Costs

Opinion of probable cost for each option, all-in. Gross estimates within an order of magnitude. Not all of these will apply to both options.

Actual Project

	Repair*	Breach**	Notes
Engineering			
Design	$126,000	$312,000	
Permitting	$24,000	$154,000	
Construction			
Mobilization Dem.		$230,000	% Direct Construction Cost
Water Mgmt		$50,000	
Sediment Mgmt		$50,000	
Demolish Spill		$440,000	
Rock add		$35,000	Added in area of former spillway
Vegetated Riprap		$20,000	Upstream left channel
Abandon		$15,000	Allowance for removing gates and filling remaining openings/Sluiceway outlets
Guide rails		$45,000	150’ total left and right
Channel Grading		$50,000	Allowance TBD
Repair/Restore		$40,000	Temporary Access Road
Misc. Work Clean		$50,000	Cleanup
Trees/Stump/Void	$150,000		
Regrade/Reinforc.	$300,000		
Slope/Rip Rap	$300,000		Depending on upstream slope material choice cost could increase
Decom. Outlet	$50,000		
Training Walls	$300,000		Not necessary for a breach design
Outlet gate etc.	$750,000		
Repair Cracks	$250,000		This is in the primary spillway area
Fish Ladder	$390,000		All in cost, including design and permitting
Total	**$2,640,000**	**$1,491,000**	

**Source: GZA, June 27 Advisory Committee Presentation (slides 42-43)*

***Source: Stantec Final Report (pages 50, 66 in PDF)*

Dam Compliance and Maintenance (30 Years)

Note, the dam would likely have a useful life of more than 30 years. Park maintenance is not reflected and would be similar for either scenario.

	Repair*	Breach	Notes
Dam Compliance**			If breached, structure will no longer classify as a dam nor be subject to ODS
Update Emerg. Action Plan	$75,000		$5,000 every 2 years per ODS
Biennial inspection	$105,000		$7,000 every 2 years per ODS
Fish ladder monitoring	$300,000		$10,000 annually; note, this is very much TBD
Dam Maintenance			In breach scenario, only maintenance would be with regards to parks
Dam	$100,000		Repointing masonry walls, gate maintenance
Fish ladder	$250,000		Fish ladder maintenance/replacement
Total	**$830,000**		

**Source: GZA, June 27 Advisory Committee Presentation (slide 44)*

***Based on current costs and known compliance requirements; compliance requirements may change over time*

Park Construction/Renovation Costs*

These are estimates only. The true costs of park rehabilitation would need to be determined as part of a park design process. Maintenance costs are not reflected.

	Repair	Breach	Notes
Basic Renovation			
Old Town Park Basic	$800,000	$1,000,000	Basic Issues to address: Accessible paths - compliant railings - earth re-grading - plantings Because the breach would likely require access via Old Town Park, there could be savings to basic improvements as part of "clean up".
Grove Park Basic	100,000	$100,000	Path/Access
Basic Subtotal	*$900,000*	*$1,100,000*	
Enhancements			
Old Town Park Enhanced	$100,000	$100,000	Connection to water
Grove Park Enhanced	$250,000	$250,000	Connection to water
Enhancements Subtotal	*$350,000*	*$350,000*	
Total	**$1,250,000**	**$1,450,000**	Basic + enhancements

**Source: Estimates provided by Jon Marshall, based on experience with park capital projects.*

Additional Consideration

The above estimates do not include the potential opportunity to take broad approach and tie in adjacent parcels, including the Multipurpose Park and conservation land on the South side of the Charles River.

On-River Navigation
While the Committee's report includes a suggestion to support navigability, dredging may not actually be necessary to achieve this goal. The river will carve a natural channel over time, and further data collection will help us understand how much effort by the Town may be needed to support navigability. Per the Actual Cost table, a $50,000 allowance was provided in Stantec's cost estimate for channel grading.

The presentation from the CEO of Paddle Boston at the Committee's January 25 meeting (32:29 mark) may also be of interest regarding on-river recreation.

Dredging would increase permitting timelines and have an associated increase to the cost of removal. Dredging would require additional permitting with the US Army Corps of Engineers.

<u>Riverbank Repairs</u>
Basic sediment cleanup on public property is included in the Actual Project costs for both projects.

The Town has stated that we are exploring options to fund improvements to the exposed areas in a breach scenario on private property. We are exploring grants available to private residents directly or the creation of a fund (likely using grant funding from the fed/state government) that residents can apply for.

The Town does not anticipate much cleanup on public property other than potential invasive species management, which can likely be completed by volunteers for the most part.

Sources of Funds

List any possible sources of funds to pay for each option

Note, other grants and programs are available to support breach options - and to some degree, repair. However, the primary opportunities for construction funding are listed here.

	Repair	Breach
CPA (assuming it passes)	If adopted, funds would not be available until 2024	If adopted, funds would not be available until 2024
Federal Grants	• FEMA - High Hazard Potential Dam (HHPD) (35% match req, limit dependent on applicant pool; $12M in total awarded in FY21; must be applied for by MEMA/ODS - Natick cannot apply on its on)	• FEMA - High Hazard Potential Dam (HHPD) (35% match req, limit dependent on applicant pool; $12M in total awarded in FY21; must be applied for by MEMA/ODS - Natick cannot apply on its on) • NOAA - Restoring Fish Passage through Barrier Removal (No match req, eligible for up to $15M) • U.S. Fish and Wildlife Service - National Fish Passage Program (not a formal application process; program selects sites - Natick was told it is a good candidate; $38M awarded in FY22; average of $1.2M award per project)
State Grants	• MA Executive Office of Energy and Environmental Affairs (EEA) - Dam and Seawall Repair Program (25% match req; limit of $1M per project; priority given to structures with poor ratings and for projects that remove high hazard dams)	• MA Executive Office of Energy and Environmental Affairs (EEA) - Dam and Seawall Repair Program (25% match req; limit of $1M per project; priority given to structures with poor ratings and for projects that remove high hazard dams) • MA EEA - Municipal Vulnerability Preparedness (MVP) Action Grant (25% match req, eligible for up to $3M) • MA Division of Ecological Restoration (DER) - Priority Projects (technical assistance oriented; scale of <$150K) • Variety of Army Corps of Engineer programs (50% match req. for feasibility; value ranging from $25K - $5M for construction; unclear of application process)
NGO Grants		*All $25,000 or less* • MA Environmental Trust • American Rivers • Trout Unlimited • The Nature Conservancy
Taxpayer	Tax Levy, Tax Levy Borrowing, Free Cash, Debt Exc.	Tax Levy, Tax Levy Borrowing, Free Cash, Debt. Exc.

Legal Issues

What legal issues may impede each option.

Town Counsel is reviewing legal issues with the Select Board on 10/12. Below is some information the staff has compiled as initial input.

Local John Eliot Historic District

Spillway
Per the Natick Historic District Commission: "The parkland on both sides of the river is in the jurisdiction of the Natick Historic District Commission, but not the spillway." As such, there would be no involvement by the Historic District Commission in a "pure" dam removal project.

Parks
The earthen berm (Grove Park) and Old Town Park (park on north side) are included in the John Eliot Historic District. A Certificate of Appropriateness would be needed for park rehabilitation for repair or breach.

Further, the Local Historic District Commission appointed Jeannine Furrer to represent them in the process. Ms. Furrer recommended removal. As part of the process, she polled the Commission's six members. Three (including herself) were in favor of removal, three were for repair.

National Register of Historic Places

Note, this information is based on staff research and conversations with Jeannine Furrer and the Public Archaeology Lab, which is on the MA State Contract for cultural resource determination services and has worked on dam removal and repair projects.

The dam itself is not listed as a "Historic Place". It is, however, mentioned in its entirety (i.e., earthen berm and the spillway) in the John Eliot Historic District's nomination papers: https://catalog.archives.gov/OpaAPI/media/63795584/content/electronic-records/rg-079/NPS_MA/83000812.pdf

Within the nomination papers, the dam is not included in the list of the District's "key and representative" properties. It is, however, mentioned, and would likely be considered a "contributing resource" in the John Eliot Historic District. In reviewing other dam repair/removal projects, the Advisory Committee visited two dam removal sites in Andover on the Shawsheen River. These dams were also in a nationally recognized historic district and were considered "contributing resources". In both cases, removal occurred and the historic value was mitigated through signage and preserving pieces of prior dams.

The National Historic Register would typically defer to the Massachusetts Historic Commission to review any work that requires State and/or Federal Permits. These reviews happen as part of a project application and cannot happen until the project is designed. As part of the application, the project applicant (Town of Natick) would likely be required to do an assessment of the dam and parks' historical significance. The assessment would provide a recommendation regarding its historic value to the district. The Massachusetts Historic Commission would look at facts and will work with

the local Historical Commission. Note these costs are included in the estimates for breach as part of design/permitting. These costs have not been considered for repair, but may also be applicable.

Conservation Commission

There are no legal issues anticipated for the Conservation Commission unless there is an appeal of the permit issued by the Commission. This is a possibility, as only 10 residents are required to appeal a permit issued by the Commission.

There are required timelines for opening of public hearings and issuance of permits under the Wetlands Protection Act, but the Commission has not had any previous issues complying with these timelines and does not anticipate any for this process.

Riparian Rights

On Docks: There is currently one (1) private dock onto the Charles River from a private residence in this area based on aerial photography and site visits by staff.

Property Rights: Per Town Counsel, property rights along a river typically extend to the center-line of the river. There are about 27 residential properties with structures (i.e. houses) along the river in Natick upstream of the dam to the Sherborn-Natick border. Wetland resource area boundaries may shift, and exposed areas of land may increase the level of bordering vegetative wetland area on each site.

Upstream Infrastructure

Per the Stantec report (at the request of DER), the potential impacts of dam removal on upstream infrastructure was explored. Two potential impacts were identified.

1) *The MWRA has a sewer siphon crossing under the Charles River approximately 800 feet upstream of the dam. It is encased in concrete. There is potential for scour along the top of the crossing. Natick reviewed the Stantec report with MWRA and it does not appear to be an impediment to breach. There are standard methodologies for preventing scour. Town Counsel is reviewing the MWRA's easement to determine the responsibility for potential mitigation.*
2) *The privately-owned pedestrian bridge approximately ¼ mile upstream of the dam was also noted in the Stantec report. Lowering the water could result in scour at the bridge footings. As noted above, standard methodologies for preventing scour exist. These are not anticipated to be costly and there is a question as to whether they are necessary.*

Water Rights

There is one property that is in question.