



APPENDIX 1: COST

Opinion of Probable Cost

Because it has only been through a preliminary concept design, the cost for the Bay View Wetland is difficult to accurately predict. A number of variables which will affect the project's cost will be determined in the next phase of design. Two of the biggest variables are soil remediation and public infrastructure.

The cost for soil remediation will be determined by the volume of soil remediated, the extent of contamination and clean-up required, and the technologies employed to conduct that remediation.

The cost of public infrastructure at the site is also a somewhat unknown variable which will be explored in future phases of design. The length of trails and boardwalk and amenities like lighting and refuse bins will play a large role, but the biggest variable is the possibility of a visitor center at the site. A visitor center with amenities like restrooms and heated

space would invariably be more expensive than a simple shelter. The role of visitor amenities at the Bay View Wetland will be further explored in the next phase of design.

To provide a range of possible costs two cost estimates were developed. The first estimate is a minimum cost scenario. It assumes that extensive remediation of soil at the Bay View Wetland would not be needed. It also assumes that visitor amenities like boardwalk and trail lighting would be minimized.

A second option, the high cost scenario, shows the possible cost if all excavated soil at the Bay View Wetland were remediated by capping the area with clean fill as described in the Option 1 Remediation Plan. The most extensive visitor amenities are also examined, including an option for a visitor center with full utilities.

Option 1: Low Cost

Item	Description	Quantity Total	Unit	Unit Cost	Cost Subtotal	Remarks
1 Site Preparation						
1.1	Mobilization	1.0	LS	\$5,000	\$5,000	
1.2	Tree Removal	7.6	AC	\$4,000	\$30,355	Restoration zones 1-4, 1/4 of 7, and 8
1.3	Selective Tree Removal Brushing & Clearing	3.9	AC	\$3,500	\$13,650	Outside of grading footprint
1.4	Clearing/Grubbing	7.6	AC	\$3,000	\$22,766	Grading Footprint
1.5	Herbiciding	11.6	AC	\$400	\$4,657	Three applications of 3.9 acres
1.6	Disking/Tilling	11.6	AC	\$300	\$3,493	Three applications of 3.9 acres
1.7	Remove Fencing	3085.0	LF	\$4	\$11,723	
1.8	Remove Railroad Trestle from Channel	1.0	LS	\$30,000	\$30,000	
Site Preparation Subtotal					\$121,640	
2 Earth Moving and Grading						
2.1	Remove Clean Fill from Site		CY	\$8	\$0	Not needed
2.2	Debris Removal (Light Demolition)	1892	CY	\$115	\$217,530	Assumes 5% of excavated soil volume is debris, includes excavation and disposal
2.3	Excavation	22383	CY	\$8	\$179,060	Assumes contaminated soil does not need to be capped
2.4	Dredging	1482	CY	\$20	\$29,640	Assumes material is disposed of off-site
2.7	Prepare gravel/sand lining (submerged areas)	7661	SY	\$35	\$268,130	
2.8	Geotextile between clean fill and gravel/sand	7661	SY	\$2	\$13,790	
2.7	Topsoil Placement		CY	\$12	\$0	
Earth Moving and Grading Subtotal					\$708,150	
3 Restoration and Management						
3.1	Emergent Wetland Plants	7610	EA	\$7	\$53,270	2 Ft. O.C.
3.2	Wet Meadow Seeding (graded areas)	3.5	AC	\$7,000	\$24,620	
3.3	Wet Meadow Seeding (no grading impact)	0.5	AC	\$5,000	\$2,740	
3.4	Mesic Prairie Seeding	7.6	AC	\$5,000	\$37,880	
3.5	Shrubs	1530	EA	\$40.00	\$61,200	
3.6	Floodplain Forest Herbaceous Plants	9330	EA	\$1	\$9,330	
3.7	Floodplain Forest Trees	34	EA	\$520	\$17,680	
3.8	Savanna Trees	76	EA	\$744	\$56,540	
3.8	Sand Dune Plants	4447	EA	\$5	\$22,240	2 Ft. O.C.
3.9	Management of Plantings (all zones, 3 years)	17.6	AC	\$4,000	\$70,590	3 years: mow, spot spray, burn, monitor
Restoration and Management Subtotal					\$356,090	
4 Erosion Control						
4.1	Temporary Rock Construction Entrance	1.0	EA	\$3,500	\$3,500	
4.2	Short-Term, Single Net Erosion Control Blanket	29285	SY	\$2.00	\$58,570	
4.3	Straw Mulch	17.3	AC	\$500	\$8,630	
4.4	Silt Fence Installation and Maintenance	1910.0	LF	\$8	\$15,280	
4.5	Temporary Detention Basin	1	EA	\$500	\$500	
Erosion Control Subtotal					\$86,480	
Erosion Control Alternatives						
4.6	Bag treatment of runoff	1	EA	\$1,000	\$1,000	
Erosion Control Alternatives Subtotal					\$1,000	
5 Park Infrastructure						
5.1	Trails	9504	SF	\$6	\$57,020	
5.2	Boardwalk	4224	SF	\$25	\$105,600	
5.4	Gravel Parking Lot	6880	SF	\$15	\$103,200	
5.5	Benches	10	EA	\$1,000	\$10,000	
5.6	Waste Receptacles	2	EA	\$2,650	\$5,300	
5.7	Bicycle Parking	1	EA	\$700	\$700	

Item	Description	Quantity Total	Unit	Unit Cost	Cost Subtotal	Remarks
5.8	Light Fixtures	5	EA	\$2,000	\$10,000	
Park Infrastructure Subtotal					\$291,820	
Park Infrastructure Alternatives						
5.9	Visitor Center	1.0	LS	\$60,000	\$60,000	
Park Infrastructure Alternatives Subtotal					\$60,000	
6 Fish Passage Culvert						
6.1	Open Bottom Culvert				\$75,000	Estimate from Michels
Fish Passage Culvert Subtotal					\$75,000	
7 Permitting						
7.1	Cultural Resources Review, NR 347, Ch 30, and NR 216 Permits	1.0	LS	\$20,000	\$20,000	
Permitting Subtotal					\$20,000	
Subtotal Items 1-7 with Alternates (2013 Dollars)					\$1,720,180	
Subtotal Items 1-7 No Alternates (2013 Dollars)					\$1,659,180	
8 Markups (Includes Alternates)						
8.1	General Requirements		10%		\$2,000	
8.2	Contractor Fee		3%		\$51,600	
8.3	Design Contingency		15%		\$258,000	
8.4	Construction Contingency		5%		\$86,000	
Markups Subtotal					\$397,600	
0	Total Construction Estimate (with Alternates) (2013 Dollars)	0	0	0	\$2,117,780	
8 Markups (No Alternates)						
8.1	General Requirements		10%		\$2,000	
8.2	Contractor Fee		3%		\$49,800	
8.3	Design Contingency		15%		\$248,900	
8.4	Construction Contingency		5%		\$83,000	
Markups Subtotal					\$383,700	
0	Total Construction Estimate (No Alternates) (2013 Dollars)	0	0	0	\$2,042,880	

Option 2: High Cost

Item	Description	Quantity Total	Unit	Unit Cost	Cost Subtotal	Remarks
1 Site Preparation						
1.1	Mobilization	1.0	LS	\$5,000	\$5,000	
1.2	Tree Removal	7.6	AC	\$4,000	\$30,350	Restoration zones 1-4, 1/4 of 7, and 8
1.3	Selective Tree Removal Brushing & Clearing	3.9	AC	\$3,500	\$13,650	Outside of grading footprint
1.4	Clearing/Grubbing	7.6	AC	\$3,000	\$22,770	Grading Footprint
1.5	Herbiciding	11.6	AC	\$400	\$4,660	Three applications of 3.9 acres
1.6	Disking/Tilling	11.6	AC	\$300	\$3,490	Three applications of 3.9 acres
1.7	Remove Fencing	3085.0	LF	\$4	\$11,720	
1.8	Remove Railroad Trestle from Channel	1.0	LS	\$30,000	\$30,000	
Site Preparation Subtotal					\$121,640	
2 Earth Moving and Grading						
2.1	Remove Clean Fill from Site	19500	CY	\$8	\$156,000	Assumes city or port-owned storage location
2.2	Debris Removal (Light Demolition)	1892	CY	\$115	\$217,530	Assumes 5% of excavated soil volume is debris, includes excavation and disposal
2.3	Excavation	37831	CY	\$8	\$302,650	Assumes contaminated soil contained on-site
2.4	Dredging	1482	CY	\$20	\$29,640	Assumes material is disposed of off-site
2.5	Line with 1 ft of clean fill	19500	CY	\$8	\$156,000	
2.6	Prepare topsoil (Upland and Wet Meadow)	19031	CY	\$36	\$689,860	
2.7	Prepare gravel/sand lining (submerged areas)	7661	SY	\$35	\$268,130	
2.8	Geotextile between clean fill and gravel/sand	7661	SY	\$2	\$13,790	
2.7	Topsoil Placement	19500	CY	\$12	\$234,000	
Earth Moving and Grading Subtotal					\$2,067,600	
3 Restoration and Management						
3.1	Emergent Wetland Plants	7610	EA	\$7	\$53,270	2 Ft. O.C.
3.2	Wet Meadow Seeding (graded areas)	3.5	AC	\$7,000	\$24,620	
3.3	Wet Meadow Seeding (no grading impact)	0.5	AC	\$5,000	\$2,740	
3.4	Mesic Prairie Seeding	7.6	AC	\$5,000	\$37,880	
3.5	Shrubs	1530	EA	\$40.00	\$61,200	5 Ft. O.C.
3.6	Floodplain Forest Herbaceous Plants	9330	EA	\$1	\$9,330	4 Ft. O.C.
3.7	Floodplain Forest Trees	34	EA	\$520	\$17,680	
3.8	Savanna Trees	76	EA	\$744	\$56,540	
3.8	Sand Dune Plants	4447	EA	\$5	\$22,240	2 Ft. O.C.
3.9	Management of Plantings (all zones, 3 years)	17.6	AC	\$4,000	\$70,590	3 years: mow, spot spray, burn, monitor
Restoration and Management Subtotal					\$356,090	
4 Erosion Control						
4.1	Temporary Rock Construction Entrance	1.0	EA	\$3,500	\$3,500	
4.2	Short-Term, Single Net Erosion Control Blanket	29285	SY	\$2.00	\$58,570	
4.3	Straw Mulch	17.3	AC	\$500	\$8,630	
4.4	Silt Fence Installation and Maintenance	1910.0	LF	\$8	\$15,280	
4.5	Temporary Detention Basin	1	EA	\$500	\$500	
Erosion Control Subtotal					\$86,480	
Erosion Control Alternatives						
4.6	Bag treatment of runoff	1	EA	\$1,000	\$1,000	
Erosion Control Alternatives Subtotal					\$1,000	
5 Park Infrastructure						
5.1	Trails	23540	SF	\$6	\$141,240	
5.2	Boardwalk	29050	SF	\$25	\$726,250	
5.3	Ramps/Steps/Plaza (channel area)	11280	SF	\$40	\$451,200	

Item	Description	Quantity Total	Unit	Unit Cost	Cost Subtotal	Remarks
5.4	Gravel Parking Lot	6880	SF	\$15	\$103,200	
5.5	Benches	10	EA	\$1,000	\$10,000	
5.6	Stepped Seating (near visitor center)	480	SF	\$15	\$7,200	
5.6	Waste Receptacles	6	EA	\$2,650	\$15,900	
5.7	Bicycle Parking	2	EA	\$700	\$1,400	
5.8	Light Fixtures	28	EA	\$2,000	\$56,620	
Park Infrastructure Subtotal					\$1,513,010	
Park Infrastructure Alternatives						
5.9	Visitor Center	1.0	LS	\$60,000	\$60,000	
5.10	Visitor Center Utilities	1	LS	\$50,000	\$50,000	
5.11	Potential Link Trails	7620	SF	\$6	\$45,720	
5.12	Fencing	4225.0	LF	\$45	\$190,130	
Park Infrastructure Alternatives Subtotal					\$345,850	
6 Fish Passage Culvert						
6.1	Open Bottom Culvert	2100.0	SF	\$144	\$302,400	Cost incurred by Michels Corp
6.2	Paving	5880	SF	\$15	\$88,200	Cost incurred by Michels Corp
3.3	Retaining Walls	150	LF	\$2,000	\$300,000	
Fish Passage Culvert Subtotal					\$690,600	
7 Permitting						
7.1	Cultural Resources Review, NR 347, Ch 30, and NR 216 Permits	1.0	LS	\$20,000	\$20,000	
Permitting Subtotal					\$20,000	
Subtotal Items 1-7 with Alternates (2013 Dollars)					\$5,202,270	
Subtotal Items 1-7 No Alternates (2013 Dollars)					\$4,855,420	
8 Markups (includes Alternates)						
8.1	General Requirements		10%		\$2,000	
8.2	Contractor Fee		3%		\$156,100	
8.3	Design Contingency		15%		\$780,300	
8.4	Construction Contingency		5%		\$260,100	
Markups Subtotal					\$1,198,500	
Total Construction Estimate (with Alternates) (2013 Dollars)					\$6,400,770	
8 Markups (No Alternates)						
8.1	General Requirements		10%		\$2,000	
8.2	Contractor Fee		3%		\$145,700	
8.3	Design Contingency		15%		\$728,300	
8.4	Construction Contingency		5%		\$242,800	
Markups Subtotal					\$1,118,800	
Total Construction Estimate (No Alternates) (2013 Dollars)					\$5,974,220	