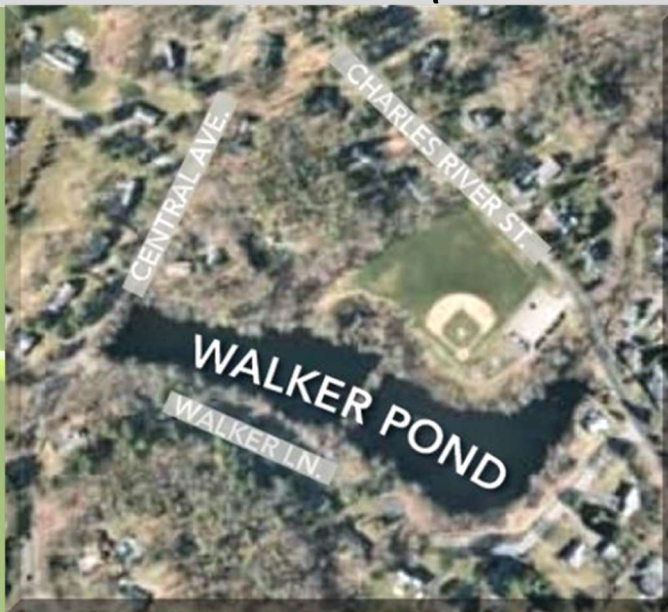


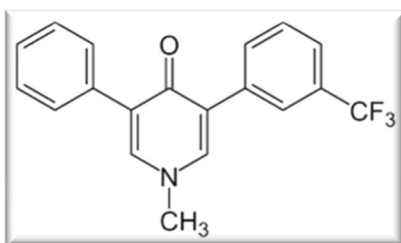
Walker Pond Improvements

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Phase II Walker Pond Improvements



Walker Pond Treatments



The goal of this component of Phase II is to enhance the aesthetics, water quality, and wildlife habitat of Walker Pond by managing nuisance aquatic weeds and nutrient loading. This will be achieved through the application of herbicides, fungicides, algicides, nutrient source control, and bacteria. The overall aim of this phase is to integrate ecological improvements into the pond's management strategy, which includes water quality monitoring to guide treatment and control methods.

Water quality sampling is crucial for selecting effective treatment methods, especially for maintaining the success of vegetation removal. Surveys of the pond's water quality and aquatic vegetation were conducted in July (following a rain event) and October (during dry weather) in 2023. Sediment sampling was performed in August 2023.

Data from these surveys reveal the presence of two invasive plant species in isolated areas, as well as eleven native species, some of which are abundant and causing issues within the pond. Walker Pond has been affected by long-term nutrient inputs, such as nitrogen and phosphorus, from development in the watershed, which contributes stormwater runoff. This runoff carries nutrients that accumulate in the pond, leading to overgrowth. Over the past ten years, the Town and the Walker Pond Watershed group have developed and implemented initiatives to address these stormwater inputs. Past nutrient load reduction efforts by the Town have focused on external watershed-based management strategies.

The treatment plan for the pond addresses excess plant growth and invasive species. An initial herbicide treatment using Sonar (fluridone) has been applied to achieve the recommended concentration of 10 parts per billion (ppb) while plant growth is still active. Invasive species such as water chestnut and purple loosestrife will be controlled through hand pulling. The first treatment was carried out by Water & Wetlands on June 24, 2024. The final treatment for the season was applied on July 24, 2024.

Based on observations from the initial treatment, the herbicide appears to have been effective. Ongoing sampling and monitoring will be essential to evaluate the effectiveness of these treatments and to inform future recommendations, which may include additional methods such as mechanical removal of vegetative overgrowth.



Water Chestnut



Purple Loosestrife

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Walker Pond Outlet Structure

Natural water flow is crucial for managing nutrient levels in a water body, and this is especially true for Walker Pond, which is part of a riverine system that eventually discharges into the Charles River. The pond collects stormwater during rain events, retains these flows, and releases them at a controlled rate into a culverted stream, which helps with storm damage and flood control. Flow facilitates the transport of nutrients downstream, while stagnation allows nutrients to accumulate and settle in the sediment.

To maintain the health of Walker Pond and the overall system, it is important to ensure a consistent flow in and out of the pond. While balanced flow alone will not resolve the pond's nutrient issues, it will help maintain equilibrium once it is achieved.



At the southwest corner of Walker Pond is an outlet structure designed to control the pond's water level. This structure, which allows overflow through a culvert beneath Central Avenue, was originally built with provisions for timber stop logs to adjust the weir flow elevation. The planned replacement outlet structure is designed with improvements for the following:

- Maintain desired pond elevation and provide ability for the Town to modify the elevation if needed for pond management
- Maintain discharge flow so not to exceed the capacity of existing downstream system and provide capability to pass the 100-yr storm
- Public safety improvements
- Ability to perform water quality sampling
- Longevity, operations and maintenance ease & safety

Additionally, an existing 12-inch pipe outfall at the northeast corner of the pond, near the intersection of Walker Lane and Russell Road, will be upgraded with the installation of a concrete headwall.

Biszko Construction has been hired for the removal of the existing outlet structure and replacement of a pre-cast outlet control structure as well as constructing the headwall and replacing the pipe outfall. The contractor anticipates beginning this work at the end of July 2024 and estimated completion is in mid-November. All activities are dependent on weather and delivery of materials.



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Walker Gordon Field BMPs



Based on aerial imagery of pond vegetation and on the ground observations, there is likely a significant contribution of nutrient and bacteria running from Walker Gordon Field, directly into the eastern basin of Walker Pond. This will be mitigated with installation of a perimeter infiltration trench to encourage infiltration of surface runoff from Walker Gordon Field before it discharges overland into the Pond.

A second BMP is proposed to treat runoff from 15 ± acres of developed land upgradient of the park and includes installing a subsurface infiltration system under the gravel parking lot.

These two BMPs are projected to reduce the phosphorus load to the pond by nearly 8-lbs annually.