

Waban Hill Reservoir Embankment Dam  
Probability of Cost

Received 13 November 2014

<b>WABAN HILL RESERVOIR Full Proposal Budgets</b>		<b>CAPITAL IMPROVEMENTS / DEVELOPMENT BUDGET</b>
Item Description	Source*/Comments	Purchase / CR / Design / Regulatory Compliance / Public Safety / ADA Improvements FY15-FY18
<b>● Appraisal/Purchase:</b>		\$ 404,800
<b>● Conservation Restriction</b>		\$ 30,000
purchase/conservation restriction subtotal:		<b>\$ 434,800</b>
<b>● Master Plan Design/Public Process:</b>		
Landscape Architect/Engineering Firm - Master Plan Only	scope of work: facilitate public process, develop coherent design, address parking, accessibility and site maintenance	\$ 30,000
master plan design/public process subtotal:		<b>\$ 30,000</b>
<b>● Dam Safety Regulatory Compliance:</b>		
Phase I Dam Inspection & Evaluation Report* (every other year)	Stantec / next inspection due 9/14 to Office of Dam Safety; required every 2 yrs	\$ 5,000
Emergency Action Plan (EAP) 1st yr only* (followed by annual updates)	Stantec / cost to update EAP: \$1K every year after; could be performed by City staff	\$ 12,000
Civil Engineering Consultant w/10 yrs dam experience	permitting requirements; cost TBD	\$ 10,000
regulatory compliance subtotal:		<b>\$ 27,000</b>
<b>● Site Restoration:</b>		
Mow grass areas (non-embankment areas) - 15 cuts per year	contractual - annual	\$ 500
Mow embankment grass 1-2x per year*	Stantec / annual	\$ 4,000
Remove upstream (rip rap) vegetation - 1st yr. only	1st year - contractual - 3-man crew for 4 days	\$ 12,000
Remove upstream (rip rap) vegetation - annually	cost depends on in-house vs. contractual crew, as well as permit requirements	--
site restoration subtotal:		<b>\$ 16,500</b>
<b>Gatehouse, Water Quality, Public Safety Improvements/ADA Compliance:</b>		
Gatehouse: replace roof*	Stantec / cost TBD	\$ 30,000
Gatehouse: install new slide gate*	Stantec / existing gates inoperable; noted in 2010 report; requires a diver	\$ 25,000
Gatehouse: fill voids beneath steps up to gatehouse*	Stantec / public safety issue	\$ 25,000
Water depth regulator/aerator/pump		\$ 40,000
Electrical connection and cabinet		\$ 10,000
4' H black ornamental fence/gates, waterside only (1320 LF)	1380 LF, 2 pedestrian gates, vehicular gate	\$ 70,000
Remove and dispose of existing c.l. fence and footings (880 LF)	2640 LF	\$ 14,080
Rebuild top of dam stone dust pathway (8' wide; 1/4 mile long)	1/4 mile	\$ 20,000
Paved accessible site route/HC parking/ramp/signage		\$ 150,000
Design/Engineering Fee (10% of site improvements construction)		\$ 38,408
gatehouse/public safety/water quality/ADA compliance		<b>\$ 422,488</b>
<b>purchase + start-up improvements subtotal:</b>		<b>\$ 930,788</b>
<b>20% Contingency:</b>		<b>\$ 186,158</b>
<b>Project Total:</b>		<b>\$ 1,116,946</b>
*Stantec, Geotechnical Engineering Evaluation Report, Executive Summary, 2014		
(1) Assume possible additional costs related to access issues and unknown subsurface conditions.		
(2) The Waban Hill Reservoir Embankment Dam is a high hazard dam that must conform to the requirements of 302 CMR 10.00 "Dam Safety."		
(3) All sitework would need to be permitted by the Newton Conservation Commission.		
(4) Regulatory compliance/landscape management assumes 2% annual inflation.		

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<b>WABAN HILL RESERVOIR Full Proposal Budgets</b>	<b>10-YEAR OPERATING BUDGET</b>											
Item Description	Regulatory Compliance / Maintenance FY18	Regulatory Compliance / Maintenance FY19	Regulatory Compliance / Maintenance FY20	Regulatory Compliance / Maintenance FY21	Regulatory Compliance / Maintenance FY22	Regulatory Compliance / Maintenance FY23	Regulatory Compliance / Maintenance FY24	Regulatory Compliance / Maintenance FY25	Regulatory Compliance / Maintenance FY26	Regulatory Compliance / Maintenance FY27	10-Year Total Ongoing Compliance / Maintenance	
● Dam Safety Regulatory Compliance:	● Dam Safety Regulatory Compliance (FY18-FY27) - NOT CPA-ELIGIBLE											
Phase I Dam Inspection & Evaluation Report* (every other year)	--	\$ 5,202	--	\$ 5,412	--	\$ 5,631	--	\$ 5,858	--	\$ 6,095	\$ 28,198	
Emergency Action Plan (EAP) 1st yr only* (followed by annual updates)	\$ 1,000	\$ 1,020	\$ 1,040	\$ 1,061	\$ 1,082	\$ 1,104	\$ 1,126	\$ 1,149	\$ 1,172	\$ 1,195	\$ 10,950	
Civil Engineering Consultant w/10 yrs dam experience	--	\$ 2,000	--	\$ 2,000	--	\$ 2,000	--	\$ 2,000	--	\$ 2,000	\$ 10,000	
regulatory compliance subtotal:	\$ 1,000	\$ 8,222	\$ 1,040	\$ 8,473	\$ 1,082	\$ 8,735	\$ 1,126	\$ 9,007	\$ 1,172	\$ 9,290	\$ 49,148	
● Site Restoration:	● Landscape Maintenance (FY18-FY27) - NOT CPA-ELIGIBLE											
Mow grass areas (non-embankment areas) - 15 cuts per year	\$ 510	\$ 520	\$ 531	\$ 541	\$ 552	\$ 563	\$ 574	\$ 586	\$ 598	\$ 609	\$ 5,584	
Mow embankment grass 1-2x per year*	\$ 4,080	\$ 4,162	\$ 4,245	\$ 4,330	\$ 4,416	\$ 4,505	\$ 4,595	\$ 4,687	\$ 4,780	\$ 4,876	\$ 44,675	
Remove upstream (rip rap) vegetation - 1st yr. only	--	--	--	--	--	--	--	--	--	--	\$ -	
Remove upstream (rip rap) vegetation - annually	\$ 6,000	\$ 6,120	\$ 6,242	\$ 6,367	\$ 6,495	\$ 6,624	\$ 6,757	\$ 6,892	\$ 7,030	\$ 7,171	\$ 65,698	
site restoration subtotal:	\$ 10,590	\$ 10,802	\$ 11,018	\$ 11,238	\$ 11,463	\$ 11,692	\$ 11,926	\$ 12,165	\$ 12,408	\$ 12,656	\$ 115,958	
*Stantec, Geotechnical Engineering Evaluation Report, Executive Summary, 2014												
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