

JERRY'S POND IMPROVEMENTS DESIGN REVIEW



City of Cambridge
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Completed by: Kleinfelder, Hatch
DRAFT

EXECUTIVE SUMMARY

Jerry's Pond and the surrounding urban wild area in north Cambridge are part of a privately owned parcel of land that has been fenced off from the neighborhood and community for decades.

The City of Cambridge ("City") requested its consultants Kleinfelder and Hatch (KLF/Hatch) to perform a review of the preliminary pond reshaping design of Jerry's Pond as prepared by the Friends of Jerry's Pond (FoJP). The City asked KLF/Hatch to weigh the benefits of the FoJP plan against the associated costs and risks. The benefits of the FoJP Plan have been considered alongside the project that the IQHQ development is proposing for this site.

Current landowners (IQHQ) have proposed a project that provides improvements to Jerry's Pond with minimal disturbance to soils, trees, and shoreline. Conceptual improvements have also been prepared by the Friends of Jerry's Pond (FoJP). This document summarizes the review of the two plans completed by the City's consultants - Kleinfelder and Hatch - to understand project benefits, risks, and opportunities.













Our review focused primarily on the improvements associated along Rindge Avenue and the abandoned parcel west of Jerry's Pond adjacent to Alewife Brook Parkway. This report also identifies additional benefits that could be achieved by incorporating relatively easy changes to IQHQ's plan as well as peer review assumptions. Our review found that the FoJP Plan would require significant soil disruptions and mature tree loss, a high cost of construction, intensive future management to sustain created habitats, and difficulty establishing a bordering wetland. The IQHQ Plan, with the added proposed enhancements discussed later in this report, would provide many benefits to users of Jerry's Pond.



Figure 1. - Side-by-side comparison of the two plans for Jerry's Pond

Considerations when reviewing the two plans include how many established (protected) trees would be removed, the amount of disruption from potentially contaminated urban fill soils, and the effect of unstable (highly variable) urban hydrology on restoring the shoreline and creating aquatic habitat (Figure 1). Costs associated with design and permitting, construction and long-term maintenance/management were also taken into consideration. Both plans identified circulation and passive recreational improvements along Rindge Avenue and Alewife Brook Parkway. A Comparison Table identifying major plan elements is shown in Table A.

Table A – Comparison Summary of Plan Elements

| | IQHQ PLAN | FoJP PLAN |
|--|---|---|
|  Large Trees Removed (>6" caliper) | 20 | 72 |
|  Total Caliper Inches of Large Trees Removed | 284 | 909 |
|  Proposed Trees | 12 | up to 175 |
|  Constructed Wetlands* | Not proposed | Approx. +6,000 sf |
|  Bank Restoration* | Not proposed | Approx. 9,400 sf |
|  Impacts to Heron Nesting Sites | Minimal | Significant |
|  Dump Trucks (Excavation and Fill Volume) | 90 Truckloads | 2,220 Truckloads |
|  Disturbance of Potentially Contaminated Soils | Minimal | Significant |
|  Construction: Start Duration Completion | summer 2024 12 months summer 2025 | summer 2025 or 2026 24 months summer 2027 or 2028 |
|  Cost to the City | \$0 | \$20-23 Million |
|  Uses Consistent with Activity and Use Limitation (AUL) | ✓ | X |
|  Supported by Property Owner | ✓ | X |

**May not be feasible due to unstable urban hydrology.*

FRIENDS OF JERRY'S POND PLAN

The FoJP proposal is a major earthwork (excavation and grading) project to reshape the pond and the adjacent upland areas to the south (Rindge Avenue) and west sides of Jerry's Pond (**Figures 2 and 3**). The FoJP Plan proposes the re-use of onsite soils from the excavated pond area for the construction of the expanded land along Rindge Avenue. The filling of Jerry's Pond along Rindge Avenue (approximately 0.74 acres above the water line) allows for the on-grade construction of a sidewalk, nature trail, two-way bicycle path, and a vegetated slope into the pond. The filling of Jerry's Pond below the water line is estimated at 0.8 acres.

Work elements illustrated in the FoJP plan would require the removal of 72 large trees (>6" caliper), significant soil disruption, and an inability to effectively restore the shoreline and created aquatic habitat due to an unstable and highly variable urban hydrology.

The FoJP Plan proposes habitat improvements in the form of a wetland shelf (littoral zone) and riparian slope plantings. Hydrologically, the long-term establishment of a healthy and functioning aquatic shoreline will be difficult to ensure based on an unstable and highly fluctuating urban pond that is underlain by clay and has a small subwatershed and no controlled outlet. Greater fluctuations in water levels caused by predicted (future) increases in the frequency and intensity of rainfall events will also have a negative effect on long-term aquatic plant establishment.

Up to 175 new tree plantings are proposed along Rindge Avenue to mitigate for trees removed as part of the western pond expansion, promoting cooler temperatures in summer months and improved wildlife habitat. However, a total of 72 significant trees will be removed resulting in a caliper loss of 909 inches. As such, the City would require 501 (2" caliper) trees to be planted as required by the City's Tree Ordinance. The mitigation payment if the trees were not planted is estimated to be over \$727,000 (\$850/caliper inch). In the FoJP plan, there is no opportunity to save the existing significant trees (7 total) along Rindge Avenue.

The FoJP plan also proposes the creation of two island rookeries by preserving existing trees within the pond's (western) expanded footprint. Unfortunately, the (southernmost) trees used for heron nesting will be removed and the construction of a new heron rookery does not guarantee that the birds will use the islands as a new nesting habitat.

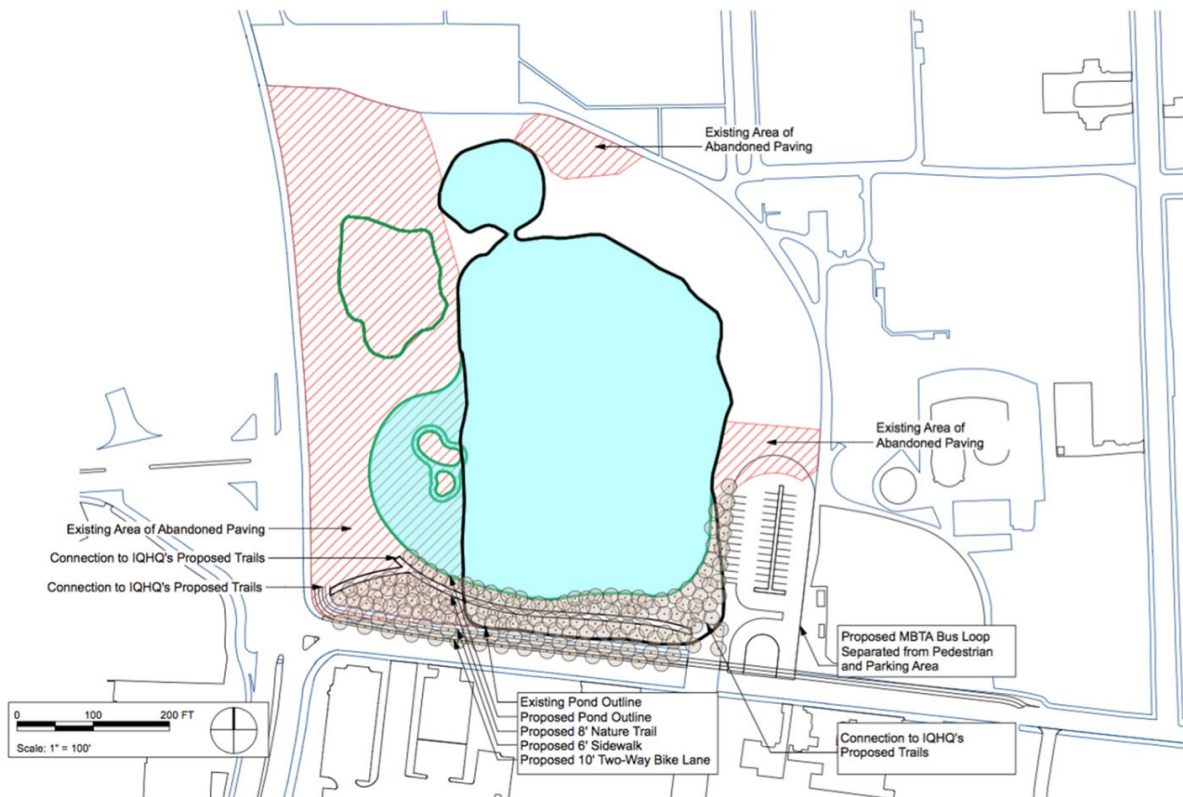


Figure 2 - Friends of Jerry's Pond (FoJP) Improvements Plan.



Figure 3 - Birdseye Rendering of FoJP Proposed Improvements Along Rindge Avenue.

The FoJP Plan allows for a greater separation of paths and a vegetated slope with a narrow, emergent wetland at the expanded water's edge. This would require significant excavation (approximately 14,800 cubic yards) and fill being brought in to expand the land northward into Jerry's Pond (approximately 15,500 cubic yards). The amount of earthwork necessary to create the expanded shoreline along Rindge Avenue may be cost prohibitive if contaminated soils are encountered, and the disturbance would not be consistent with the Activity and Use Limitation (AUL) designation.

The construction of three new paths (sidewalk, bicycle, and nature trail) along Rindge Avenue increases impervious surfaces and runoff into Jerry's Pond. Currently, only a narrow concrete sidewalk exists near the pond. The FoJP Plan also proposes seating and picnic areas along Rindge Avenue, along with the sidewalk improvements and the construction of a new multi-use path along Alewife Brook Parkway that are also included as part of the IQHQ Plan.

Additional benefits with the FoJP Plan are the potential for improved and expanded ecological habitat and functions associated with the expanded slope, and greater direct public exposure to some of the created native plant communities. Associated risks with the FoJP Plan are seen in the earthwork/soil handling, and the success of habitat restoration and site improvements, along with permitting and timing delays that may arise. A new fence will most likely need to be constructed along the water's edge as a public safety measure as the new pond edge will drop off steeply. The FoJP plan is currently not supported by the property owner (IQHQ).

The estimated total project cost for the FoJP Plan (design, permitting, and construction) is estimated to range between \$19.7M and \$23M, which would substantially be borne by the City. At least a five (5) year monitoring and maintenance component would be required associated with the habitat restoration of the new shoreline plantings and aquatic (wetland) creation.

IQHQ PLAN

IQHQ Plan (Baseline Conditions for the Peer Review Analysis)

The IQHQ plan takes a minimalistic approach to the improvements around Jerry's Pond and its associated resource areas (**Figures 1 and 4**). The IQHQ plan includes above-ground boardwalks and overlooks along the existing Rindge Avenue corridor as well as a new sidewalk and bicycle path.

In terms of soil disturbance and potential for interaction with contaminated soils, the IQHQ Plan promotes avoidance to the greatest extent practicable; it limits disturbance to new paths and boardwalks while leaving the existing shoreline (regulated bank) undisturbed. This low-impact approach minimizes ecological and environmental permitting costs. It avoids the paved western parcel except for the two paths proposed directly adjacent to Alewife Brook Parkway and grading associated with the creation of a compensatory flood storage area. This compensatory flood storage area is sited within the existing paved area which reduces impervious surface and promotes stormwater infiltration. Excavation required for the IQHQ plan is estimated at 1,100 cubic yards of material.

The IQHQ plan limits ecological and environmental disturbance and costs, while providing enhancements to the local ecology and environment. Approximately 44 new trees (2" caliper) will be planted within the compensatory storage area west of Jerry's Pond. These new trees will include additional planting soil and a maintenance and monitoring period that ensures establishment.

A total of 20 large trees (>6" caliper) are proposed to be removed within the project area, requiring approximately 169 new trees (2" caliper) to be planted. The mitigation payment to the City if the trees were not to be planted is estimated at \$241,000. The existing heron nesting areas (to the south) are not shown to be removed and would be protected during construction.

It is noted that the IQHQ plan has gone through multiple iterations, which included input from the public, local stakeholders, and the City. The City would not incur any costs if the IQHQ plan were implemented.

Recommended Project Enhancements to IQHQ Plan's Baseline Conditions

The following enhancements to IQHQ's Plan were identified that would create additional benefits for users of Jerry's Pond:

1. Remove asphalt paving and install planting soil, native seeds, trees, and shrubs to help restore ecological processes.
2. Construct floating island(s) within Jerry's Pond to create habitat, filter contaminants, and reduce harmful algal blooms.
3. Conduct survey of invasive species; provide recommendations for invasive species monitoring and removal.
4. Preserve existing trees along Rindge Avenue.
5. Evaluate potential to restore degraded wetland on former Lehigh property.
6. Provide additional directional and environmental signage along new paths at Alewife Brook Parkway.

Based on our review and corresponding findings, the Hatch/Kleinfelder team recommends pursuing the IQHQ Plan with the recommended project enhancements identified above.



Figure 4 - IQHQ Proposed Improvements Plan Along Rindge Avenue and Western Parcel.