAY (2025)	\$2,400,000

Escalation (4% each year for 5 years): \$508,993

Subtotal (2030):	\$2,858,340
SAY (2030):	\$2,900,000



ORDER OF MAGNITUDE COST ESTIMATE
VFW, Beachmont School, and Fredericks Park
Resilient Bennington Street Project
Revere, MA

Job Number: 16234.01
Date: 6/11/2025
Preparer: Alex Boutin
Checked by: Mark Costa

Fredericks Park

Description	Unit Price	Quantity	Total Cost
Full Depth Pavement (At Grade)	\$214.00 /SY	0 SY	\$0.00
Cement Concrete Sidewalk (At Grade)	\$151.00 /SY	1,200 SY	\$181,200.00
Cement Concrete Sidewalk (Fill)	\$131.00 /SY	1,500 SY	\$196,500.00
Cement Concrete Ped Curb Ramp (At Grade)	\$191.00 /SY	100 SY	\$19,100.00
Loam & Seed (At Grade)	\$21.00 /SY	300 SY	\$6,300.00
Loam & Seed (Fill)	\$14.00 /SY	24,000 SY	\$336,000.00
Drainage & Sewer Modifications	\$56,300.00 /LS	1 LS	\$56,300.00
Grading	\$4,000,000.00 /LS	1 LS	\$4,000,000.00
Concrete	\$4,400.00 /LS	1 LS	\$4,400.00
Site Improvements	\$920,000.00 /LS	1 LS	\$920,000.00
Freestanding Sea Wall	\$1,216,000.00 /LS	1 LS	\$1,216,000.00
Buried Wall	\$4,690,000.00 /LS	1 LS	\$4,690,000.00
Subtotal:			\$11,625,800.00

Mobilization (3%):	\$348,774.00
Design Contingencies (25%):	\$2,906,450.00
MassDOT Construction Engineering (10%):	\$1,162,580.00
Traffic Management (3%):	\$348,774.00
Landscaping (5%):	\$581,290.00
Utilities Force Account (8%):	\$930,064.00

Subtotal (2025): \$17,903,732

SAY (2025) \$18,000,000

Escalation (4% each year for 5 years): \$3,878,896

Subtotal (2030): \$21,782,628

SAY (2030): \$21,800,000

Total for all 3 sites

2025 Total SAY	\$23,100,000
2030 Total SAY	\$28,000,000



ORDER OF MAGNITUDE COST ESTIMATE

Full Depth Pavement (Superpave) (AT GRADE)	<u>Depth (in)</u>	<u>Conversion</u>	<u>Unit Cost</u>	<u>Cost</u>
HMA Top Course (Item 450.231)	2.0	0.0560 Ton/SY*in	\$200.00 /Ton	\$22.40
HMA Intermediate Course (Item 450.321)	2.5	0.0560 Ton/SY*in	\$228.50 /Ton	\$31.99
SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5) (ITEM 450.42)	5.5	0.0560 Ton/SY*in	\$199.00 /Ton	\$61.29
Dense Graded Crushed Stone for Sub-base (Item 402.)	4.0	0.0278 CY/in	\$114.00 /CY	\$12.68
Gravel Borrow (Item 151.)	8.0	0.0278 CY/in	\$90.00 /CY	\$20.02
Earth Excavation (Item 120.)	22.0	0.0278 CY/in	\$60.00 /CY	\$36.70
Asphalt Emulsion for Tack Coat (Item 452.)	Apply 2	0.050 Gal/SY	\$12.00 /Gal	\$1.20
Calcium Chloride for Roadway Dust Control (Item 440.)	Apply 2	1.5 LB/SY	\$0.50 /LB	\$1.50
Water For Roadway Dust Control (Item 443.)	N/A	0.003 MGL/SY	\$100.00 /MGL	\$0.30
Fine Grading and Compacting (Item 170.)	N/A	N/A	\$25.00 /SY	\$25.00
			per SY Total=	\$213.07
			<u>Full Depth Pavement COST PER SY=</u>	<u>\$214.00</u>

Cement Concrete Ped Curb Ramp (AT GRADE)	<u>Depth (in)</u>	<u>Conversion</u>	<u>Unit Cost</u>	<u>Cost</u>
Cement Concrete Ped Curb Ramp (Item 701.2)	4.0	N/A	\$125.00 /SY	\$125.00
Gravel Borrow (Item 151.)	8.0	0.0278 CY/in	\$90.00 /CY	\$20.02
Earth Excavation (Item 120.)	12.0	0.0278 CY/in	\$60.00 /CY	\$20.02
Calcium Chloride for Roadway Dust Control (Item 440.)	Apply 1	1.5 LB/SY	\$0.50 /LB	\$0.75
Fine Grading and Compacting (Item 170.)	N/A	N/A	\$25.00 /SY	\$25.00
			per SY Total=	\$190.78
			<u>Cement Concrete Ped Curb Ramp COST PER SY=</u>	<u>\$191.00</u>

Cement Concrete Sidewalk (AT GRADE)	<u>Depth (in)</u>	<u>Conversion</u>	<u>Unit Cost</u>	<u>Cost</u>
Cement Concrete Sidewalk (Item 701.)	4.0	N/A	\$85.00 /SY	\$85.00
Gravel Borrow (Item 151.)	8.0	0.0278 CY/in	\$90.00 /CY	\$20.02
Earth Excavation (Item 120.)	12.0	0.0278 CY/in	\$60.00 /CY	\$20.02
Calcium Chloride for Roadway Dust Control (Item 440.)	Apply 1	1.5 LB/SY	\$0.50 /LB	\$0.75
Fine Grading and Compacting (Item 170.)	N/A	N/A	\$25.00 /SY	\$25.00
			per SY Total=	\$150.78
			<u>Cement Concrete Sidewalk COST PER SY=</u>	<u>\$151.00</u>



ORDER OF MAGNITUDE COST ESTIMATE

HMA Drive (AT GRADE)	<u>Depth (in)</u>	<u>Conversion</u>	<u>Unit Cost</u>	<u>Cost</u>
HMA Drive (Item 702.)	4.0	0.0560 Ton/SY*in	\$320.00 /Ton	\$71.68
Gravel Borrow (Item 151.)	8.0	0.0278 CY/in	\$90.00 /CY	\$20.02
Earth Excavation (Item 120.)	12.0	0.0278 CY/in	\$60.00 /CY	\$20.02
Asphalt Emulsion for Tack Coat (Item 452.)	Apply 1	0.070 Gal/SY	\$12.00 /Gal	\$0.84
Calcium Chloride for Roadway Dust Control (Item 440.)	Apply 2	1.5 LB/SY	\$0.50 /LB	\$1.50
Fine Grading and Compacting (Item 170.)	N/A	N/A	\$25.00 /SY	\$25.00
			per SY Total=	\$139.05
			<u>HMA Drive COST PER SY=</u>	<u>\$140.00</u>

Loam and Seed (AT GRADE)	<u>Depth (in)</u>	<u>Conversion</u>	<u>Unit Cost</u>	<u>Cost</u>
Loam for Roadsides (Item 751.)	4.0	0.0278 Yd/in	\$95.00 /CY	\$10.56
Seed (Item 765.)	N/A	N/A	\$4.00 /SY	\$3.00
Earth Excavation (Item 120.)	4.0	0.0278 CY/in	\$60.00 /CY	\$6.67
			per SY Total=	\$20.24
			<u>Loam and Seed COST PER SY=</u>	<u>\$21.00</u>

Cement Concrete Sidewalk (FILL)	<u>Depth (in)</u>	<u>Conversion</u>	<u>Unit Cost</u>	<u>Cost</u>
Cement Concrete Sidewalk (Item 701.)	4.0	N/A	\$85.00 /SY	\$85.00
Gravel Borrow (Item 151.)	8.0	0.0278 CY/in	\$90.00 /CY	\$20.02
Calcium Chloride for Roadway Dust Control (Item 440.)	Apply 1	1.5 LB/SY	\$0.50 /LB	\$0.75
Fine Grading and Compacting (Item 170.)	N/A	N/A	\$25.00 /SY	\$25.00
			per SY Total=	\$130.77
			<u>Cement Concrete Sidewalk COST PER SY=</u>	<u>\$131.00</u>

Loam and Seed (FILL)	<u>Depth (in)</u>	<u>Conversion</u>	<u>Unit Cost</u>	<u>Cost</u>
Loam for Roadsides (Item 751.)	4.0	0.0278 Yd/in	\$95.00 /CY	\$10.56
Seed (Item 765.)	N/A	N/A	\$4.00 /SY	\$3.00
			per SY Total=	\$13.56
			<u>Loam and Seed COST PER SY=</u>	<u>\$14.00</u>



ORDER OF MAGNITUDE COST ESTIMATE

	<u>Unit Cost</u>	<u>Quantity</u>	<u>VFW</u>	<u>Total</u>
Granite Curbing				
Granite Curb VA4 (Items 504., 504.1, 509., 509.1)	\$105.00 /FT	966 FT		\$101,430.00
Granite Edging (Items 511.1, 512.1)	\$120.00 /FT	0 FT		\$0.00
Granite Curb R&R (Item 580.)	\$60.00 /FT	0 FT		\$0.00
Granite Edging R&R (Item 583.)	\$85.00 /FT	0 FT		\$0.00
Granite Curb R&S (Item 590.)	\$12.00 /FT	0 FT		\$0.00
Granite Edging R&S (Item 593.)	\$10.00 /FT	0 FT		\$0.00
Curb R&D (Item 594.)	\$10.00 /FT	0 FT		\$0.00
Edging R&D (Item 597.)	\$12.50 /FT	0 FT		\$0.00
				\$101,430.00
			<u>Granite Curbing SAY=</u>	<u>\$102,000.00</u>

	<u>Unit Cost</u>	<u>Quantity</u>	<u>VFW</u>	<u>Total</u>
Drainage & Sewer Modifications				
Class B Trench Excavation (Item 142.)	\$70.00 /CY	240 CY		\$16,800.00
Drainage Structure Abandoned (Item 145.)	\$1,000.00 /EA	0 EA		\$0.00
Drainage Structure Removed (Item 146.)	\$1,150.00 /EA	1 EA		\$1,150.00
Catch Basin (Item 201.)	\$9,200.00 /EA	2 EA		\$18,400.00
Manhole (Item 202.)	\$9,000.00 /EA	1 EA		\$9,000.00
Gutter Inlet (Item 204.)	\$4,000.00 /EA	0 EA		\$0.00
Drainage & Sanitary Sewer Structure Rebuilt (Item 220.2)	\$550.00 /FT	0 FT		\$0.00
Drainage Structure Change In Type (Item 220.3)	\$1,764.00 /EA	0 EA		\$0.00
Drainage & Sewer Structure Adjusted (Item 220 & 220.7)	\$900.00 /EA	0 EA		\$0.00
Drainage & Sewer Structure Remodeled (Item 220.5 & 220.8)	\$1,100.00 /EA	0 EA		\$0.00
Frame and Grate (Or Cover) Municipal Standard (222.3)	\$1,590.00 /EA	3 EA		\$4,770.00
12" RCP (Item 241.12)	\$150.00 /FT	130 FT		\$19,500.00
12 Inch and Under Pipe Removed and Relaid (271.12)	\$ 255.00 /FT	220 FT		\$56,100.00
Special Manhole (203.)	\$ 13,000.00 /EA	0 EA		\$0.00
Tide Gate (227.1)	\$ 12,000.00 /EA	0 EA		\$0.00
Removal of drainage structure sediment (227.3)	\$ 400.00 /CY	5 CY		\$2,000.00
				\$127,720.00
			<u>Drainage & Sewer Modifications SAY=</u>	<u>\$127,800.00</u>

	<u>Unit Cost</u>	<u>Quantity</u>	<u>VFW</u>	<u>Total</u>
Signing & Striping				
Pavement Arrows & Legends (Item 864.04)	\$12.00 /SF	700 SF		\$8,400.00
4" Yellow Painted (Item 861.04)	\$3.00 /FT	1334 FT		\$4,002.00
				\$12,402.00
			<u>Signing & Striping SAY=</u>	<u>\$12,500.00</u>



ORDER OF MAGNITUDE COST ESTIMATE

Grading	<u>Unit Cost</u>	<u>Quantity</u>	VFW	<u>Total</u>
Inland Wetland Replication Area (755.35)	\$25,000.00 LS	0 LS		\$0.00
Wetland Monitoring Reports (755.76)	\$15,000.00 LS	0 LS		\$0.00
Wetland Specialist (755.75)	\$350.00 /HR	0 HR		\$0.00
Earth Excavation (120.)	\$55.00 /CY	0 CY		\$0.00
Ordinary Borrow (Item 150.)	\$90.00 /CY	2250 CY		\$202,500.00
Unclassified Excavation (120.1)	75 /CY	25 CY		\$1,875.00
Oil and Hazardous Material Disposal	100000 LS	1 LS		100000
				\$304,375.00
			<u>Grading Work SAY =</u>	<u>\$310,000.00</u>

Concrete	<u>Unit Cost</u>	<u>Quantity</u>	VFW	<u>Total</u>
Concrete Excavation (127.)	400 /CY	50 CY		\$20,000.00
Regular Concrete, 4" Slab (4000 PSI) (33054.3)	3.62 /SF	196 SF		\$709.52
Stairs (3500 PSI), free standing, 3' 6" wide (33054.3)	55 /LF	0 LF		\$0.00
Handicap Access Ramp (4000 PSI), railing both sides, 5' wide (330)	775 /LF	70 LF		\$54,250.00
				\$74,959.52
			<u>Concrete Work SAY =</u>	<u>\$75,000.00</u>

Granite Curbing	<u>Unit Cost</u>	<u>Quantity</u>	Beachmont School	<u>Total</u>
Granite Curb VA4 (Items 504., 504.1, 509., 509.1)	\$105.00 /FT	1,230 FT		\$129,150.00
Granite Edging (Items 511.1, 512.1)	\$120.00 /FT	0 FT		\$0.00
Granite Curb R&R (Item 580.)	\$60.00 /FT	0 FT		\$0.00
Granite Edging R&R (Item 583.)	\$85.00 /FT	0 FT		\$0.00
Granite Curb R&S (Item 590.)	\$12.00 /FT	0 FT		\$0.00
Granite Edging R&S (Item 593.)	\$10.00 /FT	0 FT		\$0.00
Curb R&D (Item 594.)	\$10.00 /FT	0 FT		\$0.00
Edging R&D (Item 597.)	\$12.50 /FT	0 FT		\$0.00
				\$129,150.00
			<u>Granite Curbing SAY=</u>	<u>\$130,000.00</u>



ORDER OF MAGNITUDE COST ESTIMATE

	<u>Unit Cost</u>	<u>Quantity</u>	<u>Total</u>
<u>Beachmont School</u>			
Drainage & Sewer Modifications			
Class B Trench Excavation (Item 142.)	\$70.00 /CY	33 CY	\$2,310.00
Drainage Structure Abandoned (Item 145.)	\$1,000.00 /EA	0 EA	\$0.00
Drainage Structure Removed (Item 146.)	\$1,150.00 /EA	0 EA	\$0.00
Catch Basin (Item 201.)	\$9,200.00 /EA	0 EA	\$0.00
Manhole (Item 202.)	\$9,000.00 /EA	1 EA	\$9,000.00
Gutter Inlet (Item 204.)	\$4,000.00 /EA	0 EA	\$0.00
Drainage & Sanitary Sewer Structure Rebuilt (Item 220.2)	\$550.00 /FT	0 FT	\$0.00
Drainage Structure Change In Type (Item 220.3)	\$1,764.00 /EA	0 EA	\$0.00
Drainage & Sewer Structure Adjusted (Item 220 & 220.7)	\$900.00 /EA	2 EA	\$1,800.00
Drainage & Sewer Structure Remodeled (Item 220.5 & 220.8)	\$1,100.00 /EA	0 EA	\$0.00
Frame and Grate (Or Cover) Municipal Standard (222.3)	\$1,590.00 /EA	3 EA	\$4,770.00
12" RCP (Item 241.12)	\$150.00 /FT	50 FT	\$7,500.00
12 Inch and Under Pipe Removed and Relaid (271.12)	\$ 255.00 /FT	0 FT	\$0.00
Special Manhole (203.)	\$ 13,000.00 /EA	0 EA	\$0.00
Tide Gate (227.1)	\$ 12,000.00 /EA	0 EA	\$0.00
Removal of drainage structure sediment (227.3)	\$ 400.00 /CY	10 CY	\$4,000.00
			\$29,380.00
		<u>Drainage & Sewer Modifications SAY=</u>	<u>\$29,400.00</u>

	<u>Unit Cost</u>	<u>Quantity</u>	<u>Total</u>
<u>Beachmont School</u>			
Signing & Striping			
Pavement Arrows & Legends (Item 864.04)	\$12.00 /SF	980 SF	\$11,760.00
4" Yellow Painted (Item 861.04)	\$3.00 /FT	2286 FT	\$6,858.00
			\$18,618.00
		<u>Signing & Striping SAY=</u>	<u>\$18,700.00</u>

	<u>Unit Cost</u>	<u>Quantity</u>	<u>Total</u>
<u>Beachmont School</u>			
Grading			
Inland Wetland Replication Area (755.35)	\$25,000.00 <u>LS</u>	0 LS	\$0.00
Wetland Monitoring Reports (755.76)	\$15,000.00 LS	0 LS	\$0.00
Wetland Specialist (755.75)	\$350.00 /HR	0 HR	\$0.00
Earth Excavation (120.)	\$55.00 /CY	200 CY	\$11,000.00
Ordinary Borrow (Item 150.)	\$90.00 /CY	0 CY	\$0.00
Unclassified Excavation (120.1)	75 /CY	25 CY	\$1,875.00
Oil and Hazardous Material Disposal	100000 LS		100000
			\$112,875.00
		<u>Grading Work SAY =</u>	<u>\$113,000.00</u>



ORDER OF MAGNITUDE COST ESTIMATE

				<u>Beachmont School</u>		
Concrete	<u>Unit Cost</u>	<u>Quantity</u>		<u>Total</u>		
Concrete Excavation (127.)	400 /CY	0	CY	\$0.00		
Regular Concrete, 4" Slab (4000 PSI) (33054.3)	3.62 /SF	0	SF	\$0.00		
Stairs (3500 PSI), free standing, 3' 6" wide (33054.3)	55 /LF	40	LF	\$2,200.00		
Handicap Access Ramp (4000 PSI), railing both sides, 5' wide (330)	775 /LF	125	LF	\$96,875.00		
				\$99,075.00		
		<u>Concrete Work SAY =</u>			\$99,100.00	

				<u>Fredericks Park</u>		
Drainage & Sewer Modifications	<u>Unit Cost</u>	<u>Quantity</u>		<u>Total</u>		
Class B Trench Excavation (Item 142.)	\$70.00 /CY	0	CY	\$0.00		
Drainage Structure Abandoned (Item 145.)	\$1,000.00 /EA	0	EA	\$0.00		
Drainage Structure Removed (Item 146.)	\$1,150.00 /EA	2	EA	\$2,300.00		
Catch Basin (Item 201.)	\$9,200.00 /EA	0	EA	\$0.00		
Manhole (Item 202.)	\$9,000.00 /EA	0	EA	\$0.00		
Gutter Inlet (Item 204.)	\$4,000.00 /EA	0	EA	\$0.00		
Drainage & Sanitary Sewer Structure Rebuilt (Item 220.2)	\$550.00 /FT	0	FT	\$0.00		
Drainage Structure Change In Type (Item 220.3)	\$1,764.00 /EA	0	EA	\$0.00		
Drainage & Sewer Structure Adjusted (Item 220 & 220.7)	\$900.00 /EA	0	EA	\$0.00		
Drainage & Sewer Structure Remodeled (Item 220.5 & 220.8)	\$1,100.00 /EA	0	EA	\$0.00		
Frame and Grate (Or Cover) Municipal Standard (222.3)	\$1,590.00 /EA	0	EA	\$0.00		
12" RCP (Item 241.12)	\$150.00 /FT	0	FT	\$0.00		
12 Inch and Under Pipe Removed and Relaid (271.12)	\$ 255.00 /FT	0	FT	\$0.00		
Special Manhole (203.)	\$ 13,000.00 /EA	2	EA	\$26,000.00		
Tide Gate (227.1)	\$ 12,000.00 /EA	2	EA	\$24,000.00		
Removal of drainage structure sediment (227.3)	\$ 400.00 /CY	10	CY	\$4,000.00		
				\$56,300.00		
		<u>Drainage & Sewer Modifications SAY=</u>			<u>\$56,300.00</u>	



ORDER OF MAGNITUDE COST ESTIMATE

		<u>Fredericks Park</u>		
Grading	<u>Unit Cost</u>	<u>Quantity</u>		<u>Total</u>
Inland Wetland Replication Area (755.35)	\$25,000.00 /LS	1	LS	\$25,000.00
Wetland Monitoring Reports (755.76)	\$15,000.00 LS	1	LS	\$15,000.00
Wetland Specialist (755.75)	\$350.00 /HR	240	HR	\$84,000.00
Earth Excavation (120.)	\$55.00 /CY	200	CY	\$11,000.00
Ordinary Borrow (Item 150.)	\$50.00 /CY	29800	CY	\$2,682,000.00
Unclassified Excavation (120.1)	75 /CY	100	CY	\$7,500.00
Oil and Hazardous Material Disposal	400000 LS			400000
				\$3,224,500.00
				<u>Grading Work SAY = \$4,000,000.00</u>

		<u>Fredericks Park</u>		
Concrete	<u>Unit Cost</u>	<u>Quantity</u>		<u>Total</u>
Concrete Excavation (127.)	400 /CY	0	CY	\$0.00
Regular Concrete, 4" Slab (4000 PSI) (33054.3)	3.62 /SF	0	SF	\$0.00
Stairs (3500 PSI), free standing, 3' 6" wide (33054.3)	55 /LF	80	LF	\$4,400.00
Handicap Access Ramp (4000 PSI), railing both sides, 5' wide (330)	775 /LF	0	LF	\$0.00
				\$4,400.00
				<u>Concrete Work SAY = \$4,400.00</u>

		<u>Fredericks Park</u>		
Site Improvements		<u>Quantity</u>		<u>Total</u>
Basketball Court	\$140.00 /SY	1000	SY	\$140,000.00
Boccee Court	\$30.00 /SF	2700	SF	\$81,000.00
4v4 Soccer Field Turf	\$20.00 /SF	13000	SF	\$260,000.00
Restroom / Storage Facility (133419.5)	\$50.00 /SF	1000	SF	\$50,000.00
Modular Playground Equipment (116813.2)	\$2,500.00 /EA	20	EA	\$50,000.00
Trash Recepticles (129323.10)	\$825.00 /EA	10	EA	\$8,250.00
Bleachers (33416.53)	\$94.50 /Seat	216	Seat	\$20,412.00
Scoreboard (116643)	\$38,600.00 /EA	1	EA	\$38,600.00
Foundation for Poles (337116.23)	\$970.00 /SY	20	EA	\$19,400.00
Steel Electrical Utility Pole (337116.23)	\$17,200.00 /EA	20	EA	\$344,000.00
Soccer Goals, Regulation (116833.13)	\$3,025.00 /EA	2	EA	\$6,050.00
Soccer Goals, Youth	\$750.00 /EA	6	EA	\$4,500.00
Enclosed Court Chain Link Fence (323113.33)	\$11,200.00 /EA	2	EA	\$22,400.00
Flagpole, 50' (107516.10)	\$12,800.00 /EA	1	EA	\$12,800.00
				\$917,412.00
				<u>Site Work SAY = \$920,000.00</u>



ORDER OF MAGNITUDE COST ESTIMATE

Freestanding Seawall (Item 996.04)	Unit Cost	Quantity	Total
Bridge Excavation (Item 140.)	50 /CY	150 CY	\$7,500.00
5000 PSI, 3/4 Inch, 685 HP Cement Concrete (Item 904.3)	2000 /CY	180 CY	\$360,000.00
Steel Reinforcement for Structures - Epoxy Coated (Item 910.1)	3.75 /LB	5680 LB	\$21,300.00
Shear Connectors (Item 911.1)	7.5 /EA	2280 EA	\$17,100.00
Steel Sheeting - Coated (Item 960.1)	2 /LB	398000 LB	\$796,000.00
Damp-proofing (Item 970.)	8 /SF	1710 SF	\$13,680.00
			\$1,215,580.00
		WALL 2 SAY=	\$1,216,000.00

Buried Wall at Park (Item 996.02)	Unit Cost	Quantity	Total
Bridge Excavation (Item 140.)	50 /CY	660 CY	\$33,000.00
5000 PSI, 3/4 Inch, 685 HP Cement Concrete (Item 904.3)	2000 /CY	570 CY	\$1,140,000.00
Steel Reinforcement for Structures - Epoxy Coated (Item 910.1)	3.75 /LB	18992 LB	\$71,220.00
Shear Connectors (Item 911.1)	7.5 /EA	6340 EA	\$47,550.00
Steel Sheeting - Coated (Item 960.1)	2 /LB	1661000 LB	\$3,322,000.00
Damp-proofing (Item 970.)	8 /SF	9500 SF	\$76,000.00
			\$4,689,770.00
		SEA WALL (AT PARK) SAY=	\$4,690,000.00



ALTERNATIVE 1

ASSUMPTIONS

The following is an Order of Magnitude Cost Estimate for the improvements and construction of resiliency improvements and associated site improvements to the Beachmont VFW, Beachmont Veterans Memorial School, and Fredericks Park,

The estimate prepared is for construction costs only.

Additionally, The following assumptions were made in preparing the estimate:

Where practical, costs are based on prices found on the MassDOT website from median bids on state projects during the past 12 months. Additional pricing was supplemented through RS Means Site Work and Landscape Costs Unit Pricing 2021

Full Depth Pavement

Proposed for full extent of VFW and Beachmont School Parking Lots as shown on plans

Cement Concrete PCR

Assume that cement concrete PCR's are required at all road crossings and sidewalk entries

Loam & Seed

Assume all proposed vegetated areas, as well as existing areas disturbed by construction, will receive 4 inches of loam and seed. This includes the proposed soccer fields, which are assumed to be natural grass rather than artificial turf.

Saw cutting

Assume sawcuts are incidental in the respective items.

Wall Systems

All items associated with wall systems are included in a separate estimate.

Additional Excavation

Assume existing ground under the proposed berm shall be excavated to a depth of 2 feet below the surface. Assume 95% of this quantity shall be paid under Item 120. - Earth Excavation, and 5% shall be paid under Item 123. - Muck Excavation.

Assume the void left after this excavation shall be filled with Item 150 Ordinary Borrow.

Granite Curbing & Edging

Assume granite curb VA4 quantity includes all straight curb, curved curb, transition pieces (for driveways and PCRs) & curb inlets for drainage structures. It also includes granite edging and granite edging R&R where applicable. Unused curbing and edging impacted by proposed improvements will be discarded.

Assume granite edging to be used where granite edging was previously. Granite curb VA4 is proposed where there is an adjacent shared use path or sidewalk.

Drainage & Sewer Modifications

Assume Proposed CBs, Manholes, and CITs will need a frame & grate (or cover). Assume all structures adjusted, rebuilt, and remodeled will require a frame & grate (or cover).



ALTERNATIVE 1

ASSUMPTIONS

Signing & Striping

Assume removal, stacking or resetting of existing signs are covered in contingencies. Assume parking lot striping will be painted.

Utility Systems

Assume all modifications or additions to electrical and water service within the park are covered under contingency costs. This includes the relocation of four utility poles carrying overhead electrical lines servicing the school.

Sheet Pile Walls (Sea Wall and Wall 2)

Assume sheet pile thickness (12") and bottom elevation (-40.3') based on available information.

This estimate only includes sea wall within the Fredericks Park area and the exposed sea wall at the eastern tie in.

The buried wall through the section of the VFW is included as part of the Fredericks Park Estimate

Shear Connectors

Assume connectors located in the "trough" of the sheet pile (12" spacing) in areas of concrete facing.

Miscellaneous

Work not listed above or on the Conceptual Construction Cost Estimate are considered part of contingencies.

This estimate does not include costs associated with design, permitting, private utility relocations, or right of way acquisitions.