DRAFT Batterson Park Study

Prepared for the General Assembly
as Directed by Public Act 23-204

DRAFT FOR PUBLIC INPUT

November 2023

Connecticut Department of Energy & Environmental Protection

Table of Contents

Public Act 23-204 Study Requirement

In June 2023, Public Act 23-204 was passed and signed into law. Section 140 of this Act requires the CT Department of Energy & Environmental Protection (DEEP) to "study the feasibility of, and recommend options for the provision of, public recreational access to the Batterson Park property located in the city of New Britain and the town of Farmington" in consultation with the city of Hartford and other interested municipalities.

This Act specifically requires DEEP to evaluate the following elements of Batterson Park in this study which is due to the Environment Committee in the CT General Assembly by January 15, 2024:

- Water quality of Batterson Park Pond.
- On-site and off-site measures necessary to support swimming in Batterson Park Pond.
- Existing and new infrastructure and capital investments needed to accommodate public recreation and public access.
- Ongoing operation and maintenance costs.
- Public safety concerns.
- Public and public-private partnership options to govern redevelopment of the park.
- Funding needs associated with each redevelopment option; and
- Any other issues deemed necessary to consider by DEEP's Commissioner.

The Act also requires DEEP to accept public comments to be considered in the study through public input sessions held in Farmington, Hartford, and New Britain. Public input sessions have been scheduled for early December in each municipality, which members of the public can attend either in-person or remotely via Zoom.

Executive Summary

[Exec Summary and other chapters to be completed after public input received on Draft Study]

Batterson Park is owned by the City of Hartford. It is located on approximately 260 acres between Farmington and New Britain. The park's location is in a densely populated region of the state with potential for high visitation, and, due in part to its popularity, this has required significant costs to operate over time including staffing, supervision, maintenance, and capital costs. The combination of significant operational costs and its location outside Hartford's city limits has made Batterson Park's upkeep challenging for the City compared to other well-used parks located within its boundaries. Because the staff and financial resources required to manage this park were not sustained, the park has been reduced to "limited public access" status other than via the boat launch since 2015.

There are several specific challenges to park management that will be addressed in this Study:

Water Quality

Batterson Park Pond contains high levels of E. coli bacteria and cyanobacteria as well as elevated levels of nitrogen and phosphorus common for an older, eutrophic pond in an urbanized area. Stormwater runoff from I-84 and the nearby developed watershed, fecal inputs from geese, and natural eutrophication make efforts to improve water quality to accommodate swimming and wading both expensive and impractical to maintain over time.

Land Management/Encroachment

The properties that make up Batterson Park have suffered from benign neglect for many years. That has left a legacy of land management challenges to resolve. For example, several of the parcels that make up the Batterson Park property are encumbered by electric utility easements, drainage easements, and sewer and water easements. These easements will need to be monitored and potentially enforced by the landowner if the easement terms aren't followed. There also appear to be significant encroachments into the property along the boundaries of Batterson Park that will need to be addressed by any future manager of the Park.

Public Safety

Ensuring public safety at Batterson Park will require additional personnel and resources above what is available at this time. Concerns include the number of visitors the park could hold sustainably as well as traffic in and around the park, which is situated in a thickly settled residential area. Managing walk-in visitors would be challenging with open borders, and the pond and boat ramp create additional public safety concerns related to potential unauthorized uses.

Overall

Batterson Park has potential to be a recreation resource for the public located in a diverse, densely developed neighborhood setting, but it will require substantial investment of additional resources, and solutions to the following challenges:

- Determine Safe and Sustainable Recreational Uses: Several potential recreational uses have been proposed for Batterson Park by various historic and potential future park users. A primary consideration for whomever is responsible for managing Batterson Park in the future will be to determine what activities are compatible with the water quality of Batterson Park Pond and its elevated bacteria and nutrient levels.

- Ensure Adequate Personnel and Financial Resources: In this Draft Study, DEEP includes an estimate of the staff and funding that would likely be required to operate and maintain Batterson Park as a "passive use park" through various potential public or public-private partnerships. Through additional interviews in November with municipalities and other potential partners, and in consideration of public input in early December, DEEP will provide additional perspectives on the capital investments, maintenance and public safety personnel, and other considerations required to manage Batterson Park in the future.

- Establish Governance Structure for Park Maintenance and Operations: The City of Hartford owns Batterson Park. It is possible that a new partnership with other municipalities and/or with other public or private partners (assuming additional funding and staff resources are provided) may represent a workable model for Batterson Park's future. Once updated with input from interviews and public input, the final study will include several potential models of park governance.

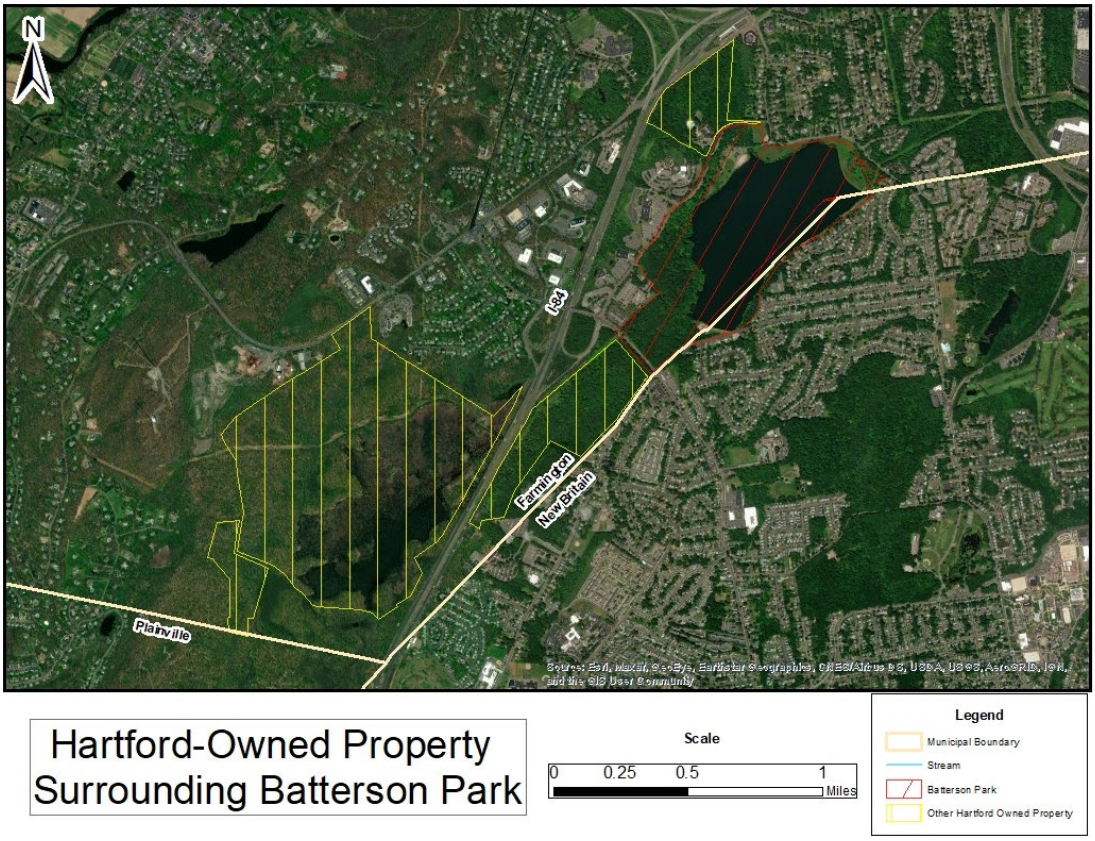
Current Status of Batterson Park

Brief Background on Batterson Park

Batterson Park is a public, municipal park located on approximately 260 acres of land and water situated on the border between Farmington and New Britain. Batterson Park is owned by the City of Hartford which originally acquired the land from the Metropolitan District Commission (MDC) in 1928, when it was no longer being used as a potential drinking water reservoir.

Batterson Park Pond comprises approximately 145 acres in the center of the park, and visually serves as its primary aesthetic and recreational feature. In 2015, the City of Hartford decided to close Batterson Park's facilities and non-boating/fishing activities to public use due to budget concerns about ongoing operations and maintenance costs. The State of Connecticut was granted a right-of-way in 1962 from the City of Hartford to construct a public boat launch. Today, CT DEEP boating division maintains the state boat launch at Batterson Park Pond, and boating and fishing recreational activities continue today.

In addition to what is commonly considered the Batterson Park property and the primary focus of this study, the City of Hartford owns nearby properties that were part of the original MDC watershed buffer sites. Some parcels of the original landholdings have been sold or transferred for private development and highway construction, including 67 acres sold in 1988 to establish the Hartford Parks Trust Fund. Other adjacent properties (e.g., Fienemann Road, Deadwood Swamp, Hospital Rock) have been proposed for sale or transfer for various municipal or private purposes over time. The total landholdings owned by the City of Hartford in the vicinity of Batterson Park is approximately 585 acres today.



In June 2021, Special Act 21-15 awarded $10 million in American Rescue Plan Act (ARPA) funds to the City of Hartford for Batterson Park through a contract administered by DEEP. The legislation and resulting contract supported the development of a Master Plan, water quality conditions report, removal of degraded buildings at the park, structural design proposals, and potential capital investments.

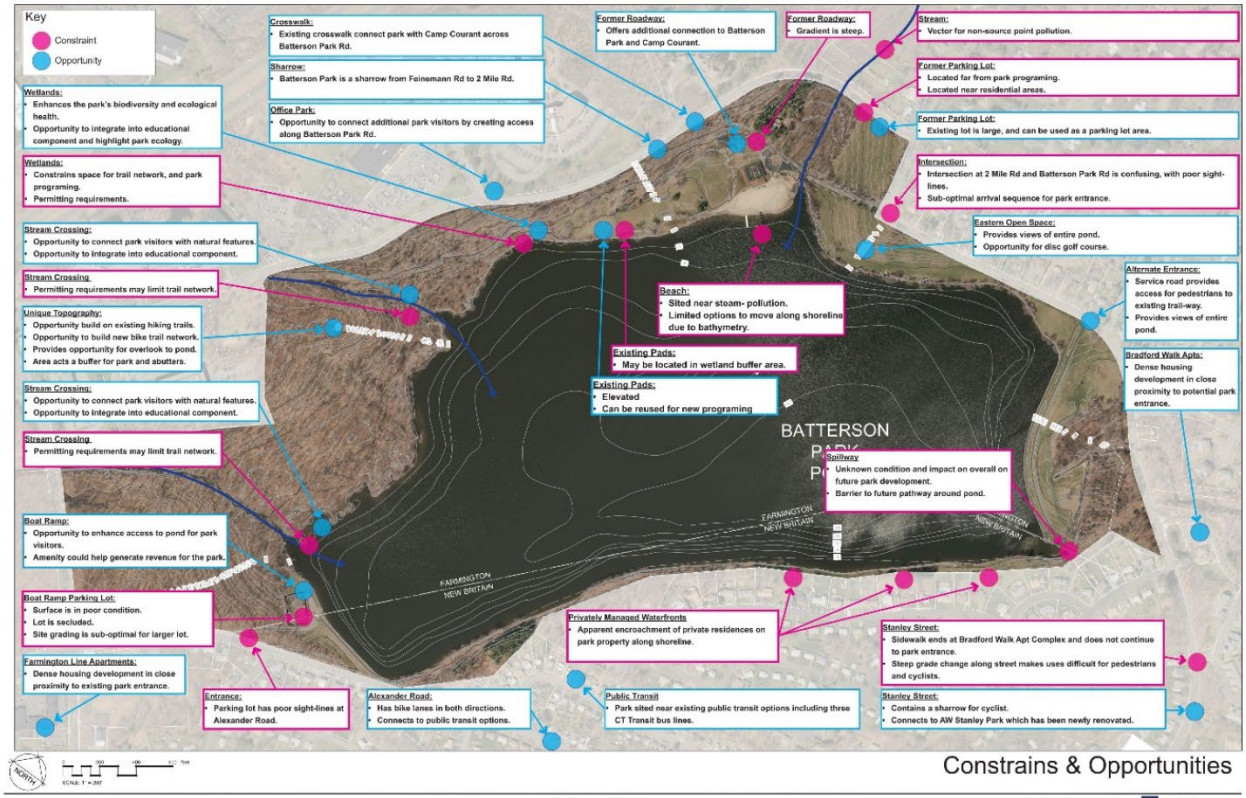
As its last action under the contract with CT DEEP, the City of Hartford ensured the remaining run-down buildings at Batterson Park were removed. In June 2023, when the General Assembly passed and the Governor signed Public Act 23-204, any further development of Park facilities and infrastructure was paused to allow CT DEEP to prepare this Study. The Park continues to be owned and managed by the City of Hartford with some logistical and public safety support from Farmington and New Britain. CT DEEP currently provides public access to the pond at the boat launch.

2022-23 Master Plan and Water Quality Conditions Reports Prepared by Hartford

We owe a debt of gratitude to the City of Hartford, their subcontractors, as well as representatives from Farmington, New Britain, and members of the public who gave substantial input to the Master Plan effort which puts forward a thoughtful vision for the future of Batterson Park.

Summaries of the Master Plan and water quality conditions reports are included with the full reports in the Appendices for this Study, but here is a link to the Master Plan project website as well as an instructive graphic on "constraints and opportunities" below.

It's important to put in context here that in preparing the water quality conditions report, the contractor (GZA) was asked specifically to make a recommendation on how to potentially make Batterson Park Pond swimmable. However, DEEP's analysis of water quality comes to a significantly different conclusion when considering the likely impacts on fish and other aquatic life that would occur with the chemical treatments proposed by GZA, the additional ongoing high costs required to install, maintain, and operate mechanical aeration systems, the issues associated with upstream stormwater pollution and migrating wildlife inputs, and several other factors described in the next chapter of this Study.



Community demographics surrounding Batterson Park

Batterson Park's proximity to a diverse urban population makes it a potentially valuable recreational and educational asset in the effort to increase equitable access to outdoor spaces. Providing high-quality opportunities for outdoor engagement helps communities develop awareness of the need for conservation and stewardship while benefiting health and wellness outcomes (*National Institute of Health*). Assuming the availability of funding for outreach and engagement, focused on recreational and education programming, restoring Batterson Park to a high-quality greenspace will help close the gap between urban and rural populations experience and engagement with the natural environment.

To provide background on the community that hosts Batterson Park, DEEP conducted an EJScreen Community Report on the community located within 1 mile of Batterson Park Pond in Farmington and New Britain using the EJScreen tool created by the U.S. EPA. EJScreen provides EPA with a nationally consistent dataset and approach for combining environmental and demographic socioeconomic indicators. There are 13 environmental indicators, 7 socioeconomic indicators, 13 environmental justice indices, and 13 supplemental indices that EJScreen draws upon. The full EJScreen Community Report is included in Appendix I of this study, but the community information is summarized below.

Although the following data is important to consider, the U.S. EPA acknowledges that there is substantial uncertainty in demographic and environmental data which may change over time. The U.S. EPA does not claim that the EJScreen report provides data on every environmental impact and demographic indicator that may be relevant to a particular community, nor is it adequate to provide a true risk assessment related to a particular location.

With those caveats in mind, the EJScreen report includes the following findings:

- Within 1 mile of Batterson Park Pond (chosen as the center point for determining a 1-mile radius), there are approximately 7,285 individuals living in 2,833 households with an average per capita income of $46,594, and 60 percent of households are described as "owner-occupied."
- 18 percent of residents are described as "low income", with 75 percent of residents aged 18 years or older. 19 percent of residents are older than 65, and the average life expectancy is 79 years.
- 43 percent of residents are described as "people of color" with Hispanic (23%), Asian (10%), and Black (6%) being the largest groupings.
- 12 percent of residents are described as "persons with disabilities."
- 8 percent of residents have less than high school education, unemployment is 5 percent, and 7 percent of households are described as "limited English."

- Amongst limited English households, 43 percent speak “Other Indo-European languages,” 28 percent speak Spanish, 26 percent speak Asian-Pacific Island languages, and 3 percent are grouped as “other” languages. 39 percent of residents speak languages other than English at home, with the largest by percentage being “Russian, Polish, or Other Slavic” (14%), Spanish (12%), and “Other Indo-European” (6%).
- The full EJScreen Community Report including a wide range of additional environmental justice, environmental, and socioeconomic indicators is found in Appendix I.

Community engagement would need to be an essential and ongoing action led by whomever is ultimately responsible for the ownership, operations, and ongoing maintenance at Batterson Park.

Batterson Park Pond Water Quality Assessment by DEEP

DEEP Water Quality Assessment

Batterson Park Pond is a 145-acre pond located in Farmington and New Britain, Connecticut. The pond was constructed in the late 1800’s and was created with an earthen and stone dam that is now owned by the City of Hartford. The pond has a maximum depth of 20 feet with an average depth of 15 feet. Batterson Park Pond forms the headwaters of Bass Brook and is located in the Park River watershed which ultimately drains to the Connecticut River. This is a highly urbanized drainage basin with over 28% developed land within the basin. Three small streams drain into Batterson Park Pond. All three streams convey stormwater that runs off Interstate 84.

Lakes and ponds undergo a natural aging or successional change over time known as eutrophication, and trophic categories are often used to describe the current state of a pond relating to nutrients. Connecticut’s Water Quality Standards assess lakes in four categories from youngest to oldest as follows: oligotrophic, mesotrophic, eutrophic, highly eutrophic (State of CT, 2015). This is an important concept to understand in the context of the potential recreational uses that Batterson Park Pond can support now and in the future. Younger oligotrophic lakes typically support uses and activities like drinking water supply, cold water fisheries, and swimming. Older eutrophic lakes typically support uses like fishing for warm water species, kayaking, and wildlife viewing. Batterson Park Pond is “eutrophic” and has been assessed in this way since the 1970’s (Frink and Norvell 1984).

Based on analysis of the available water quality data (including the results from historical and recent sampling), Batterson Park Pond is not suitable for swimming. Batterson Park Pond is best suited for non-contact recreational uses, such as boating, fishing, kayaking and bird watching. Due to the park’s location in a developed area and other challenges, water quality

improvement efforts will be expensive, take years to implement, and ultimately may not be sustainable.

DEEP water quality experts evaluated the water quality sampling data collected by DEEP and others over time to evaluate recreational opportunities that would be compatible with Batterson Park Pond. This information is summarized in the "Recreational Use Water Quality Weight of Evidence Assessment" below.

Table 1. Recreational Use Water Quality Weight of Evidence Assessment

Measure [Reference No.]	**Supports Swimming**	**Supports Non-Contact Recreation**	**Notes** [Reference No.]
Clean Water Act Assessments[5,8]	No	Caution	Recreational uses are assessed as impaired. Aquatic Life uses are assessed as supporting.
Bacteria Sampling[9,13]	No	Caution	Stream entering swim area always exceeds criteria to support swimming[11]
Limnological Sampling[1,3,4,14,15]	No	Yes	Samples consistently indicate eutrophic conditions since 1970s
Cyanobacteria Sampling[1,9,16]	No	Caution	All summer samples available over health cautionary limit[12]
Macrophyte Abundance[3]	No	Yes	Dense macrophytes. Lots of invasives.
Fishery[6,7,10]		Yes	Warmwater fishery consistent with eutrophic pond. Stocked with Walleye. Trophy Common Carp.
Trophic Category[1,4,14]	No	Yes	Assessed as Eutrophic since the 1970s

Land Use[2,5]	No	Caution	Highly Impervious watershed drains I-84 and contributes stormwater pollutants to pond through 3 tributary streams and overland runoff.

The following bullets provide more detail to complement Table 1 above:

- Cyanobacteria, also known as blue-green algae, can release toxins which can have health effects for animals or people using the water body for recreation. Historical and current cyanobacteria data are consistently high in summer months at levels that would trigger an advisory to close a swimming area based on CT DPH and CT DEEP swimming guidance (CT DPH and CT DEEP 2023).

- Indicator bacteria are one of the tools used by CT DEEP to evaluate the potential for contamination of waterbodies. Bacteria results collected in 2023 always exceeded levels recommended for swimming in the stream flowing into the former bathing beach area (CT DEEP 2023). Samples collected directly in the historic beach area have exceeded bacteria levels recommended for swimming after significant rain events (CT DEEP 2023, FRVHD 2015).

- A watershed and pollutant loading assessment called a Total Maximum Daily Load (TMDL) highlights the fact that Batterson Park Pond does not support recreational uses such as swimming (CT DEEP 2004). Batterson Park Pond is currently listed as impaired for recreation on the 2022 Connecticut Integrated Water Quality Report, also known as the 303(d) impaired waters list (CT DEEP 2022). The Federal Clean Water Act Section 303(d) requires DEEP to identify waters not meeting current water quality standards due to pollutant discharges and to develop Total Maximum Daily Loads (TMDLs) for these waters. A TMDL is a pollution budget that sets the maximum amount of a substance that a waterbody can receive without exceeding current state water quality standards. Batterson Park Pond was first listed as impaired for recreation in 1998 caused by excessive anthropogenic nutrient (nitrogen and phosphorus) loading, as well as excessive algal growth in the pond.

- The Batterson Park Pond TMDL established nitrogen and phosphorus loading targets that, if achieved, would result in consistency with the State of Connecticut Water Quality Standards. To restore water quality conditions in the pond, the TMDL set a target of reducing nitrogen and phosphorus by 53-61% and 51-75%, respectively (CT DEEP 2004).

Major sources of pollution to Batterson Park Pond include surface water base flow, stormwater, internal sediment loads, and waterfowl wastes.

- Recent nutrient water quality sampling reports (GZA 2022, CT DEEP 2023) indicate that conditions have not improved from levels observed 20 years ago when the TMDL was developed. Historic as well as recent phytoplankton samples (BEC 1993, GZA 2022, CT DEEP 2023) contained high concentrations of cyanobacteria that would trigger public health notifications (CT DPH and CT DEEP 2023). Cyanobacteria have the potential to release toxins that can cause health effects to people and animals that interact with the water. The risk of exposure to cyanobacteria and toxins is elevated during direct contact recreational activities such as swimming.

- Aquatic plants of macrophytes are an important natural component of Batterson Park Pond. The Connecticut Agricultural Experiment Station has conducted an invasive aquatic plant survey in Batterson Park Pond (CAES, 2004). The survey showed an abundance of aquatic plants and invasive plants species. Observations of dense macrophyte growth were also noted during limnological surveys (GZA 2022, CT DEEP 2023).

- Batterson Park Pond has the water quality to support a warm water fishery typical of eutrophic ponds. DEEP currently stocks the pond with walleye and lists the ponds as a trophy common carp fishery (CT DEEP, 2021).

- The trophic status, which is a measure of lake age and nutrients in Batterson Park Pond, has been eutrophic since the 1970s (Frink and Norvell 1984). A eutrophic pond is best suited to recreational activities like boating, fishing, kayaking, and bird watching.

- The watershed draining to Batterson Park Pond contains Interstate 84 and is characterized by 28% development. Studies such as Bellucci et al 2013 document that at impervious surface levels over 12%, there is a high likelihood of water quality degradation through stormwater runoff.

Expensive measures to improve the water quality of Batterson Park Pond

Management measures required to restore water quality to levels that meet water quality standards for all recreational uses including swimming would be complex, costly, and difficult both to implement and sustain over time.

In 2004, the Total Maximum Daily Load (TMDL) assessment estimated $3,000,000 to $5,000,000 in implementation costs for major structural improvements that would take about a decade to complete (CT DEEP 2004). Calculations conducted as part of a recent watershed needs assessment estimate that stormwater management costs alone would be ~$4,000,000. Beyond cost considerations, implementing stormwater controls would need to involve coordination with the municipalities and CT Department of Transportation on the road infrastructure, as well as with private businesses and individual landowners to manage stormwater from impervious surfaces in the watershed that collectively drain into Batterson Park Pond.

It is important to recognize that while infrastructure projects can reduce the impacts of stormwater on water quality, it is not possible to predict if the measures listed in the 2004 TMDL will be adequate or sustainable to improve water quality to the levels necessary to support swimming or water-contact recreation.

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Recreational uses compatible with Batterson Park

Boating

An ordinance was established by the City of Hartford around the year 2000 that prohibited the operation of motorized vessels on Batterson Park Pond to address noise and water quality concerns of combustion engines. This limited the use for recreation to row boats, canoes, kayaks, and sailboats. In 2013, CT DEEP worked with the City of Hartford to modify the ordinance to also allow electric motors. This change enabled fishing tournaments to be held on this waterbody when boats are under electric motor power.

Fishing

Batterson Park Pond is accessible to hundreds of thousands of residents in the Greater Hartford region via a short drive or public bus service. The pond has both a state-owned boat launch and unrestricted shoreline access.

The pond offers a productive and diverse fishery for various warmwater fishes. To augment the quality sunfish, bass, and yellow perch fisheries, the DEEP Fisheries Division has stocked Walleye fingerlings annually since 2001. Walleye fishing is especially popular at night during the winter when ice conditions allow. The Fisheries Division also stocked yearling Channel Catfish for over a decade. These fish, stocked at 6-8 inches, have grown into large robust catfish averaging 3-6 pounds each.

Batterson Park Pond is also noted for having large Common Carp. Communications with avid carp anglers several years ago prompted DEEP's Fisheries Division to create special fishing regulations for Common Carp, and Batterson Park was designated as a Trophy Carp Water, meaning the daily creel limit is one fish and it must not exceed 26-inches in total length. This unique trophy fishery is especially popular with the area's Eastern European community.

Trails

Currently there are minimal trails in the park. The trails are informal and not well marked. These trails could be improved and extended to increase the accessibility and usability of the park for the entire community.

As discussed in greater detail in the master plan, the potential exists for recreation trails in the park, perhaps including a "loop" trail that could be created around the perimeter of the Pond. However, such a trail would require extensive planning, permitting and construction, as it would need to cross wetland areas and watercourses. Such a trail would be over 2 miles long and would provide a significant recreational amenity for users of the park, both those that might drive to the park as well as nearby neighbors who might walk into the park and use the trail to access the park from multiple locations. Because of the wetland areas and water crossing, the

estimated cost to design and construct a loop trail, not including ongoing maintenance as necessary, is approximately $5,000,000.

Wildlife/Botany viewing

The pond attracts wildlife and offers viewing opportunities from around the park. Gulls and waterfowl frequent the pond year-round. Data from eBird indicates that there have been 167 species of birds seen in the park since 2002. In addition, the pond is an observation point for DEEP's annual Mid-Winter Eagle Survey. Since 2016 there are 2 observations of bald eagles (*Haliaeetus leucocephalus*) during the survey. Eagles frequent the park throughout the year. In addition to birds, observations from iNaturalist indicate pollinators, plants, and snapping turtles seen within the park.

The e-NDDB (electronic Natural Diversity Database) report for Batterson Park is included in the Appendix. It includes an historic record of a Spotted turtle (*Clemmys guttata*) and a record for Eastern box turtle (*Terrapene carolina carolina*), both reptiles classified as "special concern" under the Connecticut Endangered Species Act. Both depend on unfragmented patchworks of habitat and are threatened by habitat loss and illegal collection.

Environmental Education

The Park could provide an effective location for Environmental Education programming, given the natural setting, and its proximity to densely populated areas from which to draw. Such programming would require staffing and facilities to support such use, which would require the identification of additional funding. Partnerships could be developed with nearby school systems and other community groups to facilitate programming and field trips that would bolster students' understanding of the natural world. Nearby summer camps such as Camp Courant might be potential partners for this activity.

Other potential recreational uses

Other possible recreational uses of the property exist, and their inclusion or exclusion might be driven by the mission of the organization(s) that own and manage the property. For instance, a municipal manager might opt to include more active recreation elements, such as basketball courts, volleyball courts, disc golf, children's playground, a dog park, or even a new swimming facility built outside of Batterson Park Pond, depending on the needs of the community. Several of these activities are discussed in Hartford's Master Plan.

Assessment of Park infrastructure

Boat launch

The state boat launch facility is currently open year-round and 24 hours a day. The facility features an entrance driveway, 25 paved parking spaces, and a paved boat launch ramp surface.

There are no docks available and portable toilets are not provided at this location. A kiosk signboard is available where local regulations and boating safety information is posted.

Dam and Dike

The water level of Batterson Park Pond is controlled by a dam in Farmington (ID #5201) and a dike in New Britain (ID #8910). According to the most recent inspection in May 2021, the Batterson Park Pond dam and dike were judged to be in "satisfactory condition."

Both the Batterson Park Pond Dam and Batterson Park Pond Dike have a Hazard Classification of C also known as High Hazard. Class C dams require submission of an Emergency Action Plan to DEEP that needs to be updated every two years, as well as an inspection every two years. An Emergency Action Plan that covers both the dam and the dike was approved in January 2021.

The inspection of both structures by GEI Consultants in March 2021 included recommendations on the following standard maintenance actions:

1. Clear remaining brush, trees, and other woody vegetation within 25 feet from the dam and dike, including the right spillway abutment and left spillway training wall.
2. Apply topsoil and seed bare areas on the dike.
3. Remove debris from principal spillway to allow unobstructed flow.
4. Exercise gate valve at least once per year.
5. Repair tire ruts on the dam and re-establish grass.
6. Consider installing fencing, continuous barrier, or other deterrents to vehicular access to the dike.
7. Fill depressions and animal burrows on the downstream slope of the dam and establish grass in the filled locations.
8. Seal crack on left spillway training wall to prevent further deterioration.

Any future steward of Batterson Park pond would be responsible for ongoing maintenance of the dam and dike structures.

Access and Parking

There are currently two vehicular access points into the Batterson Park property. One of these is the gated access situated at the intersection of Batterson Park Road and Two Mile Road which serves as the main entrance to the park. The second access point is via Alexander Road which connects visitors to the boat launch area.

There is currently very limited paved parking in the main entrance area, but there are multiple, larger grassed-over areas that have been used for parking in the past. These areas could be improved or mowed and maintained to be re-opened for parking purposes in the future. The capacity of additional parking areas should be sized to accommodate the uses envisioned at the property.

Per regulations of Connecticut State Agencies Section 26-16-1(i), vehicle parking at the boat launch is limited for fishing, boating, or the observation of wildlife.

In addition to the two developed access points noted above, there are bus stops on the west half of Batterson Park Road, along Alexander Road, and on Fienemann Road. Additional pedestrian and bicycle access points into the park could be located to facilitate better access for individuals using public transit and for local area residents. These access points could be integrated into trails available for public use in the park.

Public facilities

The deteriorated public bathroom building, changing areas, and other historic support structures have been removed by the city of Hartford, and no public support facilities are currently available. As such, extensive public use of the property will be limited in the near term. As decisions are made by future park management as to what public uses of the property will be pursued, a plan can be developed to create the public infrastructure necessary to support such uses.

Public safety and enforcement

General public safety considerations

Batterson Park's location in a residential area with various formal and informal access points (in addition to ongoing encroachment concerns) will require more officer presence than other parks of similar size. Regardless of governance structure or recreational use(s), there will be a significant increased need for enforcement resources for the entity operating the park as well as needs for additional enforcement from both Farmington and New Britain police to address related issues occurring outside the park such as new traffic pinch points, illegal parking, unauthorized access areas, and other potential concerns. Several of these and other considerations are highlighted below:

- Parking, traffic, and visitor capacity – Based on the historic popularity of Batterson Park and increased trends in visitor numbers for outdoor recreation venues following the pandemic, DEEP anticipates this park would experience high visitation and would likely fill to capacity, especially on weekends with good weather. Staff would be needed to control and manage parking in the park and close the entrance to additional cars once the parking areas are full. Once the parking lots are closed, some visitors will park on

streets outside the park and walk in. With multiple entrances to the park, this would create traffic and parking challenges in residential neighborhoods surrounding the park and may also create high vehicle and pedestrian traffic on streets surrounding various parts of the park. Any traffic congestion or illegal parking outside of the boundaries of the park would be the sole responsibility of municipal parking authorities.

- Water Safety – Any future manager of Batterson Park will need to provide for water safety. If swimming is prohibited at the park, supervision and signage would be needed to ensure that recreational uses of Batterson Park and Pond are compatible.
- Park Hours – Staff would be needed to enforce park hours which would require 24/7 patrols and/or rapid response. Specific challenges include clearing the park at the end of the day and patrolling or responding to unauthorized, after-hours use at the park.
- Facilities security – Staff and security would be needed to secure any buildings and equipment at the park (including landscaping equipment, restroom facilities, and recreational equipment).
- Noise & Public Nuisance Complaints – Since the park is located adjacent to a residential neighborhood, park enforcement staff will be needed to enforce recreational uses in a collaborative manner with local neighbors.
- General Public Safety – In order to provide a safe and enjoyable experience for all visitors, public safety officers are needed to provide general response and public safety supervision. Additional resources would be needed on high visitation days.
- Jurisdiction – Any public safety enforcement at the park would require clearly defining areas of and responsibility between multiple enforcement agencies. Any traffic or park-related response *outside of* the boundary of the park, would be the responsibility either Farmington or New Britain police, depending on the location. Emergency medical services would be provided by the local providers. Jurisdiction of the owning/managing entity would affect how the park is patrolled and enforced.
    - Municipal Police – Municipal jurisdiction currently splits the park three ways as the park is owned by the City of Hartford and located in both Farmington and New Britain. Any shared enforcement would most likely require a Memorandum of Understanding and/or cost sharing agreement between various municipal agencies.
    - Public-Private Enforcement – Private partners have the advantage of providing enforcement within a limited jurisdiction and do not have competing priorities outside the park boundaries. However, private partners usually do not have formal law enforcement powers and primarily focus on preventative enforcement. Municipal or state police would be needed to support enforcement actions requiring formal charges or emergency services.
    - EnCon Police –Currently, 62 EnCon officers statewide are responsible to respond to emergencies occurring across the state including on waterbodies, at 142 state parks

and forests, and with wildlife issues on both public and private land. Currently, there is no margin of EnCon capacity available to address safety issues that arise at Batterson Park beyond concerns that may arise at the state boat launch.

Future Governance of Batterson Park: Short Summary of Models

This study will provide additional analysis on governance models for Batterson Park after the public input has been considered. It's important that the governance model aligns with and supports the amenities, infrastructure, public safety, land management and budgetary needs for this park.

DEEP retained Bill Logue of The Logue Group at the end of October 2023 as a facilitator to conduct interviews, flesh-out models of governance, and assist DEEP in facilitating public input sessions on the Draft Batterson Park Study to be held in Farmington, Hartford, and New Britain as required in P.A. 23-204.

DEEP plans to provide analysis on at least four potential models of governance for the future of Batterson Park after receiving public input in the early December sessions: (1) Multi-public entity partnership; 2) municipal park; 3) state park; 4) public-private partnership. It is possible that the final study will cover additional governance models.

We will be evaluating, for each governance model, 1) what potential amenities they might have; 2) an infrastructure assessment; 3) public safety considerations; 4) land management/ encroachment challenges; and 5) an estimated budget. While a fuller analysis of each model is coming, following are a few of DEEP's initial reflections on the models based on the work conducted so far in preparing this draft report. We include these insights to provide a window into the kinds of considerations we will be investigating further, and some key obstacles already observed to implementing certain governance models.

Initial insights into a multi-public entity partnership

Since Batterson Park is in Farmington and New Britain but is owned by the City of Hartford, a multi-public entity partnership model could involve these three municipalities sharing in the management responsibilities for Batterson Park. Amenities in the park could span the range from passive to more developed to meet the desires of park users. The municipalities could share budget costs and responsibilities. Land management and governance could occur effectively if multiple public managers share a vision for recreational activities as well as establishing clear agreement for decision-making, sharing various liabilities, and addressing potential conflicts in municipal priorities. The feasibility of coordinating these functions among three different municipalities is a question that should be explored for this option.

Initial insights into a municipal park model

Batterson Park is currently owned by the City of Hartford. The city has expressed interest in transferring management responsibilities to others, and perhaps transferring ownership as well. Hartford decided to limit public access to the park in 2015 (with the exception of boating and fishing). Amenities offered under a municipal model are flexible but are constrained by

municipal budgets and staffing. As the current status of the park demonstrates, municipal management of the park is challenging because the park is not located in the municipality that owns it. Demand for park use is shared between Hartford, New Britain, and Farmington as well as by surrounding towns. It could be perceived as inequitable for one municipality to support the management, operations, and budget for the park.

Initial insights into a state park model

DEEP is proud of the 142 state parks and forests that it manages. But Connecticut State Parks are struggling to meet increased demand from the post-pandemic outdoor recreation boom, which has spiked annual visitation from 10M to over 17M. Currently, DEEP only has 83 park staff to manage those 142 state parks and forests, after a thirty-year staffing decline from a peak of over 200 full time positions. As with other state parks around the country, and unlike other models such as municipal parks, Connecticut state parks provide passive, natural resource-based recreation and do not offer amenities such as dog parks, splash pads, basketball courts, or sports fields. The Passport to the Parks revenue stream (which is flat) is not meeting the increased financial demands resulting from increased operational expenses and the account carrying costs (fringe and salary) for 35 full-time positions. At current usage, the Passport to the Parks account is projected to go into deficit by 2027. These limitations will present a serious challenge to a proposal to convert Batterson Park into a state park, as well as conflicting with the more active uses that have been envisioned for this project.

Initial insights into a public-private partnership model

A public-private model could create a unique opportunity to empower a clear governing and decision-making organization that could financially be supported through various budget sources. This model would also provide for flexible amenities offering within the park, although any amenities would be limited by the private organization's capacity and skillset in providing park services. Therefore, to pursue this approach, it would be important to identify an organization that can demonstrate experience in running successful park operations.

Appendices

Appendix I: U.S. EPA EJScreen Community Report on community characteristics within one-mile radius of Batterson Park Pond

EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Hartford County, CT

1 mile Ring Centered at 41.711329,-72.789128
Population: 7,285
Area in square miles: 3.14

COMMUNITY INFORMATION

- Low income: 18 percent
- People of color: 43 percent
- Less than high school education: 8 percent
- Limited English households: 7 percent
- Unemployment: 5 percent
- Persons with disabilities: 12 percent
- Male: 49 percent
- Female: 51 percent
- 79 years — Average life expectancy
- $46,594 — Per capita income
- Number of households: 2,833
- Owner occupied: 60 percent

BREAKDOWN BY RACE

- White: 57%
- Black: 6%
- American Indian: 0%
- Asian: 10%
- Hawaiian/Pacific Islander: 0%
- Other race: 1%
- Two or more races: 3%
- Hispanic: 23%

BREAKDOWN BY AGE

From Ages 1 to 4	8%
From Ages 1 to 18	25%
From Ages 18 and up	75%
From Ages 65 and up	19%

LIMITED ENGLISH SPEAKING BREAKDOWN

Speak Spanish	28%
Speak Other Indo-European Languages	43%
Speak Asian-Pacific Island Languages	26%
Speak Other Languages	3%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race. Source: U.S. Census Bureau, American Community Survey (ACS) 2017 -2021. Life expectancy data comes from the Centers for Disease Control.

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	61%
Spanish	12%
French, Haitian, or Cajun	1%
German or other West Germanic	1%
Russian, Polish, or Other Slavic	14%
Other Indo-European	6%
Korean	1%
Chinese (including Mandarin, Cantonese)	1%
Other Asian and Pacific Island	1%
Arabic	1%
Total Non-English	39%

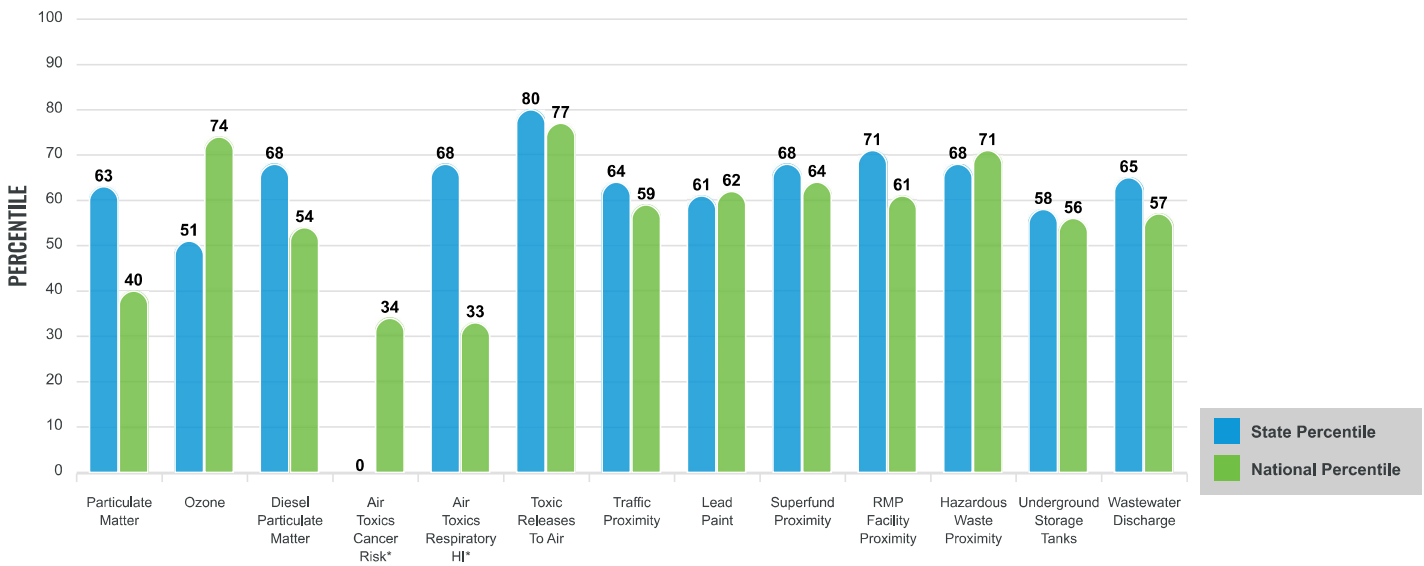
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

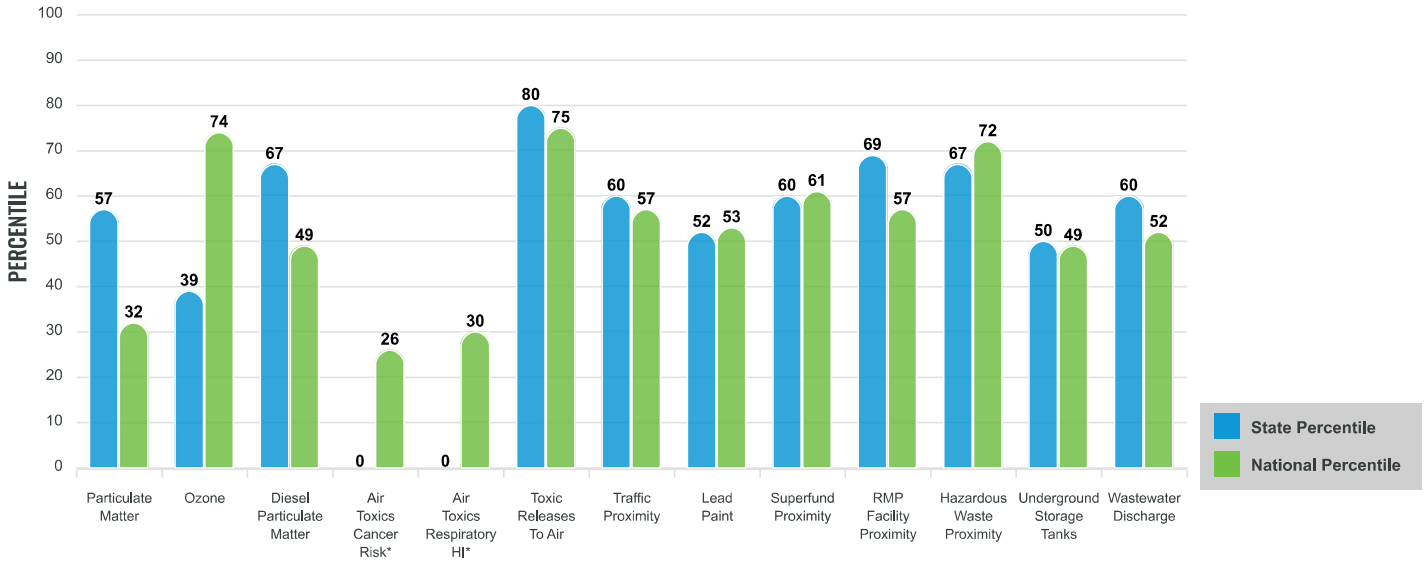
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 1 mile Ring Centered at 41.711329,-72.789128

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter (µg/m^3)	7.4	7.27	47	8.08	29
Ozone (ppb)	67.3	69.7	31	61.6	86
Diesel Particulate Matter (µg/m^3)	0.199	0.183	64	0.261	45
Air Toxics Cancer Risk* (lifetime risk per million)	20	21	0	25	5
Air Toxics Respiratory HI*	0.22	0.24	0	0.31	4
Toxic Releases to Air	7,500	3,600	88	4,600	90
Traffic Proximity (daily traffic count/distance to road)	160	230	65	210	68
Lead Paint (% Pre-1960 Housing)	0.4	0.44	47	0.3	66
Superfund Proximity (site count/km distance)	0.08	0.13	49	0.13	59
RMP Facility Proximity (facility count/km distance)	0.21	0.27	68	0.43	58
Hazardous Waste Proximity (facility count/km distance)	4.6	3.2	73	1.9	88
Underground Storage Tanks (count/km^2)	1	4.6	41	3.9	48
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.051	0.4	84	22	78
SOCIOECONOMIC INDICATORS					
Demographic Index	30%	28%	64	35%	51
Supplemental Demographic Index	11%	12%	59	14%	42
People of Color	43%	34%	69	39%	61
Low Income	18%	23%	53	31%	33
Unemployment Rate	5%	6%	53	6%	58
Limited English Speaking Households	7%	5%	76	5%	79
Less Than High School Education	8%	9%	61	12%	49
Under Age 5	8%	5%	83	6%	77
Over Age 64	19%	18%	59	17%	63
Low Life Expectancy	19%	18%	64	20%	43

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund	0
Hazardous Waste, Treatment, Storage, and Disposal Facilities	0
Water Dischargers	1
Air Pollution	3
Brownfields	0
Toxic Release Inventory	0

Other community features within defined area:

Schools	4
Hospitals	1
Places of Worship	2

Other environmental data:

Air Non-attainment	Yes
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community	Yes
Selected location contains an EPA IRA disadvantaged community	Yes

Report for 1 mile Ring Centered at 41.711329,-72.789128

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS					
INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	19%	18%	64	20%	43
Heart Disease	6.8	5.7	86	6.1	65
Asthma	10.9	10.5	67	10	77
Cancer	7.5	6.7	64	6.1	78
Persons with Disabilities	11.7%	11.6%	58	13.4%	44

CLIMATE INDICATORS					
INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	12%	11%	65	12%	71
Wildfire Risk	0%	0%	0	14%	0

CRITICAL SERVICE GAPS					
INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	15%	11%	74	14%	62
Lack of Health Insurance	4%	5%	54	9%	27
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	No	N/A	N/A	N/A	N/A
Food Desert	No	N/A	N/A	N/A	N/A

Footnotes

Report for 1 mile Ring Centered at 41.711329,-72.789128

Appendix II: Water Quality Data

In 2023 after this study was initiated, DEEP conducted sampling of E. coli (Escherichia coli) bacteria and cyanobacteria at three Batterson Park Pond sites between July and early October. Sampling sites for E. coli bacteria were located in the stream draining into the area referred to as the beach, and directly in Batterson Park Pond on both sides of where that stream enters it. The sampling sites for cyanobacteria were described as the Beach, and Deep Hole. All the results from sampling follow.

E.Coli bacteria testing results, DEEP 2023

For indicator bacteria, see State Guidelines for more info

1. Freshwater

A. A concentration of E. coli organisms less than or equal to 235 per 100 ml is generally considered satisfactory for a single sample from a swimming area.

B. A single sample with a concentration of E. coli organisms greater than 235 per 100 ml exceeds that which is normally considered acceptable for swimming. A re-sample is required. A sanitary survey of the surrounding watershed and areas that may impact the swimming area should be conducted immediately to evaluate suitability of the area for swimming if no known sources of contamination have already been identified.

C. To determine swimming water quality when using the E. coli organism as an indicator, a running geometric mean for each sampling station is to be used. An acceptable running geometric mean for E. coli indicator organism density for swimming waters is less than or equal to 126. A running geometric mean is to be used when evaluating the long-term microbiological suitability of recreation water quality. The geometric mean can provide a better indication of water quality over time. This holds especially true when evaluating a proposed swimming area where seasonal or incidental variations may impact on single sample results.

Source	Location	Date Collected	E. coli (MPN /100 mL)
DEEP, 2023	Beach Left Side	7/13/2023	42
DEEP, 2023	Beach Right Side	7/13/2023	20
DEEP, 2023	Beach Stream	7/13/2023	1700
DEEP, 2023	Beach Left Side	7/20/2023	42
DEEP, 2023	Beach Right Side	7/20/2023	87
DEEP, 2023	Beach Stream	7/20/2023	>2000
DEEP, 2023	Beach Left Side	7/26/2023	42
DEEP, 2023	Beach Right Side	7/26/2023	31
DEEP, 2023	Beach Stream	7/26/2023	>2000

DEEP, 2023	Beach Left Side	8/2/2023	10
DEEP, 2023	Beach Right Side	8/2/2023	10
DEEP, 2023	Beach Stream	8/2/2023	>2000
DEEP, 2023	Beach Left Side	8/9/2023	99
DEEP, 2023	Beach Right Side	8/9/2023	31
DEEP, 2023	Beach Stream	8/9/2023	1400
DEEP, 2023	Beach Left Side	8/17/2023	<10
DEEP, 2023	Beach Right Side	8/17/2023	20
DEEP, 2023	Beach Stream	8/17/2023	1000
DEEP, 2023	Beach Left Side	8/18/2023	830
DEEP, 2023	Beach Right Side	8/18/2023	1200
DEEP, 2023	Beach Stream	8/18/2023	>2000
DEEP, 2023	Beach Left Side	8/24/2023	<10
DEEP, 2023	Beach Right Side	8/24/2023	10
DEEP, 2023	Beach Stream	8/24/2023	620
DEEP, 2023	Beach Left Side	8/25/2023	10
DEEP, 2023	Beach Right Side	8/25/2023	<10
DEEP, 2023	Beach Stream	8/25/2023	>2000
DEEP, 2023	Beach Left Side	8/30/2023	10
DEEP, 2023	Beach Right Side	8/30/2023	20
DEEP, 2023	Beach Stream	8/30/2023	>2000
DEEP, 2023	Beach Left Side	9/7/2023	<10
DEEP, 2023	Beach Right Side	9/7/2023	<10
DEEP, 2023	Beach Stream	9/7/2023	780
DEEP, 2023	Beach Left Side	9/14/2023	210
DEEP, 2023	Beach Right Side	9/14/2023	190
DEEP, 2023	Beach Stream	9/14/2023	1200
DEEP, 2023	Beach Left Side	9/19/2023	87
DEEP, 2023	Beach Right Side	9/19/2023	160
DEEP, 2023	Beach Stream	9/19/2023	1200

Cyanobacteria testing results, DEEP 2023

For cyanobacteria, DEEP encourages a three-legged stool approach to sampling. Visual assessment, cell counts, and toxin testing. DEEP generally closes swimming or wading areas based on visual assessment based on its experience, and then samples are taken to assess when

re-opening may be possible. It is not a perfect science, and it is possible to collect samples with high cell counts and low toxin levels on the same day.

Here is the guidance provided to local health departments regarding cyanobacteria.

Table 6: Suggested interventions based on field observations or cell count data: Examples of appropriate signage are shown in Appendix C.

Observations	***Notifications***	***Further monitoring***	***Public Posting***
Visual Rank Category 1	Not needed	No change	Not needed
Visual Rank Category 2, or blue-green algae cells >20k/ml and < 100k	Notify CT DPH, CT DEEP	Increase regular visual surveillance until conditions change.	Consider cautionary postings at public access points. (See Appendix C, Example B)
Visual Rank Category 3, or blue-green algae cells > 100k/ml	Update/inform CT DPH & CT DEEP and expand risk communication efforts. (See Risk Communication section.)	Collect samples for analysis and/or increase frequency of visual assessment.	POSTED BEACH CLOSURE: If public has beach access, alert water users that a blue-green algae bloom is present. (See Appendix C, Example A) POSTED ADVISORY: At other impacted access points. (See Appendix C, Example B)

Source	Location	Date Collected	Cyanobacteria Cell Count (cells/ML)
DEEP, 2023	Beach	8/17/2023	113,092
DEEP, 2023	Beach	8/18/2023	56,230
DEEP, 2023	Deep Hole	8/24/2023	145,103
DEEP, 2023	Beach	8/24/2023	27,378
DEEP, 2023	Beach	8/25/2023	52,018
DEEP, 2023	Beach	8/30/2023	61,495
DEEP, 2023	Beach	9/7/2023	77,922
DEEP, 2023	Beach	9/14/2023	243,032
DEEP, 2023	Beach	9/19/2023	5,749
DEEP, 2023	Beach	9/26/2023	27,378
DEEP, 2023	Beach	9/29/2023	8,214
DEEP, 2023	Beach	10/4/2023	82,134

Appendix III: Batterson Park Master Plan Report, May 2023

Batterson Park Master Plan Summary

In February 2023, the City of Hartford retained BSC Group to prepare a Master Plan for Improvements at Batterson Park. The Hartford Parks and Recreation Advisory Commission (PRAC) as well as representatives from Farmington and New Britain provided input to the master plan which was published in May, 2023.

The Master Plan contains a detailed Site Analysis reviewing surrounding land uses, topography, scenic views, and hydrology of Batterson Park Pond. The site analysis also includes important information on how members of the public could best access the recreational features of the park. Importantly, the Master Plan also highlights several constraints and opportunities to consider in the redevelopment of the park after the removal of existing degraded structures.

The Master Plan design team also recommended new entrances and increases in parking capacity as well as two options for adding additional features to improve public access and enjoyment of the property. A vision for the preferred development concept (Concept A) was further described, with most enhancements (event lawn, beach, waterfront lounge, children's play garden, picnic grove, bird watch tower, native meadow, wetland garden, and water quality jetty) proposed on the north side of the park. In addition, a recreational trail network, fishing/boating amenities, and a proposal to improve circulation through the park were presented.

QA+M Architecture also designed a series of buildings and a style for the architecture of potential future structures to accommodate restrooms, concessions, picnicking, and other activities. Because of the significant estimated cost of the facilities and related infrastructure in the preferred option (approximately $18.4 million), a recommendation to phase future construction was also included. A summary of permits required for development options and potential sources of funding was included with additional details at the end of the master plan report.

The full Master Plan Report follows.

Batterson Park Master Plan Report

MAY 2023

PREPARED BY

BSC GROUP

QA+M architecture
QuisenberryArcariMalik

PREPARED FOR

City of Hartford

Acknowledgments

City of Hartford

Michael Looney; Director of Public Works

Julia Jack, AIA-NCARB; City Architect

Paul Drummey; Director of Capital Projects

Mark Dowd; DPW Superintendent

Troy Stewart; Recreation Division

Heather Dionne; City Forester

Construction Solutions Group

Jim Giuliano; President

Josh Markowitz, HCC, LEED AP; Project Manager

FHI Studio

Phil Barlow, PLA, AICP, LEED AP; Project Consultant

Town of Farmington

Shannon Rutherford; Town Planner

Bruce Cyr; Senior Assistant Town Planner

Russ Arnold; Director of Public Works, Town Engineer

Thomas Fitzgerald; Director of Fire and Rescue Services

Colin Ryan; Chief of Police

City of New Britain

Honorable Erin E. Stewart; Mayor

Erik Barbieri; Director of Parks, Recreation, and Community Services

Design Team

BSC Group

Jesse Harris, PLA; Project Manager

Robert Newton, PE; Civil Engineer

Ricardo Austrich, RLA; Landscape Architect

Rachel Salch, PLA; Landscape Architect

Marcos Gonzalez; Landscape Designer / Planner

Melissa Kaplan, PWS; Senior Ecologist

QA+M

David Quisenberry; Principal

Kenton McCoy; Associate Principal

CONTENTS

Introduction and Executive Summary

Project Overview

In February 2023, the City of Hartford retained BSC Group to prepare a master plan for improvements at Batterson Park. This report is intended to be used a guide for the City to move forward with its efforts to renovate the park's facilities, reopen the property to the public, and reimagine what the next chapter holds for this iconic park.

Obtained by the City of Hartford in the 1928, Batterson Park is located on the municipal border between the City of New Britain and the Town of Farmington in central Connecticut.

This 266-acres site is characterized by a 140-acre, man-made reservoir, acres of hardwood uplands, sweeping meadows, and key amenities such as a beach, bathhouse, and boat ramp. After decades of use, the park was closed in 2015, and subsequently fell into disrepair. In 2021, a multi-million-dollar effort was launched to restore the park.

Meet the Batterson Park Master Plan Team

BSC and the design team collaborated primarily with the Batterson Park Master Plan Team, which included members from the City of Hartford Department of Capital Improvements, Department of Public Works, Department of Recreation, Forestry Department; members from Construction Solutions Group (CSG) and their consultant from FHI Studio. The team had bi-weekly meetings to move forward and provide feedback on a regular basis. The team also included the Town of Farmington and City of New Britain in discussions and design considerations.

Design Process

The design team kicked off the master planning process by creating a basemap using a new survey, wetland delineation, as well as the interpretation of LIDAR and GIS layers from CT ECO. The team then used the basemap information in conjunction with site visits to perform a site analysis of the entire property.

Following the site analysis exercise, the design team worked with the stakeholders to develop a program and conceptual designs. This led the team to a preferred conceptual design which was used to create the Master Plan and Phase One recommendation. See the sections on site analysis, conceptual development, and master plan for additional information.

Public Engagement

The team engaged key members of the communities of the City of Hartford, Town of Farmington, and New Britain. BSC Group created a website that provided stakeholders with information about the project. See the section on public engagement for more information.

Implementation and Summary

There is a tight schedule following the final acceptance of this Master Plan. The City has 7.5 million dollars available for the implementation of the recommended Phase One part of the Master Plan, and the work must be complete by the summer of 2025 to meet grant requirements. Design development and a detailed cost estimation phase is required to bring this to the next level of design. An extensive permitting phase will also need to occur during the second half of 2023 to get drawings ready for bidding and construction. Please review the Phase One Recommendation section for more information.

The City of Hartford has 7.5 million dollars available for the implementation of the first phase of the Master Plan, and the work must be complete by summer of 2025.

The master plan represents the recommended programming elements and the amenities that came out of discussions with the project stakeholders. This master plan provides a guide for recommended improvements to Batterson Park that will meet the needs of the community as a whole.

Public Engagement

Stakeholder Engagement

Stakeholder input is vital to the creation of any public space to ensure that it serves its immediate constituents. The stakeholder engagement consisted of three major groups.

Municipal Stakeholders

City of Hartford

The design team met with CSG, FHI, and the City of Hartford Department of Public Works and other key representatives from the City. This core group created a vision and set of goals to guide the Master Plan process. The project goals detail some of the practical means to achieve the overall vision. As the project progressed, the team continued to test ideas against these goals to ensure decisions were in line with the vision.

Master Plan Goals

- Re-open the park to passive use for the Summer of 2023.
- Improve the park to its former glory with modern amenities.
- Set forward a plan that is sustainable and ecologically focused.

Hartford Parks and Recreation Advisory Commission (PRAC)

The team met with and presented to the Hartford Parks and Recreation Advisory Commission (PRAC) on two separate occasions. On April 4th, 2023, the team gave a brief introduction to the project and showed some of the site analysis process along with two site concepts with a conceptual model from the architect. The team asked for feedback but did not hear any response from the commission.

On April 25th, 2023, the team met again with the PRAC group to present the preferred conceptual design for the master plan. This included updated options from the architect. The team received some feedback which was used to finalize the preferred conceptual plan.

> **"Exciting to see; passive recreation with a concept of trails and fishing allowing closer access to the water."**
>
> **- PRAC Committee Member**

Town of Farmington

The team met with members of the Town of Farmington staff, including Shannon Rutherford, Town Planner; Bruce Cyr, Senior Assistant Town Planner; and Russ Arnold, Director of Public Works. The design team presented the preferred conceptual plans and received feedback from the stakeholders in the Town of Farmington. This meeting was generally positive and provided the design team with valuable insight into the security of the park, along with the needs of Farmington residents.

The team was also able meet with Police Chief Ryan and the Director of Fire and Rescue Services, Thomas Fitzgerald. Here they discussed safety and security concerns around the park. It was noted that a dawn to dusk policy with a security gate was preferred, as well as the creating of two entrances at the focus area, to better allow officers to successfully patrol the area. These recommendations were incorporated into the final master plan and are reflected in the additional one a way entrance from Batterson Park Road near Camp Courant and the use of vehicle gates at both entrances.

City of New Britain

The New Britain Director of Parks, Recreation, and Community Services, Erik Barbieri, attended several of the team's bi-weekly meetings where he provided key insights into the needs of New Britain residents in the area. His attendance provided the team with valuable information regarding the programing already in use at adjacent City parks, and the latest trends/ preferences for certain activities desired by New Britain residents.

On May 1st, 2023, BSC presented a version of the master plan to the Mayor of New Britain, Eric Barbieri, and their team. At this meeting, the Mayor and other key stakeholders provided valuable feedback on the proposed programing and phasing for the park. They also provided feedback as to the potential concerns for a multi-use pathway along the southern shoreline, and its impact on existing residential abutters. The group asked for the consideration for the inclusion of sport courts. The group at the City of New Britain was overall positive and enthusiastic for the proposed plan for Batterson Park.

Project Website

The design team maintained a project website throughout the process to provide stakeholders with information about the design process and some history of Batterson Park. This site was public facing, and regularly updated with the latest diagraming graphics, architectural renderings, and site details surround the progress of the master plan. The goal was to keep site visitors appraised on the methodology of the design process as well as the timeline for completion. As a key feature of the site, was a comments page where visitors were able to leave feedback and request additional information about the project. https://battersonpark.wordpress.com/

Comments from the website have been used in the final iteration of the master plan and will be considered by the team as they move forward into the implementation phases of the Batterson Park renovation process.

Site Analysis

The site analysis for Batterson Park was conducted at the beginning of the project and helped the design team take the conceptual drawings from the initial concept plans shared during the interview process to the next level of design. The site analysis informs the design, and the design team used the information gathered to make more informed decisions on what types of uses should be included in the design, and how much space should be allocated for each type of use or amenity.

Land Use Map

Land use refers to which zones are around the property being analyzed. Looking at the land use of the Batterson Park property and the land use of the surrounding parcels provides the design team with insight into how the park may be used, and who may be using the park. It helps direct access points into the park and helps highlight needs for nearby residents.

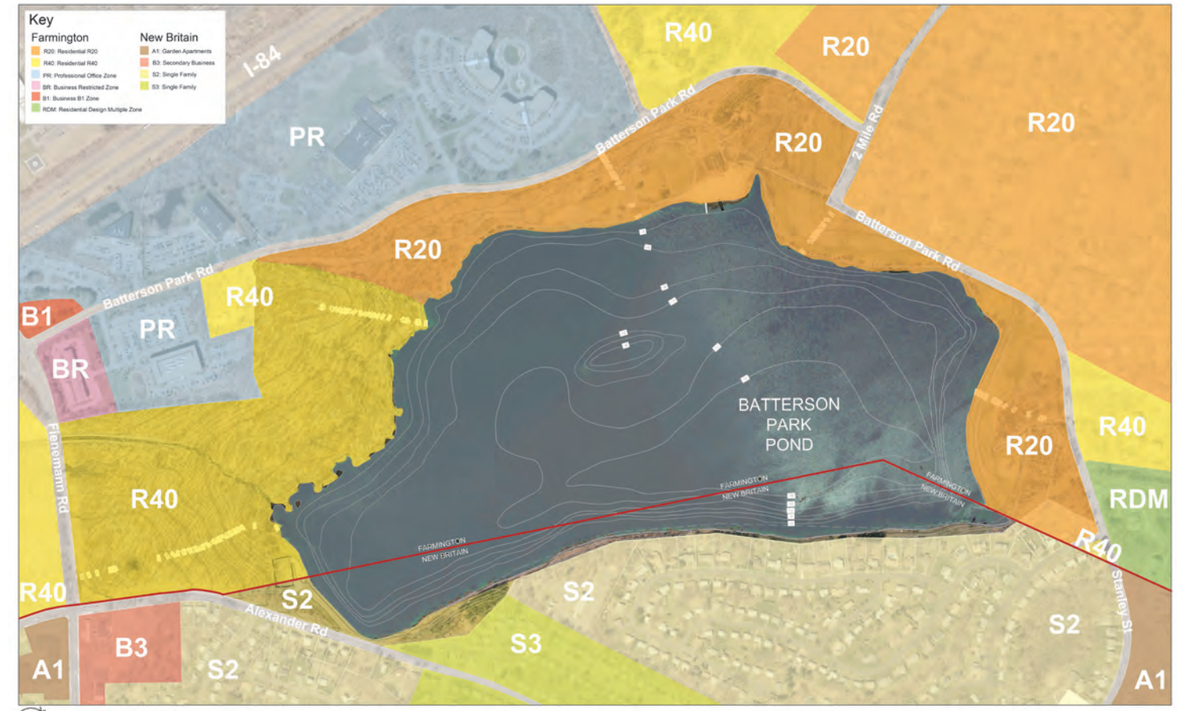
Batterson Park is comprised of several zones since the property is split between the Town of Farmington and the City of New Britain. On the Farmington side, the parcel is split into two zone uses; Zone R-20 which is a low-density residential zone (slightly more restrictive than the R80, R40, and R30 zones), and Zone R40 which is a low-density residential zone which allows uses such as camp use by special permit. Batterson Park is surrounded by a diverse set of land uses typified by low density R20, and R40 single-family housing, and PR Professional Office Zone clustered along Batterson Park Road.

The New Britain side of the parcel is Zone S2, which is a low-density residential zone. The parcel is surrounded by residential use S2 and S3, along with smaller pockets of higher density apartment complexes, and commercial / office use.

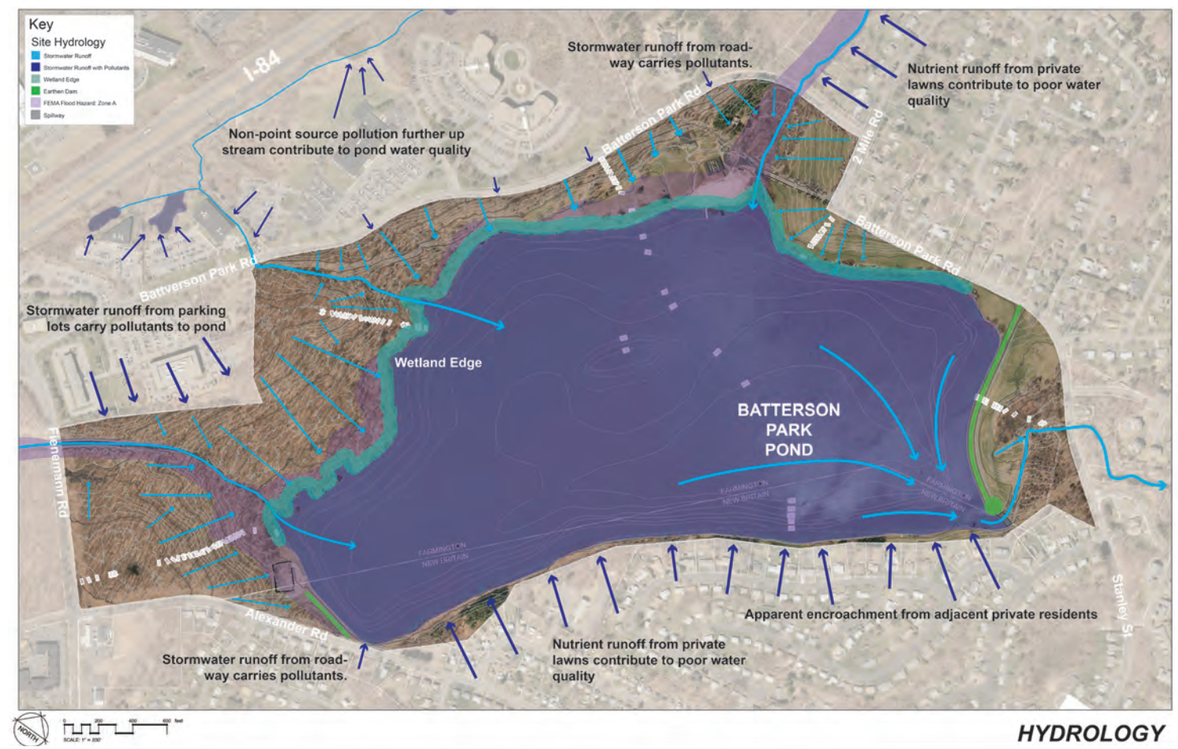
Hydrology Map

BSC reviewed the hydrology of the property and the surrounding watershed. This understanding explains the movement of water over and through the property and highlights potential opportunities and constraints. This helps the design team understand what activities the park can support, and where those activities should happen. Hydrology also informs where to focus efforts to protect sensitive ecosystems, enhance the public's access to the pond, as well as minimizing or mitigating pollution.

Several small streams drain into Batterson Park Pond along the northwestern landscape, which affect the overall water quality due to non-point source pollutants and bacteria, particularly near the existing beach area. Mitigation of the pollutants and bacteria is a major goal of the beach renovation efforts and recommendations. The dam is located to the northeast of Batterson Park Pond, and the pond water level is controlled by this land feature. The City of Hartford is currently responsible for the maintenance of the dam.



LAND USE



HYDROLOGY

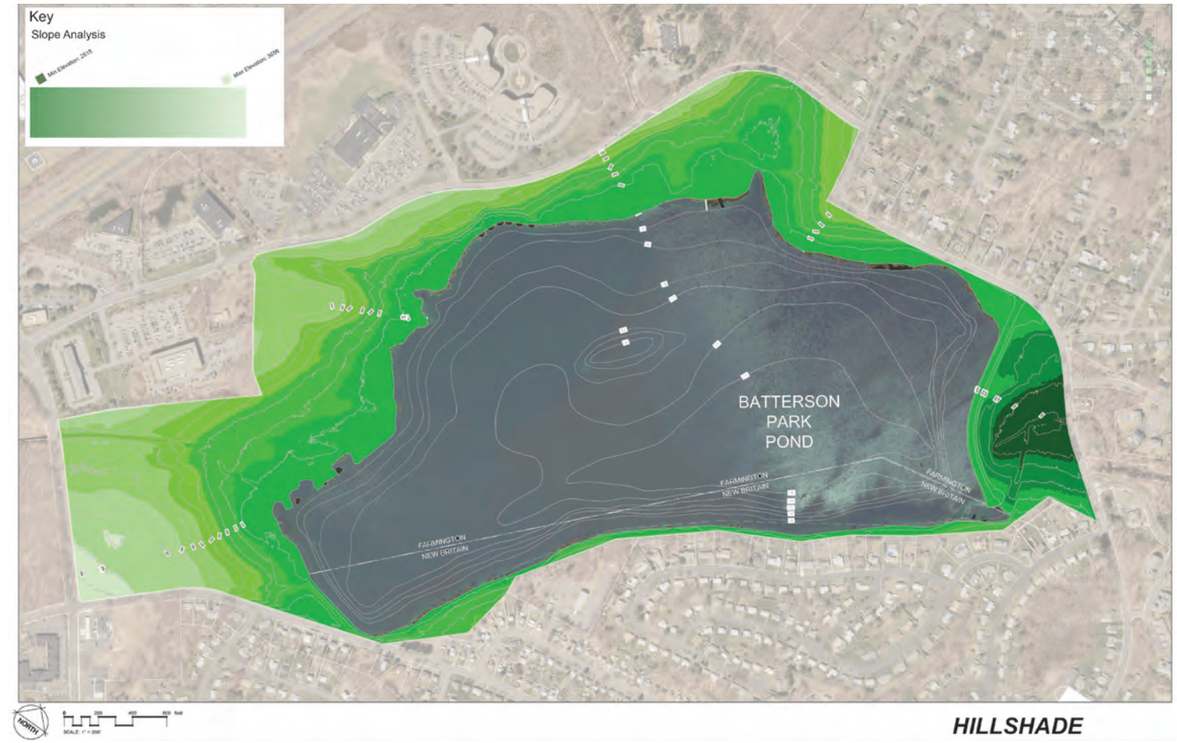
Hillshade Analysis

The design of the park should consider the existing topography and how the sun hits the landscape. These elements will affect the cost of implementing certain elements of the design. It is important to site buildings and parking areas in less steep areas to reduce the need for retaining walls, as well as to reduce disturbance to the natural features of the property.

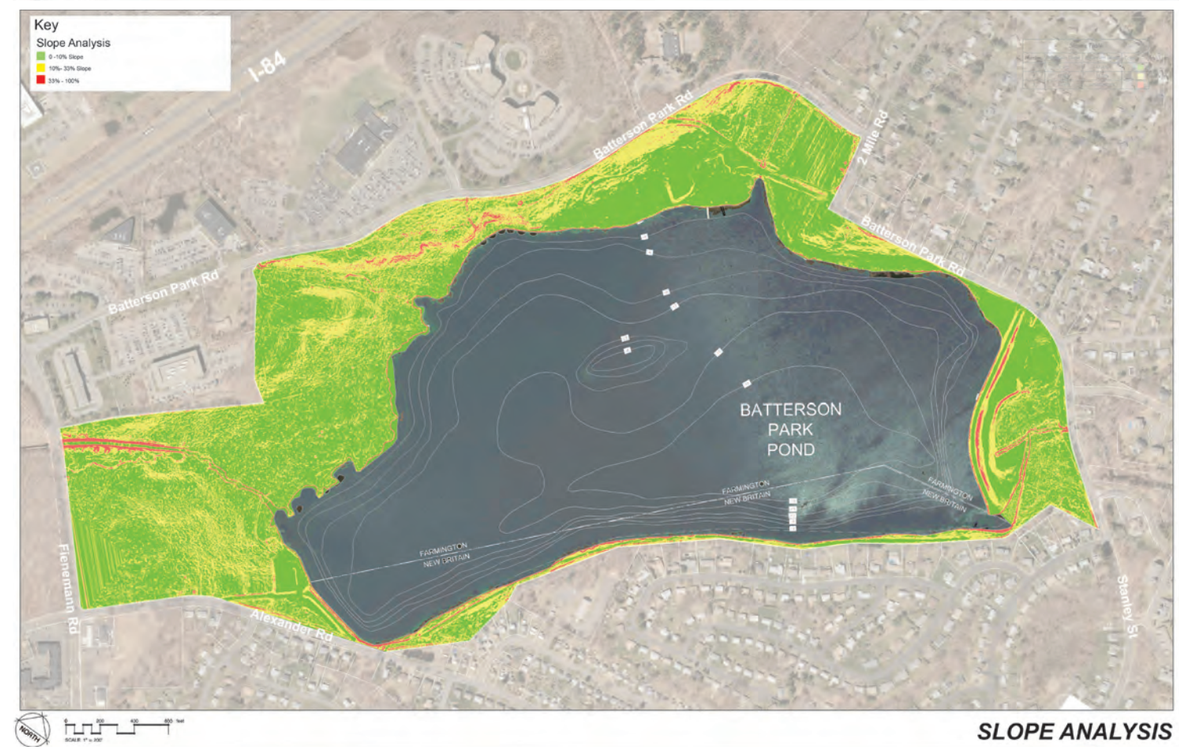
BSC used satellite imagery to create an analysis of the elevation change, shaded areas of the site, and the slope percentages. Batterson Park ranges in elevation from 365 ft at its highest elevation (light green along Fienemann Street) to 281 ft at its lowest point (dark green by the dam). This represents a total of 84 ft in elevation change across the site. The medium green shade around the pond represents areas which are moderately shaded by higher elevations, and the darkest green shades are the lowest areas of the site.

Slope Analysis

For the slope analysis, colors depict the differences between ranges of slope percentages, which represent how steep the topography is in an area. Green areas show slope percentages of less than 10% and represent areas where it will be less costly to build certain elements of the park design. Yellow areas show slopes between 10% and 33% slope, which represents areas that will require more disturbance or will limit the constructability of certain uses. Red areas show slopes over 33%, and these areas pose a more substantial constraint to development. It is recommended that disturbance in these areas be kept to a minimum to avoid high development costs.



HILLSHADE



SLOPE ANALYSIS

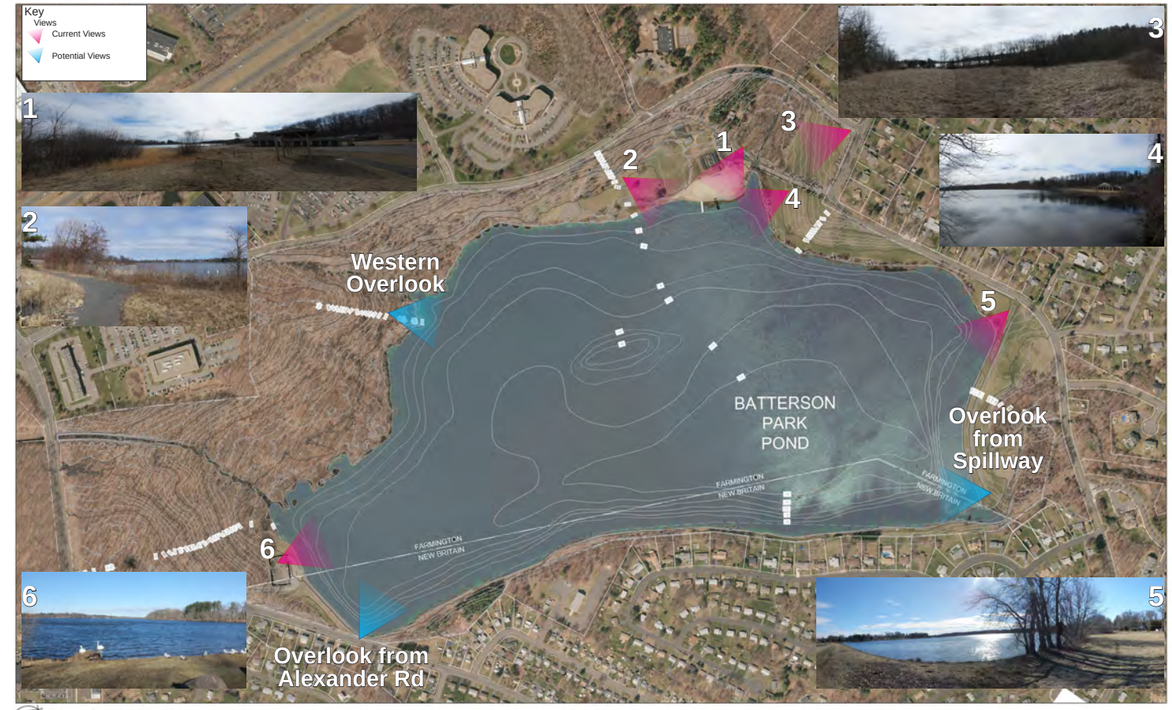
Views

Batterson Park's defining feature is the historic Batterson Park Pond. It is a man-made, former reservoir which offers excellent views of the shoreline, stands of hardwood forests, wetlands, and open meadows. BSC recommends highlighting and enhancing these views. It is also suggested that opportunities for additional views be incorporated into the master plan.

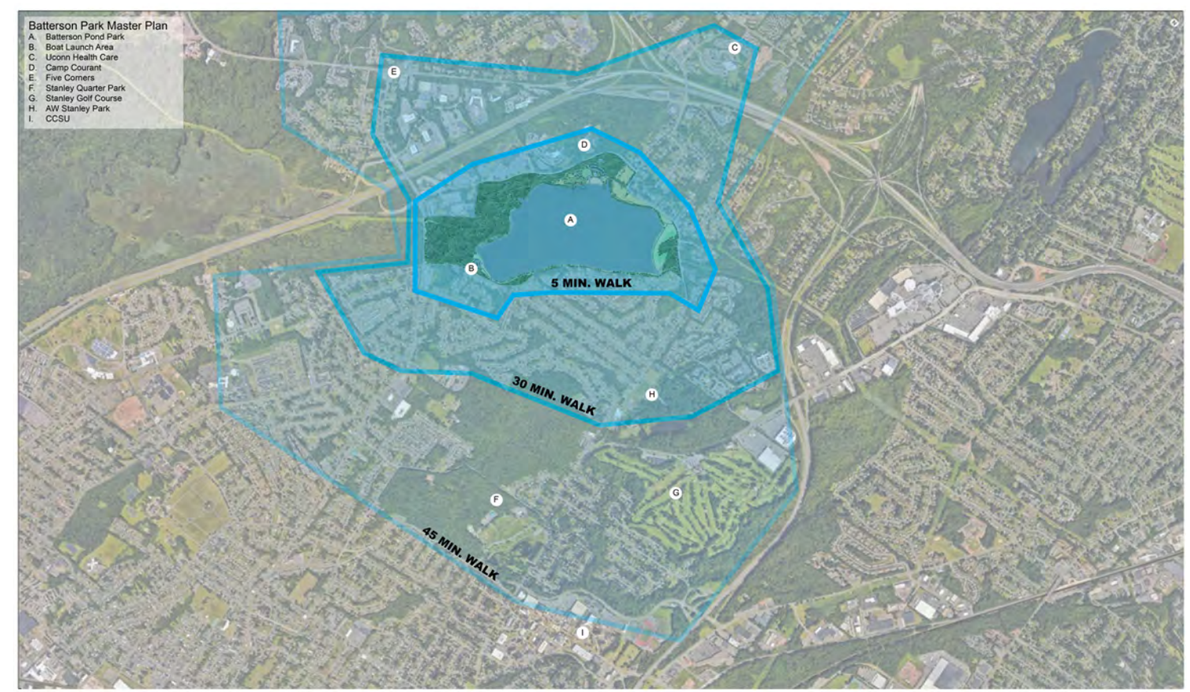
Many of the existing views are from the focus area of the park and relate to the pedestrian experience as you move through the park from the entrance. There are existing openings through the vegetation along the pond edge, and these should be highlighted to increase the visibility at these overlooks.

Context Map

BSC generated a context map to further understand the connectivity and usability of Batterson Park. The map highlights a few key locations in Farmington and New Britain where pedestrians may travel to and from the park. The inner area represents up to a five-minute walk from the outer edge of the park, the middle area represents up to a 30-minute walk, and the outer area represents up to a 45-minute walk to areas such as CCSU (Central Connecticut State University).



OVERALL BASE PLAN



CONTEXT MAP

Circulation and Transit

The circulation and transit map shows how people will be expected to travel to and access Batterson Park and shows how the park relates to the surrounding neighborhood. This informs where the design team should propose new access points, and where the team should focus their implementation efforts to meet the needs of the community.

The park can be accessed from major routes off Interstate-84 along Fienemann Road, Two Mile Road, Alexander Road, and Stanley Road. There are bus stops on the west half of Batterson Park Road, along Alexander Road, and on Fienemann Road. There are bicycle accommodations along Batterson Park Road and Alexander Road. There are currently few pedestrian sidewalks and accommodations, and it is highly recommended that sidewalks be provided along all major roads to increase connectivity to the park. Pedestrian crossings should be updated to increase safety for people wanting to walk to the park.

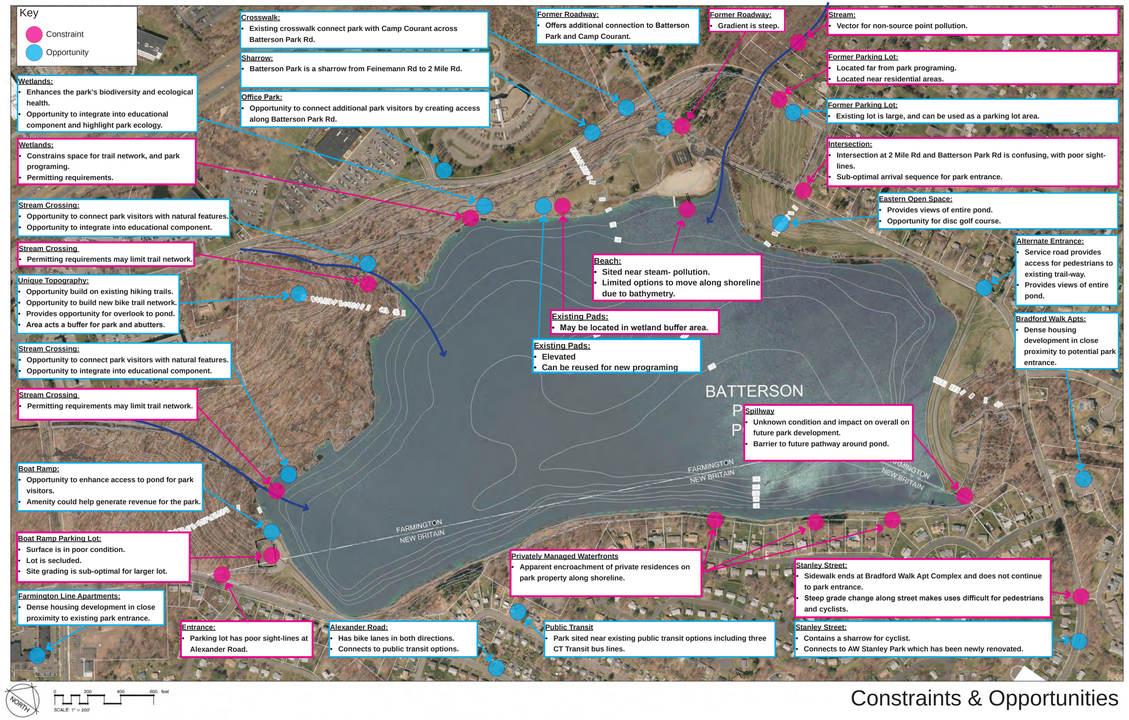
There are minimal trails provided through the park. The trails are informal and not well marked or well used, which causes them to be more dangerous. It would be useful to increase the visibility of these trails and create an accessible path to increase the usability of the park for the entire community.

There are currently two vehicular access points into the Batterson Park property. One of these is a gated access at the intersection of Batterson Park Road and Two Mile Road, and serves the main focus area of the park. This access is awkward since there is extra pavement provided for temporary parking. The second access is at the boat launch area located off Alexander Road. This access could be improved since the driveway intersects Alexander Road at an angle.

CIRCULATION/ TRANSIT

Opportunities and Constraints Map

The Opportunities and Constraints map represents a culmination of BSC's site analysis across all the maps and site visits. This brings together a variety of data points, which BSC has broken down into a series of opportunities and constraints. Some data points may also be considered both an opportunity and a constraint, and each data point directly impacts the development of the master plan design.



Constraints & Opportunities

Conceptual Development

Programming and Design

Programming

The design team took the information as it was gathered from the stakeholders and developed two conceptual programming diagrams. The first diagram shows a parking area near the beach and proposes two new driveway entrances off Batterson Park Road. These entrances allow better access for police patrol and would reduce the confusion at the existing park entrance. This programming diagram does not include active uses such as sport courts, and it consolidates the main uses near the beach area. This programming diagram was used to develop concept A.

The second programming diagram incorporates a driveway that extends through the park and includes a new driveway entrance further south on Batterson Park Road. Parking is distributed along the new driveway in smaller pockets, which allows the park to become more linear and creates better vehicular access through the park. This option takes advantage of the existing paved areas and shows new sport courts in these areas, introducing an active use to the otherwise passive park. This programming diagram was used to develop concept B.

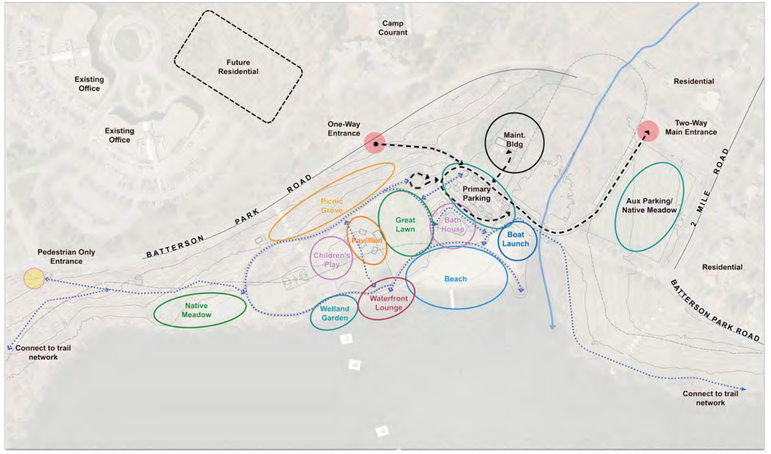
The design team also created a 200 scale conceptual diagram for the entire property. This diagram considered all the stakeholder input and the information gathered during the site analysis. It shows key features and suggests uses for the different areas throughout the park.

Key Features of Concept Plan A

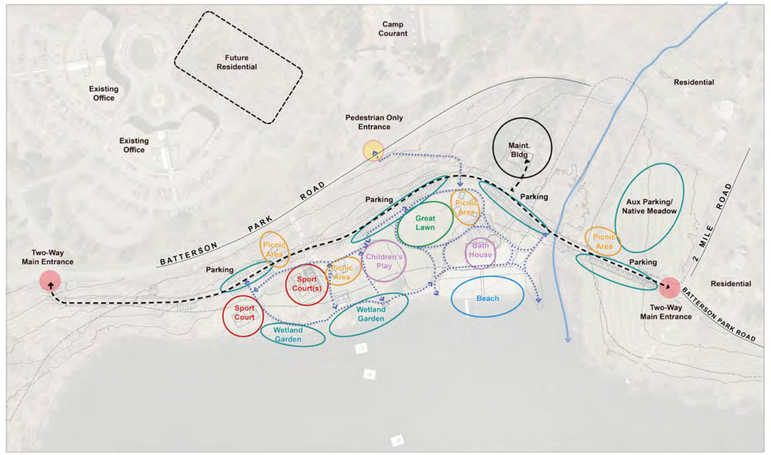
- Parking Area with 100+/- Permanent Spaces
- Overflow Parking Area
- Event Lawn
- Renovated Beach
- Waterfront Lounge
- Children's Play Garden
- Picnic Grove
- Bird Watch Tower
- Native Meadow Areas
- Wetland Garden and Boardwalk
- Water Quality Jetty

Key Features of Concept Plan B

- 100 - 200 Permanent Parking Spaces
- Event Lawn
- Renovated Beach
- Water Quality Jetty
- Children's Play Garden
- Picnic Grove
- Lookout Point / Fishing Area
- Sport Courts
- Native Meadow Areas
- Wetland Garden and Boardwalks



CONCEPT A PROGRAMMING DIAGRAM



CONCEPT B PROGRAMMING DIAGRAM

CONCEPT A

CONCEPT B

200 SCALE CONCEPT PLAN

Preferred Concept

After bringing both conceptual designs to the team, PRAC committee, and the Town Farmington, the design team collected all the comments as well as the recent wetland delineation and put together the preferred concept plan. This plan was then presented to the City of New Britain for comments and questions. The preferred concept is based on the Concept A plan, which was further developed into the Master Plan.

It was agreed by project stakeholders and the design team that Concept Plan A met the needs of the community of the whole. Creating one large parking area causes less impact to the wetland areas in the focus area and influences a more compact approach to the program elements. A new access driveway off Batterson Park Road provides a greater level of security since police officers will be able to access the park more efficiently. More passive program elements remain located further into the park, encouraging people to walk within the focus area.

PREFERRED CONCEPT PLAN

Precedents and Proposed Materials

Park Precedent

The design team collected images which represented precedents and proposed materials that help guide the future character and development of Batterson Park. The following images convey the proposed general visitor experience of winding pathways through native meadows, multi-use trails, hiking trails, boardwalks, pavilions, parking stalls, and other amenities.

Native Medow Habitat

Multi-use Trail Network

Mountain Biking Trails

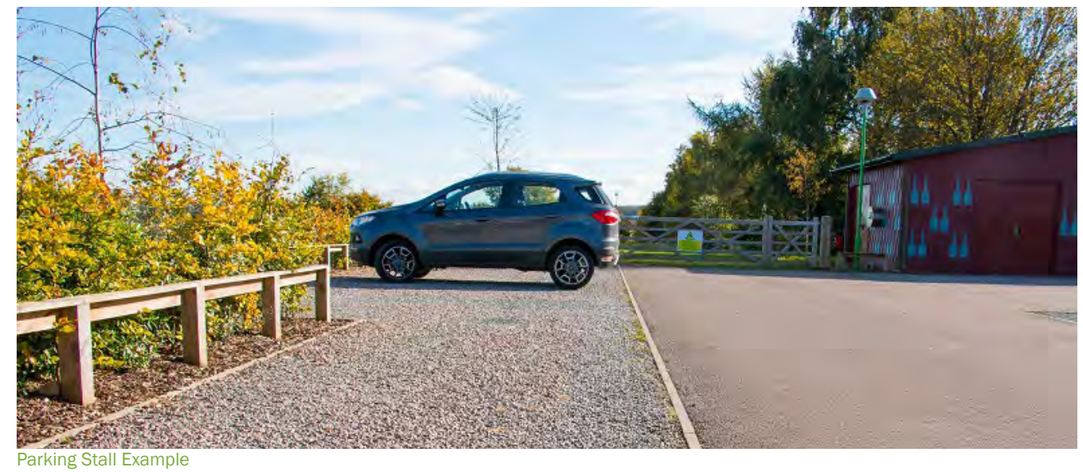
Boardwalk and Wetland Gardens

Water Activities

Natural Play Area

Natural Play Area

Pavilion Example



Parking Stall Example

Bird Watching Tower

Disk Golf Course

Master Plan

Key Features

Overall Master Plan Design Features

The Batterson Park Master Plan includes new uses that will develop the entire property while enhancing the character of the historic Batterson Park. This plan represents the stakeholder feedback on park programming as well as the expertise of the design team. The structure of the master plan is characterized by meandering paths, circular walkways, and sweeping views of Batterson Park Pond. The goal of the Master Plan is to highlight the site's naturalistic features through nature-based design and renovate the park in such a way that creates a safe place for people and mitigates environmental concerns. The design and programming for the park is influenced by the residential neighborhoods along the park edges and the wooded areas to the southwest. This has informed the choices concerning materiality and planting strategies.

The Batterson Park Master Plan also considers the needs of future maintenance, fire safety, and site security.

- Parking Area with 100+/- Permanent Spaces
- Boat Launch Area with 40+/- Permanent Spaces
- Auxiliary Parking Areas
- Dam Walkway and Lookout
- Multi-use Trails
- Mountain Biking Trails
- Hiking Trails
- Fishing Dock
- Disk Golf Course

Rendering of Proposed Entrance at Alexander Road

Overall Master Plan

Master Plan Focus Area Design Features

- Bath House and Patio
- Parking Area with 100+/- Permanent Spaces
- Renovated Beach
- Event Lawn
- Children's Play Garden
- Waterfront Lounge
- Main Pavilion
- Maintenance Building
- One-way Entrance Drive
- Picnic Grove
- Boardwalk and Wetland Gardens
- Bird Watching Tower
- Beach Volleyball
- Kayak Launch
- Water Quality Jetty
- Water Quality Maintenance
- Potential Future Driveway
- Native Meadow
- Disk Golf Course
- Multi-use Trails

Master Plan - Focus Area

Park Architecture

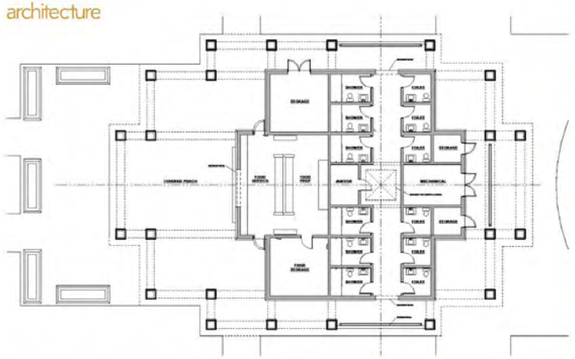
As part of the design team, QA+M Architecture lead the development of park architecture at Batterson Park. Dave Quisenberry worked closely with the team to design a series of buildings and a style for the architecture. The proposed style for the architecture was inspired by New England beach houses, with cedar shakes and simple columns. The team provided additional style options for the Maintenance Building and Pavilion.

For the main Bath House / Concessions building, the architecture team felt it was important to provide a large covered gathering space for beachgoers to shelter under during inclement weather. The design provides individual bathrooms in two sizes which can be used by families. There is also a kitchen and accommodations for a concession's vendor.

For the pavilion, the architecture team envisions the structure as a central focal point that can be used as a gathering space or special event area. They intend the design of the pavilion to match the style of the bath house.

The pattern is continued for the maintenance building as well, where the style should match the bath house building. The architecture team understands that the style for the maintenance building should also be simplified since it will be located outside the main activity area.

QA+M architecture

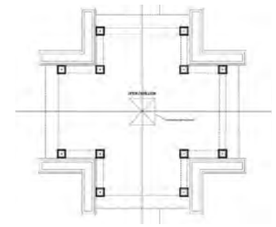


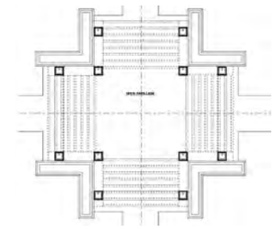
Concept Images – Concessions/Bath House

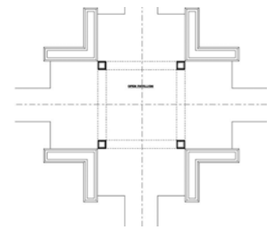
BATTERSON PARK MASTER PLAN – CITY OF HARTFORD

APRIL 25, 2023

BSC GROUP





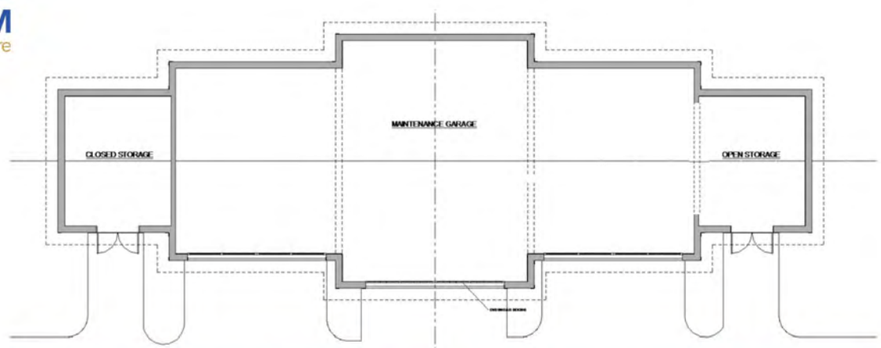


Concept Images – Pavilion A

Concept Images – Pavilion B

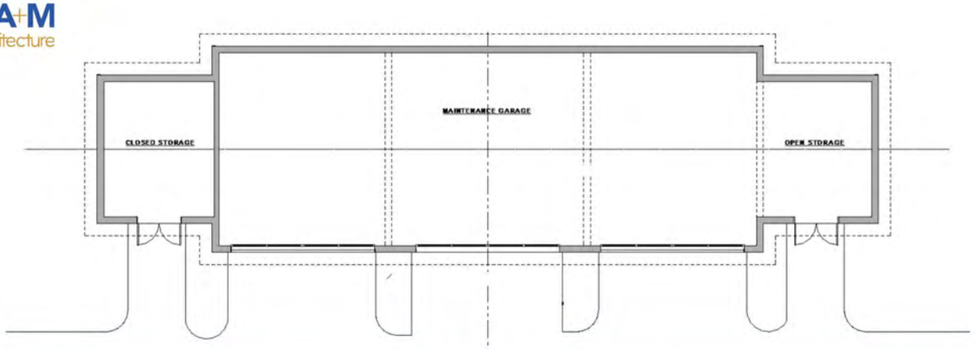
Concept Images – Pavilion C

QA+M architecture



Concept Images – Maintenance Building A

QA+M architecture



Concept Images – Maintenance Building B

Opinion of Probable Cost

Item Description	Unit	Quantity	Unit Price	Cost	Notes
Site Preparation					
SILT FENCE	l.f.	4,500	$8.00	$36,000.00	
SELECTIVE TREE REMOVAL	ea.	45	$2,000.00	$90,000.00	*Trees up tp 24" diameter*
DEMO BITUMINOUS PAVEMENT	s.y.	6,500	$10.00	$65,000.00	
TEMPORARY CONSTRUCTION FENCING	l.f.	2,500	$25.00	$62,500.00	
CLEARING AND GRUBBING	ac	2.5	$55,000.00	$137,500.00	
TREE PROTECTION	ea.	45	$500.00	$22,500.00	
			Sub-Total	**$413,500.00**	
Earthwork					
STRIP & STOCK PILE TOPSOIL	c.y.	5,500	$25.00	$137,500.00	
ROUGH GRADING	s.y.	15,000	$15.00	$225,000.00	
			Sub-Total	**$362,500.00**	
Hardscape					
BITUMINOUS PAVEMENT - MAIN PARKING LOT	s.f.	36,079	$12.00	$432,948.00	*4" Bituminous paving, granular fill, excavation*
BITUMINOUS PAVEMENT - CURRENT ENTRANCE DRIVE	s.f.	10,955	$12.00	$131,460.00	*4" Bituminous paving, granular fill, excavation*
BITUMINOUS PAVEMENT - FUTURE ENTRANCE DRIVE	s.f.	12,843	$12.00	$154,116.00	*4" Bituminous paving, granular fill, excavation*
BITUMINOUS PAVEMENT - ONE-WAY ENTRANCE	s.f.	8,500	$12.00	$102,000.00	*4" Bituminous paving, granular fill, excavation*
BITUMINOUS PAVEMENT - BOAT RAMP ENTRANCE DRIVE	s.f.	7,588	$12.00	$91,056.00	*4" Bituminous paving, granular fill, excavation*
BITUMINOUS PAVEMENT - BOAT RAMP PARKING	s.f.	15,988	$12.00	$191,856.00	*4" Bituminous paving, granular fill, excavation*
BITUMINOUS PAVEMENT - BATTERSON PARK RD PARKING LOT 1	s.f.	4,876	$12.00	$58,512.00	*4" Bituminous paving, granular fill, excavation*
BITUMINOUS PAVEMENT - BATTERSON PARK RD PARKING LOT 2	s.f.	4,717	$12.00	$56,604.00	*4" Bituminous paving, granular fill, excavation*
PERVIOUS PARKING STALLS	s.f.	15,250	$15.00	$228,750.00	*4" Gravel*
CONCRETE CURBING	l.f.	5,849	$45.00	$263,205.00	*Cast in place*
CONCRETE PAVING	s.f.	26,227	$11.75	$308,171.95	*4" Concrete*
PERVIOUS CONCRETE UNIT PAVERS - PLAZA	s.f.	8,381	$33.00	$276,573.00	
BITUMINOUS PAVEMENT - MULTI-USE PATHWAY *(Focus area to Boat Ramp)*	s.f.	40,686	$12.00	$488,232.00	*10' Wide, 4" Bituminous paving, granulaf fill, excavation*
BITUMINOUS PAVEMENT - MULTI-USE PATHWAY (Boat Ramp to Alexander Rd.)	s.f.	11,310	$12.00	$135,720.00	*10' Wide, 4" Bituminous paving, granulaf fill, excavation*
BITUMINOUS PAVEMENT - MULTI-USE PATHWAY (Alexander Rd. to Stanley St.)	s.f.	43,050	$12.00	$516,600.00	*10' Wide, 4" Bituminous paving, granulaf fill, excavation*
BITUMINOUS PAVEMENT - MULTI-USE PATHWAY (Along Stanley St. to dam)	s.f.	11,200	$12.00	$134,400.00	*10' Wide, 4" Bituminous paving, granulaf fill, excavation*
BITUMINOUS PAVEMENT - MULTI-USE PATHWAY (Dam to Focus Area)	s.f.	19,180	$12.00	$230,160.00	*10' Wide, 4" Bituminous paving, granulaf fill, excavation*
BITUMINOUS PAVEMENT - MULTI-USE PATHWAY (Batterson Rd. Connections)	s.f.	16,650	$12.00	$199,800.00	*10' Wide, 4" Bituminous paving, granulaf fill, excavation*
STONEDUST TRAILS	s.f.	7,291	$11.00	$80,201.00	*4" Stabilized Aggregate, Geotextile Fabric, 8" granular fill, steel edging*
NATIVE SOIL TRAILS	l.f.	18,341	$7.00	$128,387.00	*2' wide for hiking/mtn. biking*
			Sub-Total	**$4,208,751.95**	

Site Improvements					
BOARDWALK	s.f.	6,237	$150.00	$935,550.00	*8' wide, precast concrete, helical piles*
PICNIC SHELTER - 16' X 24'	ea.	6	$52,400.00	$314,400.00	*Gable, multi-ribbed roofing, T&G Decking*
BEACH ENHANCEMENTS	s.f.	39,000	$7.00	$273,000.00	*Create addtional beach, grading, sand import*
BATH HOUSE	ea.	1	$1,500,000.00	$1,500,000.00	*See Architectural drawings*
MAINTENANCE GARAGE	ea.	1	$700,000.00	$700,000.00	*See Architectural drawings*
PAVILLION	ea.	1	$500,000.00	$500,000.00	*See Architectural drawings*
PLAYGROUND	l.s.	1	$210,600.00	$210,600.00	*Wood play structures, EWF surfacing*
DISC GOLF	l.s.	1	$15,000.00	$15,000.00	
WATER QUALITY JETTY	l.s.	1	$75,000.00	$75,000.00	*Large stone with concrete walk surface*
FISHING PIER	s.f.	1,423	$125.00	$177,875.00	*To match boardwalk*
KAYAK LAUNCH	l.s.	1	$25,000.00	$25,000.00	
BIRD WATCH TOWER	l.s.	1	$20,000.00	$20,000.00	
			Sub-Total	**$4,746,425.00**	
Planting					
LAWN SEEDING	s.f.	60,000	$1.00	$60,000.00	*Drought tolerant mix, no irrigation*
MEADOW SEEDING	s.f.	220,000	$2.00	$440,000.00	*Native seed*
DECIDOUS TREES - 3.5" CAL.	e.a.	60	$2,000.00	$120,000.00	
EVERGREEN TREES - 6' HT.	e.a.	25	$1,500.00	$37,500.00	
ORNAMENTAL TREES - 10-12' HT.	e.a.	30	$1,200.00	$36,000.00	
RAIN GARDEN	s.f.	2,500	$20.00	$50,000.00	
WETLAND ENHANCEMENT	s.y.	9,800	$50.00	$490,000.00	
			Sub-Total	**$1,233,500.00**	
Utilities					
SEWER PUMP SYSTEM FOR BUILDINGS	ea.	1	$75,000.00	$75,000.00	
SITE LIGHT POLES	ea.	15	$8,000.00	$120,000.00	
ELECTRICAL SERVICE	ea.	2	$25,000.00	$50,000.00	*Budget Estimate*
STORMWATER MANAGEMENT	l.s.	1	$225,000.00	$225,000.00	
CONDUIT AND WIRING	l.f.	1,800	$62.00	$111,600.00	
SEWAGE CONNECTION	ea.	1	$25,000.00	$25,000.00	
POTABLE WATER CONNECTION	ea.	2	$25,000.00	$50,000.00	
			Sub-Total	**$656,600.00**	
			Total of All Items	**$11,621,276.95**	

B. LUMP SUM ITEMS (% OF "MAJOR ITEMS" AS INDICATED)		
DESIGN AND ENGINEERING SOFT COSTS	10%	$1,162,127.70
CONSTRUCTION STAKING	1%	$116,212.77
MOBILIZATION	5%	$581,063.85
MINOR ITEMS	10%	$1,162,127.70
ESCALATION	6%	$697,276.62
Total of Lump Sum Items		**$3,718,808.62**
SUB-TOTAL (A+B)		**$15,340,085.57**
CONTINGENCY	20%	$3,068,017.11
FULL CONSTRUCTION GRAND TOTAL		**$18,408,102.69**
SAY		**$18,410,000.00**

Phase One Recommendation

In order to meet key client programmatic project milestones, and funding and schedule commitments, it is the recommendation of this report that a Phase One Design occur immediately following this final acceptance of the master plan report. The schedule highlights the need for the design team to begin bringing the design to the next level. Permitting needs to be completed by the end of 2023 for the bidding phase to occur within a reasonable timeframe. If construction is to be finalized by mid-2025, it is imperative that contractors have enough time to bid the project and perform the construction activity described in the following Phase One Master Plan.

The team met to finalize a Phase One Master Plan which endeavors to use the 7.5 million grant funding which was granted to the City of Hartford for development of the Batterson Park property. It was agreed that the key features of the focus area should include the following:

- Bath House and Patio
- Parking Area with 100+/- Permanent Spaces
- Renovated Beach
- Event Lawn and Plaza
- Children's Play Garden
- Improved Walkways
- Maintenance Building
- Existing Pedestrian Access
- Beach Volleyball
- Kayak Launch
- Water Quality Maintenance
- Disk Golf Course

This master plan provides Batterson Park with all the infrastructure and major features which are essential for the park's future success and maintenance. The plan includes improvements which add interest and utility to the park; these features may be switched for other amenities during the design phase. Other value engineering processes may occur during the design phase. Some of the recommendations include reducing the impermeable surfaces by using aggregate parking stalls with paved drive aisles, using a modular concrete boardwalk system on helical piles in lieu of a traditionally constructed wooden boardwalk, and using playground pieces that highlight natural materials.

Phase One Plan

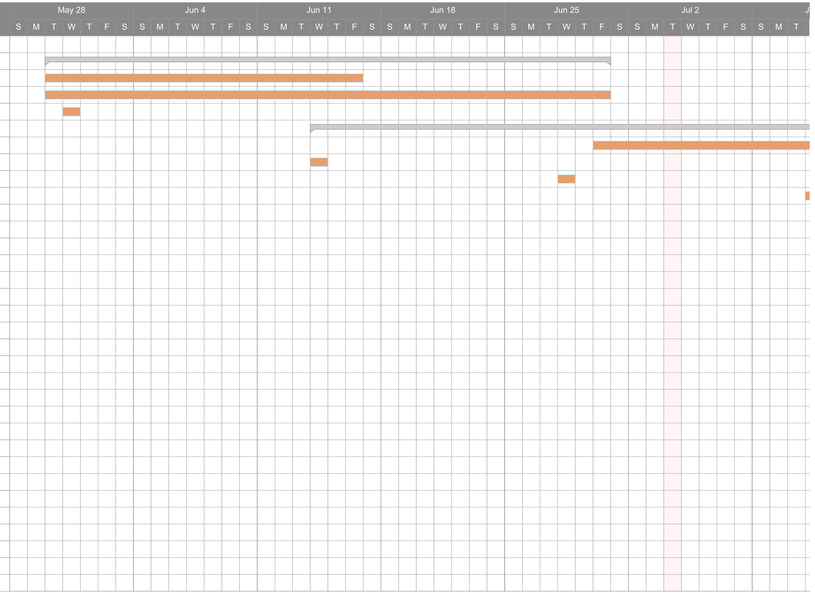
Opinion of Probable Cost

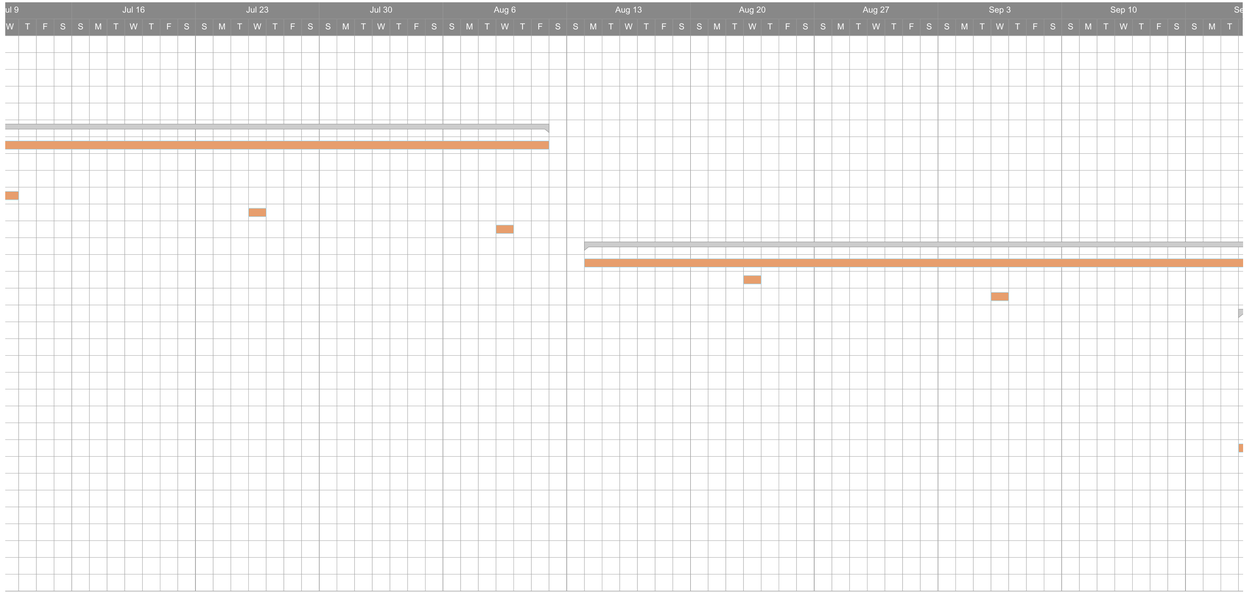
Item Description	Unit	Quantity	Unit Price	Cost	Notes
Site Preparation					
SILT FENCE	l.f.	950	$8.00	$7,600.00	
SELECTIVE TREE REMOVAL	ea.	8	$2,000.00	$16,000.00	*Trees up tp 24" diameter*
DEMO BITUMINOUS PAVEMENT	s.y.	4,500	$10.00	$45,000.00	
TEMPORARY CONSTRUCTION FENCING	l.f.	600	$25.00	$15,000.00	
CLEARING AND GRUBBING	ac	0.3	$55,000.00	$13,750.00	
TREE PROTECTION	ea.	10	$500.00	$5,000.00	
			Sub-Total	**$102,350.00**	
Earthwork					
STRIP & STOCK PILE TOPSOIL	c.y.	3,000	$25.00	$75,000.00	
ROUGH GRADING	s.y.	11,000	$15.00	$165,000.00	
			Sub-Total	**$240,000.00**	
Hardscape					
BITUMINOUS PAVEMENT - MAIN PARKING LOT (B)	s.f.	27,660	$12.00	$331,920.00	*4" Bituminous paving, granular fill, excavation*
BITUMINOUS PAVEMENT - CURRENT ENTRANCE DRIVE	s.f.	10,955	$12.00	$131,460.00	*Mill & Overlay, 4" Bituminous paving*
BITUMINOUS PAVEMENT - IMPROVED WALKWAYS (G)	s.f.	3,500	$12.00	$42,000.00	*4" Bituminous paving, granular fill, excavation*
PERVIOUS PARKING STALLS (B)	s.f.	15,250	$15.00	$228,750.00	*4" Gravel*
CONCRETE CURBING	l.f.	1,400	$45.00	$63,000.00	*Cast in place*
CONCRETE PAVING	s.f.	22,625	$11.75	$265,843.75	*4" Concrete*
PERVIOUS CONCRETE UNIT PAVERS - PLAZA (A&D)	s.f.	8,381	$33.00	$276,573.00	
			Sub-Total	**$1,339,546.75**	
Site Improvements					
BEACH ENHANCEMENTS (C&J)	s.f.	35,000	$7.00	$245,000.00	*Create addtional beach, grading, sand import*
BATH HOUSE (A)	ea.	1	$1,500,000.00	$1,500,000.00	*See Architectural drawings*
MAINTENANCE GARAGE (H)	ea.	1	$700,000.00	$700,000.00	*See Architectural drawings*
PLAYGROUND (F)	l.s.	1	$210,600.00	$210,600.00	*Wood play structures, EWF surfacing*
KAYAK LAUNCH (K)	l.s.	1	$25,000.00	$25,000.00	
DISC GOLF (M)	l.s.	1	$15,000.00	$15,000.00	
			Sub-Total	**$2,695,600.00**	
Planting					
LAWN SEEDING (E)	s.f.	60,000	$1.00	$60,000.00	*Drought tolerant mix, no irrigation*
DECIDOUS TREES - 3.5" CAL.	e.a.	45	$2,000.00	$90,000.00	
ORNAMENTAL TREES - 10-12' HT.	e.a.	15	$1,200.00	$18,000.00	
RAIN GARDEN	s.f.	4,500	$20.00	$90,000.00	
WETLAND ENHANCEMENT	s.y.	300	$50.00	$15,000.00	*Replication of disturbed wetland areas*
			Sub-Total	**$273,000.00**	
Utilities					
SEWER PUMP SYSTEM FOR BUILDINGS	ea.	1	$75,000.00	$75,000.00	
SITE LIGHT POLES	ea.	15	$8,000.00	$120,000.00	
ELECTRICAL SERVICE	ea.	2	$25,000.00	$50,000.00	*Budget Estimate*
STORMWATER MANAGEMENT	l.s.	1	$225,000.00	$225,000.00	
CONDUIT AND WIRING	l.f.	1,800	$62.00	$111,600.00	
SEWAGE CONNECTION	ea.	1	$25,000.00	$25,000.00	
POTABLE WATER CONNECTION	ea.	2	$25,000.00	$50,000.00	
			Sub-Total	**$656,600.00**	
			Total of All Items	**$5,204,746.75**	

B. LUMP SUM ITEMS (% OF "MAJOR ITEMS" AS INDICATED)		
CONSTRUCTION STAKING	1%	$52,047.47
MOBILIZATION	3%	$156,142.40
MINOR ITEMS	10%	$520,474.68
ESCALATION	6%	$312,284.81
Total of Lump Sum Items		**$1,040,949.35**
SUB-TOTAL (A+B)		**$6,245,696.10**
CONTINGENCY	20%	**$1,249,139.22**
FULL CONSTRUCTION GRAND TOTAL		**$7,494,835.32**
SAY		**$7,495,000.00**

Proposed Schedule for Phase One Implementation

	Task Name	Duration	Start	Finish
1				
2	**Phase 1 - Schematic Design**	32d	05/30/23	06/30/23
3	Geotechnical	18d	05/30/23	06/16/23
4	Design	32d	05/30/23	06/30/23
5	Meetings	1d	05/31/23	05/31/23
6	**Phase 2 - Design Development**	58d	06/14/23	08/11/23
7	Design	42d	06/30/23	08/11/23
8	Meeting	1d	06/14/23	06/14/23
9	Meeting	1d	06/28/23	06/28/23
10	Meeting	1d	07/12/23	07/12/23
11	Meeting	1d	07/26/23	07/26/23
12	Meeting	1d	08/09/23	08/09/23
13	**Phase 3 - Final Design**	40d	08/14/23	09/22/23
14	Design	40d	08/14/23	09/22/23
15	Meeting	1d	08/23/23	08/23/23
16	Meeting	1d	09/06/23	09/06/23
17	**Phase 4 - Permtting**	34d	09/20/23	10/23/23
18	Inland Wetlands Submission	1d	09/26/23	09/26/23
19	Inland Wetlands Meeting #1	1d	10/04/23	10/04/23
20	Planning and Zoning Submission	1d	10/03/23	10/03/23
21	Planning and Zoning Commission #1	1d	10/11/23	10/11/23
22	Inland Wetlands Meeting #2	1d	10/18/23	10/18/23
23	Planning and Zoning Commission Meeting #2	1d	10/23/23	10/23/23
24	USACOE Self-Verification Notification	1d	10/02/23	10/02/23
25	Meeting	1d	09/20/23	09/20/23
26	Meeting	1d	10/04/23	10/04/23
27	**Phase 5 - Construction Documents**	59d	10/18/23	12/15/23
28	Design	47d	10/30/23	12/15/23
29	Meetings	1d	10/18/23	10/18/23
30	Meeting	1d	11/01/23	11/01/23
31	Meeting	1d	11/15/23	11/15/23
32	Meeting	1d	11/29/23	11/29/23
33	Meeting	1d	12/13/23	12/13/23





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14	Design	40d	08/14/23	09/22/23
15	Meeting	1d	08/23/23	08/23/23
16	Meeting	1d	09/06/23	09/06/23
17	**Phase 4 - Permtting**	34d	09/20/23	10/23/23
18	Inland Wetlands Submission	1d	09/26/23	09/26/23
19	Inland Wetlands Meeting #1	1d	10/04/23	10/04/23
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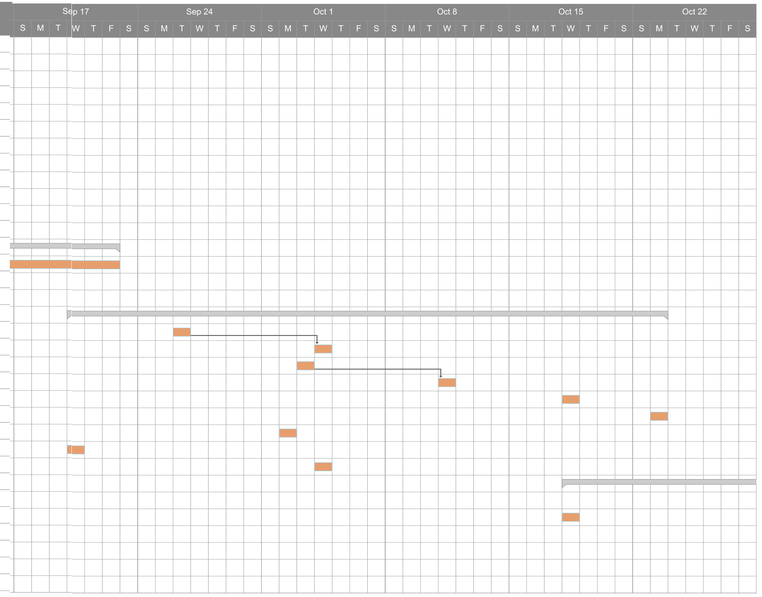

Additional Master Plan Details

Multi-Use Pathway

A multi-use pathway was proposed as a unified trailway that encircles the entire pond. This would accommodate a variety of activities and various wheeled sizes (strollers, wheelchairs, bicycles, rollerblades, etc.). The proposed trailway would be paved and between 8-10ft wide depending on the location along the route. This trailway would connect major park amenities such as the main focus area, the Batterson Park Dam, additional park access points, and the boat ramp. The goal is to allow park visitors to access all sections of the park with an internal trail network, which would enhance the existing connections beyond the park's boundaries.

Trail Network

In addition to the trailway, the team envisioned a separate series of trails for both hiking and biking, particularly in the 80-acre section of upland hardwoods along the western edge of the park. This network would provide visitors additional access to sections of the site that have yet to be integrated into the overall park design. The team explored additional funding sources for this network, including the Connecticut Recreational Trails Grants Program, in order to offset the overall cost of the project.

Additional Park Access Points

Additional access points into Batterson Park were designed in locations within a short walking distance to nearby apartment complexes and public transit stops, facilitating additional access for local area residents. The two proposed locations would support approximately 15 parking spaces (including accessible spaces) and would be integrated into the park's proposed multi-use pathway and trail networks.

Boat Launch Parking Area

The existing boat launch parking area provides a boat ramp for non-combustion powered vessels which can be towed via trailer. The team proposed that the existing parking lot be graded, resurfaced, and better integrated into the overall park design. The multi-use pathway would connect the boat ramp with the main park area, allow park visitors to easily travel between the different nodes of the park. As the only vehicular access point on the New Britain side of the park, the boat launch parking area presents a unique opportunity to better connect the park's amenities with local area residents. It is imperative that security is addressed in this area as part of the master plan. https://portal.ct.gov/DEEP/Boating/Boat-Launches/Batterson-Park-Pond-Boat-Launch

Alexander Road Entrance

There is an opportunity to include an additional pedestrian and bicycle access point along Alexander Road. This ties into existing municipal bike lanes and public transit options along Alexander Road, increasing the overall accessibility of the site to local area residents in New Britain.

One-Way Entrance

Through the project's stakeholder engagement efforts, the team came to understand that the Town Farmington regularly patrols the main park. With input from the Farmington Police Chief, it was determined that it was preferable to have two entrances into the main section of the park. This would facilitate patrolling officers to drive through the park. The proposed second entrance would be a one-way driveway off Batterson Park Road across from Camp Courant. This proposed roadway uses the infrastructure left from the historic location of Batterson Park Road and would include a sidewalk for pedestrians crossing from Camp Courant.

Relocated Main Entrance

The team explored the option to relocate the park's main entrance from the current intersection at 2 Mile Road, to a section of Batterson Park Road. The intent of this proposal was to reduce conflict at the existing intersection, and provided a more dedicated entrance. This proposal requires more development and engineering to determine if it is a viable option. It was determined that the existing entrance should be utilized for the master plan, and that the intersection should be improved.

Through rerouting the main park entrance to Batterson Park Road, there is an opportunity to reconnect and enhance the existing meadow ecology. This would create a less interrupted habitat for flora and fauna, and would provide sweeping views across the meadow to Batterson Park Pond.

Parking Lot and Bus Drop-off

A new, 100 space parking lot will be sited over the original parking lot, and maintenance yard. It will also include a new bus drop-off and pick up zone to support visitors arriving via camp / school programs from the surrounding municipalities. To reduce the overall amount of impermeable surfaces, the team proposes that the parking stalls be finished with an aggregate with paved drive aisles.

Beach

The legacy of Batterson Park is the man-made beach. Unique among other local parks, Batterson Park beach has been a highlight of the site for decades. As a priority of the Master Plan, it's recommended that the Beach be replenished with sand, regraded, and opened to the public.

Bathhouse

The proposed bathhouse is the primary architectural feature of the new park design. It is meant to function as a gateway, connecting newly arrived visitors with the highlight of the park—its beach. The original bathhouse on site had fallen into disrepair, no longer served the needs for the client, and needed to be replaced. The new proposed bathhouse is 3500sqft facility with restrooms, a concession stand, room for storage, and a 2400sqft covered patio meant to provide shelter to park visitors.

Maintenance Building

The team understood that a dedicated maintenance building on the site was a priority for Phase One. This makes overall maintenance of the site more convenient for municipal / state staff. The proposed maintenance building is 3000sqft facility, and has a three garage bays for equipment with additional storage options.

Pavilion and Event Lawn

Meant to support the event lawn, the proposed pavilion will function as a focal point for this part of the site, offering visitors views of the pond, and providing a space for venues. The team explored options which included a prefabricated pavilion, and a fully architectural option meant to mirror the overall design aesthetics of the proposed bathhouse and maintenance building.

The event lawn is a flexible space that can be used for events and informal use. The proposed event lawn would be a more formal intimate space, framed by a concrete sidewalk, flowering trees, and oriented framing views out over the pond.

Playground

Incorporating a playground as part of the overall improvements at the park is meant to provide options for visitors beyond the activities associated with the beach. By offering a diversity of programing, the goal is to provide a range of activities that would support a diverse range of visitors. The team recommends playground options using natural materials which would be in keeping with the overall aesthetic of the park.

Boardwalk

The team explored options for a prefabricated, modular concrete boardwalk system that would connect the beach area with the park's internal trail network. The proposed boardwalk would allow for less disturbance in the wetland areas and would bring people closer to the water by building a span out over the pond and the existing wetlands. It's recommended that the system use helical piles and a top-down construction method to minimize the area of disturbed wetlands. The team also envisioned the boardwalk remaining low enough so as to not require guardrails, allowing uninterrupted views of the pond and natural landscape.

Enhanced Wetlands and Educational Component

The team discovered extensive wetland soils throughout much of the original park footprint. This provided an opportunity to build a space where the visiting public could be educated as to the importance of wetlands, and the ecological benefits they provide to an ecosystem.

Small Boat Launch and Fishing Platforms

To facilitate addition aquatic recreation on the pond, the team proposed a second small boat launch and fishing areas connected to the main park. The boat launch would be used exclusively for small non-motorized watercraft (kayaks, canoes, stand-up paddleboards, etc.) and is meant to provide additional recreation opportunities beyond the beach.

Similarly, the fishing platforms provide safe locations for fishers to cast without conflicting with others enjoying the park.

Disc Golf Course

The team proposed the inclusion of a Disc Golf Course in Phase One. This low-cost amenity has the potential to be a popular attraction that would highlight the park's renovations.

Permitting

Based on the proposed improvements depicted in the master plan, the following permits may be required for portions of the work.

Local

- Farmington Planning and Zoning
- Farmington Inland wetlands
- City of New Britain Planning and Zoning
- City of New Britain Inland Wetlands

State

- Section 401(a)(1) of the Clean Water Act (33 USC Sec.1341) requires that applicants proposing to
- discharge dredged or fill material into waters of the U.S. obtain a Water Quality Certification (WQC) or waiver from the certifying state water pollution control agency, which is CT DEEP or the U.S. Environmental Protection Agency (EPA) on Indian reservation lands. The CT DEEP has granted WQC for all activities authorized under a Connecticut General Permit (CT GP) provided those activities meet the criteria as contained in a General Permit.
- CT DEEP Flood Management Certification (DEEP-IWRD-FS-102).
- CT DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (DEEP-WPED-GP-015).
- Pursuant to Army Corps Section 404 permitting process is related to Section 106 of the National Historic Preservation Act. To obtain sign off from the State Historic Preservation Office (SHPO) that there will be no adverse impacts to archaeological or historic properties, we anticipate submitting a Project Review Form to the State Historic Preservation Office.

Federal

- U.S. Army Corps of Engineers (USACE)
- Self-Verification Review Category
- An application to the USACE is not required. However, submittal of a SVNF and required accompanying materials to USACE and CT DEEP at least two weeks prior to commencement of work authorized by a Connecticut General Permit, is required.
- USACE permit pursuant to the provisions of Section 404 of the Federal Clean Water Act of 1972 will be required under the Regional General Permits for the State of Connecticut. Based on the master plan, the phase 1 project is expected to qualify for authorization under the terms and conditions of General Permit 17 following the submission of a Self-Verification Notification Form (SVNF). If it is determined that other projects will not qualify for this authorization (i.e. wetland impacts are >5,000 square feet), a Pre-Construction Notification (PCN) will likely be required.
- PCN Review Category
- For activities that are not eligible for SV or when it is stated that a PCN is required, an application to, and written verification from, USACE is required. No work requiring a PCN may proceed until written verification from USACE has been received.
- US Fish and Wildlife Service IPaC for federally listed species.
- Notification to the Native American Tribes of Connecticut.

Funding

- General Fund
- General Obligation Bond
- Bond Referendum
- Governmental Funding Programs
- Recreational Trails Program (RTP)
- Connecticut's Clean Water Fund
- Business/Citizen Donations
- Private Foundation Funds
- Corporate Sponsorship
- User Fees
- Concessions

Appendix IV: Diagnostic Review and Management Opinion for Batterson Park Pond

Report Summary

The City of Hartford contracted with the Construction Solutions Group, LLC who subcontracted with GZA GeoEnvironmental, Inc. to conduct a "Batterson Park Pond Diagnostic Review and Management Opinion" which was published in September 2022. The full report is included in the Appendix to this Study.

From its water quality testing and analysis, GZA made the following observations in its summary regarding elevated bacteria levels in Batterson Park Pond:

- … "most, if not all, properties surrounding the pond are sewered, [so] the presence of bacteria in the pond as measured near the beach may be the result of several sources – inflow from the adjacent stream, the observed presence of waterfowl, and/or the observed pet waste in and around the beach area. While engineering solutions can be recommended for a number of these possible causes, there should be a policy established to minimize visitor waste and dog walking access to the beach and waterfront area.

- Cyanobacteria were present during our field sampling in enough abundance that the levels would have triggered a public use notice per the Connecticut Department of Public Health's guidance documents; and

- Overall, internal nutrient loading (from the existing sediment on the pond bottom) is judged to be a primary contributor to the development of cyanobacteria and overall pond health. Management options are available to improve this situation as explained further in the attached report."

To address excess nutrient and bacteria issues with the goal of returning Batterson Park Pond to a swimmable condition, GZA recommended use of a "Diffused Air Artificial Circulation System" with diffuser components that would need to be installed at several locations around the pond, supported by a land-based compressed air system to retain good circulation. In addition, a chemical feed system to introduce algaecides or low-dose nutrient inactivating agents might be required based on additional water quality monitoring.

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DIAGNOSTIC REVIEW AND MANAGEMENT OPINION for BATTERSON PARK POND

Farmington and New Britain, CT

September 2022

GZA File No. 15.0167091.00

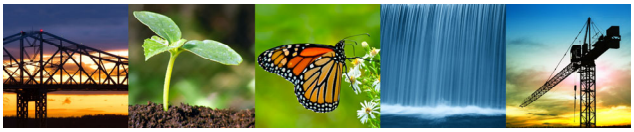
PREPARED FOR:

Construction Solutions Group, LLC
East Hartford, CT

PREPARED BY:

GZA GeoEnvironmental, Inc.
1350 Main Street, Suite 1400 | Springfield, MA 01103
413-726-2100

30 Offices Nationwide
www.gza.com



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1350 Main Street
Suite 1400
Springfield, MA 01103
T: 413.726.2100
F: 413.732.1249
www.gza.com

September 29, 2022
GZA File No. 15.0167091.00

Mr. Jim Giuliano, MCPPO, CDP
President
Construction Solutions Group, LLC
1137 Main Street
East Hartford, CT 06108

Re: **Batterson Park Pond – Diagnostic Review and Management Opinion**
Batterson Park, Batterson Park Road, Farmington, CT

Dear Mr. Giuliano:

GZA GeoEnvironmental, Inc. (GZA) is pleased to provide this Diagnostic Review and Management Opinion for Batterson Park Pond in Farmington and New Britain, CT (the Site) to Construction Solutions Group, LLC (Client, CSG), in accordance with our signed contract and proposal dated August 16, 2022.

We understand that the City of Hartford is pursuing the reopening of Batterson Park and the former public swimming beach at the Site with state funding. We also understand that the Site was open as a swimming beach until ca. 2015 when circumstances forced the closure of the beach and surrounding park with amenities. Given that there is some past documentation of water quality issues in Batterson Park Pond, GZA was asked to review existing information and conduct a diagnostic review of the pond during summer months.

GZA has completed that review and prepared the enclosed summary report to present our findings and recommendations for potential management techniques to provide swimmable conditions in the pond. Our work and this report are subject to the Limitations in **Appendix A**.

Several observations can be made at this time:

- With the determination that most, if not all, properties surrounding the pond are sewered, the presence of bacteria in the pond as measured near the beach may be the result of several sources – inflow from the adjacent stream, the observed presence of waterfowl, and/or the observed pet waste in and around the beach area. While engineering solutions can be recommended for a number of these possible causes, there should be a policy established to minimize visitor waste and dog walking access to the beach and waterfront area.

- Cyanobacteria were present during our field sampling in enough abundance that the levels would have triggered a public use notice per the Connecticut Department of Public Health's (CT DPH's) Guidance Documents.

- Overall, internal nutrient loading (from the existing sediment on the pond bottom) is judged to be a primary contributor to the development of cyanobacteria and overall pond health. Management options are available to improve this situation as explained further in the attached report.

Please let us know when you have had time to review this report. We can set a time to discuss any questions you may have or discuss the findings of this review and potential management options. GZA is happy to assist the City of Hartford and its consultants on this project as you proceed toward the next steps toward a successful reopening of Batterson Park and its swimming facilities.

Very truly yours,
GZA GEOENVIRONMENTAL, INC.

Jennifer R.M. Burke, P.E.
Senior Project Manager/Water Resources Engineer

Robert Kortmann, Ph.D.
Senior Consultant/Applied Limnologist

Stephen L. Lecco, AICP, CEP
Associate Principal

Stephan T. Roy, PG
Consultant / Reviewer

Attachments: Diagnostic Review and Management Opinion – Batterson Park Pond

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION/INFORMATION REVIEW

GZA was contracted in August 2022 to perform a water quality study at Batterson Park Pond, located in Farmington and New Britain, CT, with a goal of providing a preliminary assessment and understanding of potential feasibility to reopen a swimming beach at Batterson Park (the Park), located off Batterson Park Road in Farmington, CT (see Locus Map - **Figure 1**). The park was open to the public until ca. 2015 when circumstances forced the closure of the beach and surrounding park with amenities.

The City of Hartford has received state funding for work to rehabilitate/restore the park/pond to reopen a public swimming beach at the Site. Information regarding the water quality at the swimming beach and in the pond is limited to historical documents and no recent study or surveys have been done based on a review of available data. As such, this initial assessment was conducted to provide a baseline/snapshot view of existing water quality conditions and to identify elements that may need more study to affect solutions to the water quality issues at hand. This work and report are subject to the Limitations in **Appendix A**.

This study is meant to address a few key questions:

- What are the critical natural features relative to the intended use of the pond?
- Is the diagnostic-feasibility information contained in earlier reports still applicable?
- What challenges may exist relative to reopening a swimming beach on the pond?

The study and management opinion are also meant to address the following:

- Does the TMDL Report provide a reasonably accurate nutrient budget for planning?
- Are the pond management methods identified in prior reports still applicable?
- Are there additional management methods that are applicable that were not available several decades ago?

1.1 SCOPE OF STUDY

GZA proposed a scope of services for this work that included the following:

- Review of existing available information;
- Site visit with data collection for:
    - Bacteria;
    - Cyanobacteria/algae; and
    - Basic limnological parameters – temperature, dissolved oxygen, relative thermal resistance to mixing, oxidation-reduction potential, pH, nutrients, and fluorimetry parameters.
- Brief watershed survey to identify whether surrounding areas are connected to sanitary sewer and to review conditions at the beach area for signs of potential contaminants; and
- Preparation of a summary Diagnostic Review and Management Opinion, with a discussion of findings and potential management options, with order of magnitude costs, as well as an identification of data gaps and future study needed.

1.2 REVIEW OF EXISTING INFORMATION

The following information was reviewed as part of this study:

- Baystate Environmental Consultants, Inc. 1993. *Final Report – Diagnostic Water Quality Study – Batterson Park Pond*.
- City of Hartford Department of Parks & Recreation. 1905. Map of Batterson Park Lake Showing Elevation of Bottom and Depth of Muck (1 sheet).
- City of Hartford Department of Public Works. 1986. *Inland Wetlands and Water Course Application – Culvert Replacement*.
- City of Hartford, Connecticut Department of Public Works Bureau of Engineering Services. 1985. *Batterson Park Culvert Reconstruction, Farmington, Connecticut* (1 sheet).
- City of Hartford Department of Public Works. 1985. *Plans for Batterson Park Pond Dam Rehabilitation* (8 sheets).
- Connecticut Agricultural Experiment Station. 2004. *Batterson Park Pond, Farmington, CT-Invasive Aquatic Plant Program*. Available at https://portal.ct.gov/CAES/Invasive-Aquatic-Plant-Program/B/Batterson-Park-Pond/Batterson-Park-Pond-2004.
- Connecticut Department of Energy and Environmental Protection (CT DEEP) and CT Department of Public Health (CT DPH). 2021. *Guidance to Local Health Departments for Blue-Green Algae in Recreational Freshwaters*.
- CT DEEP and CT DPH. 2016. *State of Connecticut Guidelines for Monitoring Swimming Water and Closure Protocol*.
- CT DEEP. 2004. *A Total Maximum Daily Load Analysis for Batterson Park Pond, Farmington/New Britain, Connecticut*.
- Department of the Army, New England Division, Corps of Engineers. 1978. *Batterson Park Pond Dam – CT 00262 – Phase I Report, National Dam Inspection Program*.
- Frink, C.R. and Norwell, W.A. 1984. *Chemical and Physical Properties of Connecticut Lakes – The Connecticut Agricultural Experiment Station Bulletin 817*.
- Fuss & O'Neill, Inc. 2011. *Batterson Park Pond Dam Maintenance and Repair* (10 sheets).
- Fuss & O'Neill, Inc. 2022. *Section 404 Category II Application – Water Quality Improvements to Batterson Park Pond*.
- Fuss & O'Neill, Inc. 2001. *Batterson Park Pond Water Quality Improvement Project – Design Study Report*.
- State of Connecticut. 2015. *Regulations of Connecticut State Agencies – Title 22a. Environmental Protection. Connecticut Water Quality Standards*.

These resources were reviewed in comparison to data collected as part of this work and to provide a context for understanding changes over time within the waterbody, as discussed in the following section.

2.0 DATA COLLECTION AND SUMMARY

The water quality assessment focused on factors that could affect direct contact recreation (*e.g.,* swimming). In Connecticut, direct contact recreation requires testing for factors that may result in a prohibition of that activity, while non-contact uses (*e.g.,* non-motorized boating and fishing) may require less testing or monitoring.

2.1 BATHING BEACH AREA BACTERIA SAMPLING, VISUAL OBSERVATIONS, AND WATERSHED SURVEY

2.1.1 Bacterial Sampling

GZA conducted one (1) round each of dry and wet weather screening to review bacterial levels in the swimming beach area for *Escherichia coli* (*E. coli*), as it is a primary parameter used for monitoring swimming water quality in the State of Connecticut. The *State of Connecticut Guidelines for Monitoring Swimming Water and Closure Protocol* was reviewed and generally followed for this sampling. Based on the total beach length and guidance in that document, GZA collected two (2) samples at representative locations within the former swimming area. Sample locations (SW-1 and SW-2) are shown on **Figure 2.** To the extent possible, samples were taken during the summer season to help identify potential concerns during the peak recreational season. The dry weather sampling was conducted in August, 2022; however, due to weather conditions and the later summer contract authorization, the wet weather samples were collected after Labor Day, outside of the typical swimming season.

GZA collected the bacteriological water quality samples on park property at approximately 12 to 18 inches below the water surface within an area of approximately three to four feet of total water depth using standard bacterial sample collection procedures. Bacterial samples were collected in sterile containers, sealed, cooled on ice, and submitted to the laboratory within sample parameter hold times using proper chain of custody procedures. Bacteriological samples were collected under dry weather and wet weather conditions. Dry weather bacterial samples were collected on August 30, 2022, and wet weather bacterial samples were collected on September 12, 2022.

Bacteriological samples were analyzed by Phoenix Environmental Laboratories, Inc. a Connecticut-certified laboratory located in Manchester, Connecticut.

The results of the two rounds of bacterial sampling are summarized in **Table 1**.

Table 1: Summary of Bacterial Testing Data (in Most Probable Number (MPN)/100ml)

Sampling Location	8/30/2022 (Dry Weather)	9/12/2022 (Wet Weather)
SW-1	<10	10
SW-2	213	62

For context, *E. coli* provides a measure of fecal contamination from warm-blooded animals, birds, and human waste materials. The *State of Connecticut Guidelines for Monitoring Swimming Water and Closure Protocol* indicates that a concentration of "less than or equal to 235 per 100 ml is generally considered satisfactory for a single sample from a swimming area".

Concentrations higher than 235/100 ml require resampling and a sanitary survey of the area. When considering sampling results over time, a running geometric mean for each sampling station is used, with an acceptable running geometric mean of less than or equal to 126/100 ml being acceptable. Per the State guidance, the running geometric mean "should be based on at least 5 sample results per 30-day period", with calculation method guidance provided.

In both events, the bacterial values were significantly lower at SW-1 than SW-2. SW-2 was at the end of the beach closer to the inlet from Cadwell Brook, suggesting that there may be a contribution from the inlet stream. Visual observations of the two sampling sites also differed, reinforcing the concept that the locations, although only separated by a few hundred feet, may be subject to differences in water quality due to inputs from the inlet stream.

The dry weather sampling was preceded by more than three days of dry weather during a warm summer characterized by drought conditions, which means less flushing and circulation within the waterbody. The wet weather event occurred after a 5-day dry period which was preceded by a significant multi-day rain event, which may have led to more dilution and flushing which may account for the differences in values between storms.

While the selected testing addresses a primary water quality factor during the peak recreational season that may limit recreational opportunities, this analysis represents a single-event "snapshot" of conditions during dry and wet weather. While they represent an important step in characterizing the water quality in terms of potential opportunities, the sampling results should only be considered an initial screening and additional testing and potentially other sampling locations (such as within the stream inflows prior to the confluence with the pond) would be required before advancing recommended recreational objectives and/or an ongoing basis to monitor the presence of suitable recreational conditions.

2.1.2 Visual Observations

On August 30th and September 12th, 2022, a GZA GeoEnvironmental, Inc. (GZA) scientist conducted a field assessment at Batterson Park Pond beach. The GZA scientist visually evaluated the following criteria:

- Water clarity (Secchi depth);
- Plant species presence and location in relation to the beach;
- Observations of visible or odorous contamination;
- Observations of shoreline erosion;
- Observations of fish and wildlife; and
- Observations of indicators of ongoing recreational usage.

GZA conducted field observations the morning of August 30, 2022, from the beach and shoreline. The pond surface elevation appeared to be approximately 8-12 inches lower than normal conditions based on substrate and topographic evidence along the shoreline, which was most likely due to summer drought conditions. Overall, the beach area appeared free from contamination sources. GZA did not visually observe evidence of contamination such as oils or floatables, nor unnatural odors.

The existing beach area has moderate density vegetative cover consisting primarily of grass species, immature eastern cottonwood *(Populus deltoides)* averaging approximately 18-to-24-inches tall, sensitive partridge pea *(Chamaecrista nictitans)*, blue curls *(Trichostema dichotomum)*, and immature willow species *(Salix sp.)* averaging 24-to-36 inches tall.

Evidence of recent human use was observed associated with a campfire, a portable sanitary unit, litter and other debris such as an abandoned beach towel and chair, and a limited area of cleared shoreline vegetation providing walking access to the waterbody. Near this entrance to the waterbody, a sandy substrate extended at least 20 feet waterward from shore with only sparsely arranged aquatic vegetation including common duck-meal *(Spirodela polyrrhiza)*. Dog waste was observed sporadically around the beach area. No significant wildlife populations were observed, nor waste associated with Canada geese *(Branta canadensis)* or other such species. On the wet weather event on September 12, 2022, a group of four (4) mute swans *(Cygnus olor)* were observed over 30 feet from shore.

Near SW-1, located along the southern section of the beach, shoreline vegetation was dense and included soft rush *(Juncus effusus)*, purple loosestrife *(Lythrum salicaria)*, arrowleaf tearthumb *(Persicaria sagittata),* willow *(Salix sp.)*, and trailing fuzzy bean *(Strophostyles helvola).* Minor inclusions of common reed *(Phragmites australis)*, yellow nut sedge *(Cyperus esculentus)*, and reed canary grass (*Phalaris arundinacea)* were also observed. Further south, just beyond the beach area, dense broadleaf cattail *(Typha latifolia)*, and willow shrubs were observed along the shoreline. Within the water, a sandy substrate extended approximately 12 feet from the shore before being obscured with dense aquatic vegetation which primarily included coontail *(Ceratophyllum demersum)*.

SW-2, located along the northern section of the beach, is adjacent to the inlet of a stream that originates northwest of Interstate 84. The shoreline vegetation in this area was similar to that observed in SW-1. Within this area of the pond, the aquatic vegetation was denser and the exposed sandy substrate only extended approximately 8 feet from the shoreline. The predominant aquatic vegetation was coontail with minor inclusions of fern pondweed *(Potamogeton robbinsii)*. Locally dense algal mats were observed on the aquatic vegetation.

Again, results at SW-2 suggested reduced water quality, as compared to SW-1, potentially due to effects from the adjacent inlet to the pond from Cadwell Brook.

On both observation dates, the Secchi disk depth was three feet or less and during the wet weather event did not extend to the pond bottom in the beach area, which can be indicative of low water clarity caused by suspended solids in the water column or another impairment (**Table 2**). In bathing beach areas, it would be desirable to have Secchi disk depths of 4 feet or more.

Table 2: Summary of Secchi Disk Depth Observations

Sampling Location	8/30/2022	9/12/2022
SW-1	3.0’ (bottom)	3.0’ (bottom)
SW-2	2.2’	2.6’

2.1.3 Watershed Survey Relative to Sanitary Sewerage Areas

The *State of Connecticut Guidelines for Monitoring Swimming Water and Closure Protocol* identifies a basic “Watershed Survey” procedure and procedure relative to inspection and sampling, which includes contacting the local health department relative to a sanitary survey of the area, reviews of the contributing areas for signs of waterfowl populations, and reviews relative to harmful algal blooms (HABs). Visual observations relative to signs of potential contamination and waterfowl are discussed in other sections of this report.

GZA reviewed the appropriate local departments in the City of New Britain and Town of Farmington and made calls to specific departments to determine whether the areas immediately surrounding Batterson Park Pond were connected to the sanitary sewer, because failing septic systems may be a source of water quality contamination.

- The Town of Farmington Department of Public Works (DPW) confirmed that areas surrounding the pond are mostly, if not entirely, connected to the municipal sanitary sewer. The nearest municipal sewer pump station is near 200 Batterson Park Pond Road at the intersection with Hamilton Way, near the northeast corner of the pond and the dam area.

- The City of New Britain Department of Public Works Utilities Division similarly confirmed that properties on the New Britain side of the pond are also connected to the municipal sanitary sewer system.

- Historical drawings found during a review at Hartford Department of Public Works also identified sewer piping and pump station infrastructure associated with the park, although the system was not investigated as part of this study.

2.2 LIMNOLOGICAL AND WATER QUALITY ASSESSMENT

GZA conducted a site visit on August 25, 2022, to review existing conditions within the impoundment and collect limnological data. Data were collected using a vertical profile at a deep spot near the dam (based on the bathymetry map available) for information relative to temperature, dissolved oxygen, relative thermal resistance to mixing (RTRM), oxidation-reduction potential (ORP), and pH. Water samples were taken for fluorimetry parameters, phytoplankton, zooplankton, and nutrients (phosphorus, nitrogen). Sampling locations are indicated as Limno-1 and Limno-2 on **Figure 2**. During the site visit, GZA also observed ecosystem features which could cause current water quality issues or that may be useful for future potential pond management techniques. This site visit also included a review of inflows and outflow infrastructure, the beach, and park areas.

2.2.1 Temperature and Dissolved Oxygen/Stratification

On August 25, 2022, Batterson Park Pond remained weakly thermally stratified and the bottom 1.5 meters (m) of water was devoid of dissolved oxygen. Those vertical profiles were similar to data collected during previous studies. Secchi disk transparency was 1.6 m (5.2 ft) – deeper than near shore measurements noted above. It is likely that the pond had begun to mix downward at the time of observation and that stratification and oxygen loss were probably more intense earlier in the summer.

2.2.2 Nutrients

Total phosphorus (TP) was 21 parts per billion (ppb) at the surface and mid-depth, but 60 ppb over-bottom. Ammonia-Nitrogen (N) was also elevated in deep over-bottom water (460 ppb). Iron was greater than 1,000 ppb in over-bottom water (>1 mg/L).

Water quality conditions measured in August 2022 were very similar to those measured August 13, 2004. However, TP concentrations were higher in 2022. These data indicate that internal nutrient loading due to stratification and oxygen loss is a significant contributor to algae and cyanobacteria during the summer. That is consistent with conclusions of prior studies. The phosphorus (P) load from sediments is readily available soluble reactive P and occurs during the summer growing season.

2.2.3 Phytoplankton/ Cyanobacteria /ORP/pH/Zooplankton

Phytoplankton were sampled using a depth-integrated sampler at the deepest portion of the pond and a grab sample was collected at the beach/swimming area. Cyanobacteria dominated the phytoplankton community- *Lyngbya*, *Cylindopermopsin*, and *Oscillatoria* (now *Planktothrix*). Abundance was very high, and the levels observed would result in a Harmful Algae Bloom (HAB) health advisory per Connecticut Department of Public Health's (CT DPH's) '*Guidance to Local Health Departments For Blue-Green Algae Blooms in Recreational Freshwaters* (June 2021).

Interestingly, those cyanobacteria identified in the largest numbers are not the most common bloom organisms. They tend to grow deep initially, taking advantage of deep nutrient availability, and then ascend or are mixed into the water column when stratification erodes which was occurring during field sampling on August 25, 2022.

Fluorometric analysis of chlorophyll and two pigments specific to cyanobacteria were performed on samples collected August 25, 2022. All three pigments increased with depth in Batterson Park Pond.

Oxidation-Reduction Potential (ORP) was negative below 3.5m deep, indicating reducing conditions due to anaerobic respiration. That results in significant phosphorus and iron internal loading due to sediment release of these constituents. pH was greater than 9.2 from the surface to 3m deep. When pH is greater than 8.3, no free carbon dioxide (CO_2) is present, which gives cyanobacteria a competitive advantage over more desirable eukaryotic algae. Deep pH was lower due to accumulation of carbon dioxide from respiration.

Zooplankton (tiny animals that eat phytoplankton) consisted primarily of small-bodied organisms. A few large-bodied copepods were observed (>0.8mm carapace). No large copepods were observed (which are the most efficient grazers). Composition was likely the result of late summer sampling.

Although these data are of concern for restoring a swimmable condition, they also indicate that internal nutrient loading is the major stimulus to blooms. Management to reduce oxygen loss over a large bottom area, and the resulting nutrient contribution, will be critical for pond restoration.

2.2.4 Observations

External loads from the watershed are important to control for long-term protection of the pond. First-flush techniques for stormwater management for reducing external nutrient loading from developed areas are probably the most cost-effective approach. Information from the Hartford DPW files indicated that in 2001-2002, a design for stormwater quality treatment devices was completed and permitted, but it should be confirmed if this work was completed and if these systems are being maintained.

Internal loading from sediments under anaerobic conditions is a large contributor to summer nutrient availability and stimulation of cyanobacteria blooms (almost 40% of the annual P Budget during the summer growing season, perhaps higher today).

Birds were identified as a significant contribution to the annual P budget. A flock of ducks (being fed by visitors) was observed in August 2022, but no large flocks of geese were observed (past observations may have been migratory drop-out flocks during colder months).

Sediment loads, and those from birds are likely the most cost-effective aspects to focus management on. Also, preventing a large infestation with invasive plants, especially the Milfoil species, can help control nutrient availability and aesthetic issues of dense plant communities.

3.0 MANAGEMENT OPINION/RECOMMENDATIONS FOR FURTHER STUDY

3.1 INTERNAL LOADING FROM SEDIMENTS

Internal nutrient loading from bottom sediments due to stratification and oxygen depletion is a major contributor to the nutrient availability during the summer growing season which can result in blooms that affect water quality and could also affect operability of a beach at Batterson Park. Internal loading can be significantly reduced by preventing over-bottom oxygen depletion or treating the pond with materials that bind phosphorus and do not release it during anoxic periods. These methods are described further below. Dredging to remove soft accumulated sediments is also a technique which is employed often to address nutrient resuspension in the water column. However, for a waterbody of this size, a dredging project would be a high cost option (in the millions or tens of millions of dollars depending on scope) and would require considerable time for design, permitting, and construction. As such, dredging is not addressed as a potential option in the methods below at this time.

3.1.1 Hydrologic Discharge Control Assembly (HDCA)– Enhanced Deep Flushing

Several approaches that make outflow from the pond originate from the bottom waters can reduce or eliminate thermal stratification and deep-water oxygen loss. Methods include a specialized spillway configuration (HDCA) and automatically primed siphon outlets. The approach relies on natural hydrologic flows and gravity, such that pumping is not required. The disadvantage of the method is that it requires modification of the dam/spillway infrastructure and significant permit acquisition work, which expand timelines and costs. Discharge monitoring may also be required by regulatory agencies after construction. Estimated costs and impacts on schedule for this type of solution would be on the order of $250,000-$350,000, with an anticipated timeline that might take 2-3 years to design, permit, and install. At a minimum, this work would involve permits or review from the local Inland Wetland Agency, CT DEEP (Dam Safety Permit, Inland Wetlands), and U.S. Army Corps of Engineers General Permit.

3.1.2 Artificial Circulation (Diffused Air, Mechanical DownFlow Circulation)

Several approaches are available to maintain a well-mixed water column from the surface to the deepest bottom. Artificial circulation can circulate water from the bottom to the surface, or from the surface to the bottom. A disadvantage of the method is that the temperature of the deep sediment-water interface will increase significantly. The approach which is used most often is a diffused air circulation system driven by a compressor system on land to fine bubble diffusers located in various locations of the deep pond aeration (e.g., CMD Layer Aeration)

The pond is not deep enough for methods such as hypolimnetic aeration or layer aeration which add oxygen to deep strata while preserving the warm surface/cold bottom temperature stratification. However, a “hybrid of layer aeration and artificial circulation” has been used which circulates and aerates the bottom strata while maintaining some thermal stratification. Estimated costs and impacts on schedule for this type of solution would be on the order of $300,000 to $500,000 (depending on the numbers of compressor stations required to drive this system), with an anticipated timeline of approximately one year for design, permitting, and installation. At a minimum, this work would involve permits from the local Inland Wetland Agency and U.S Army Corps of Engineers.

3.1.3 Nutrient Inactivation (e.g. Alum, Lanthanum)

Nutrient inactivation involves treating the sediment-water interface with a substance that binds with phosphorus and does not release it under anoxic conditions. Materials used for this purpose include aluminum sulfate (alum) and lanthanum modified bentonite. The advantage of the approach is that it is a single treatment that may last many years

under the right conditions and requires no annual operation and maintenance. One significant disadvantage is that a treatment may have relatively short-term effectiveness in systems with high watershed external nutrient loading. Another disadvantage is that nutrient inactivation does not manage oxygen loss. Oxygen depletion is expected to be similar following such treatments.

Estimated costs and impacts on schedule for this type of solution would be $50,000 to $100,000. At a minimum, this work would involve permits and approvals from or notifications to the local Inland Wetland Agency and state and local Departments of Public Health.

3.1.4 Artificial Circulation/Aeration Chemical Feed Capability

Artificial circulation systems have also been designed with the capability to perform specific pond treatments such as algaecide or low dose nutrient inactivants using the circulation system as a rapid mix and dispersion system. This approach may be desirable for Batterson Park Pond, especially related to the beach/swimming area.

Estimated costs and impacts on schedule for this type of solution added to Section 3.1.2 above would be $15,000 to $30,000 and require permits applicable for chemical application to a recreational water body.

3.2 BACTERIAL AND NUTRIENT LOADING FROM BIRDS

Shoreline landscaping methods such as low growing evergreen hedgerows can discourage residence by large flocks of geese (which prefer to see open areas for foraging from the water to avoid predators). Solutions might also include adding pollinator gardens or other means of breaking up large mown areas within the park to make the area less enticing for waterfowl. These methods could be part of the redesign of the site underway and would not be anticipated to add significant time, permitting, or cost to the Project, other than the cost of plantings. There are also structural and mechanical methods to reduce utilization of the beach area by geese (such as motion activated watering systems and predator decoys) that could be employed if initial efforts and design modifications were not successful.

Additional educational signage and prohibition of feeding wildlife signage should be developed and added at all public access points along the pond as well, an effort which would not require permitting or a major cost expenditure (less than $5,000). Signage explaining the detrimental effects of waterfowl feeding on water quality and health impacts to wildlife are sometimes more effective than direct prohibition signage, in our experience.

3.3 DIRECT TREATMENT FOR CYANOBACTERIA

Although the pond management methods described above will reduce the risk of cyanobacteria blooms that result in a health advisory and closure, it is prudent to implement a routine ongoing monitoring program to track pond conditions and the early development of cyanobacteria populations. “Monitoring parameter triggers” could be established to guide pond treatments early in the development of a cyanobacteria bloom before cell densities become problematic. Costs for such a program would vary depending on the frequency and magnitude of sampling but are typically conducted Spring to Fall with monthly sampling and analysis rounds summarized in an annual report. The cost for a typical yearly monitoring program is $25,000.

3.4 BACTERIA

3.4.1 Additional Study

The samples collected provided a valuable snapshot relative to existing conditions at the beach area but need to be supplemented with further study. GZA would suggest that a program be developed to collect supplemental dry and wet

weather samples at the beach area and slightly to the south (in case a shift of the beach is proposed), as well as at key points upstream (Cadwell Brook just before the inlet to the pond and near the sewer line crossing shown on available mapping and further upstream at a few easily accessible points). These repeated samples can help identify whether there may be a more persistent issue relative to bacteria levels. GZA also recommends that at least a few samples be tested for fecal coliform to fecal streptococcus ratios which can assist with determining whether the bacteria source is human- or wildlife-related. While the testing would be most useful in the summer, we understand project timelines and would propose to conduct this sampling this fall and that is also include a walkover of the property during sampling events to view any potential sources. Such a study would be anticipated to take 1-2 months, depending on weather patterns, with a brief letter report summary of findings and depending on the depth of the study would be anticipated to cost between $8,000-$15,000.

3.4.2 Potential Management Methods

3.4.2.1 Beach Area Location Shift

One potential management strategy, if the inlet samples continue to show a potential issue, is to shift the beach further to the south as part of the site redesign. This would not have significant time or cost implications, although it could increase potential impacts relative to permitting for fill/dredge quantities. Shifting the beach further to the south will allow it to be located in areas further from where Cadwell Brook discharges into the pond.

3.4.2.2 Subsurface Diversion at Cadwell Brook Inlet to Batterson Park Pond

Either separate from or in coordination with the management option in 3.4.2.1 above for beach shifting, a subsurface diversion could be pursued where Cadwell Brook discharges into the pond. A review of past aerial photos suggests algae and vegetation at this inlet to the pond is pronounced during some seasons and years and that flow may be toward the beach area. The addition of a subsurface gabion (wire baskets with rockfill) or a subsurface riprap/rock jetty-type structure at the inlet to the pond could be used to direct the preferential flow path away from the beach and toward the main body of the pond.

Estimated costs and impacts on schedule for this type of solution would be on the order of $300,000 to $400,000, with an anticipated timeline of approximately two years for design, permitting, and installation. At a minimum, this work would involve permits from the local Inland Wetland Agency, CT DEEP, and Army Corps of Engineers, depending on the size of the structure and its impact within the pond.

3.4.2.3 Contained Swimming Area with Circulation and Active Treatment

If issues persist after initial methods are initiated, a designated swimming area could also be surrounded by a dock system and partition curtains for containment, facilitating treatments of the swim area volume. Smaller scale circulation and active treatment could be added per earlier discussions in this section.

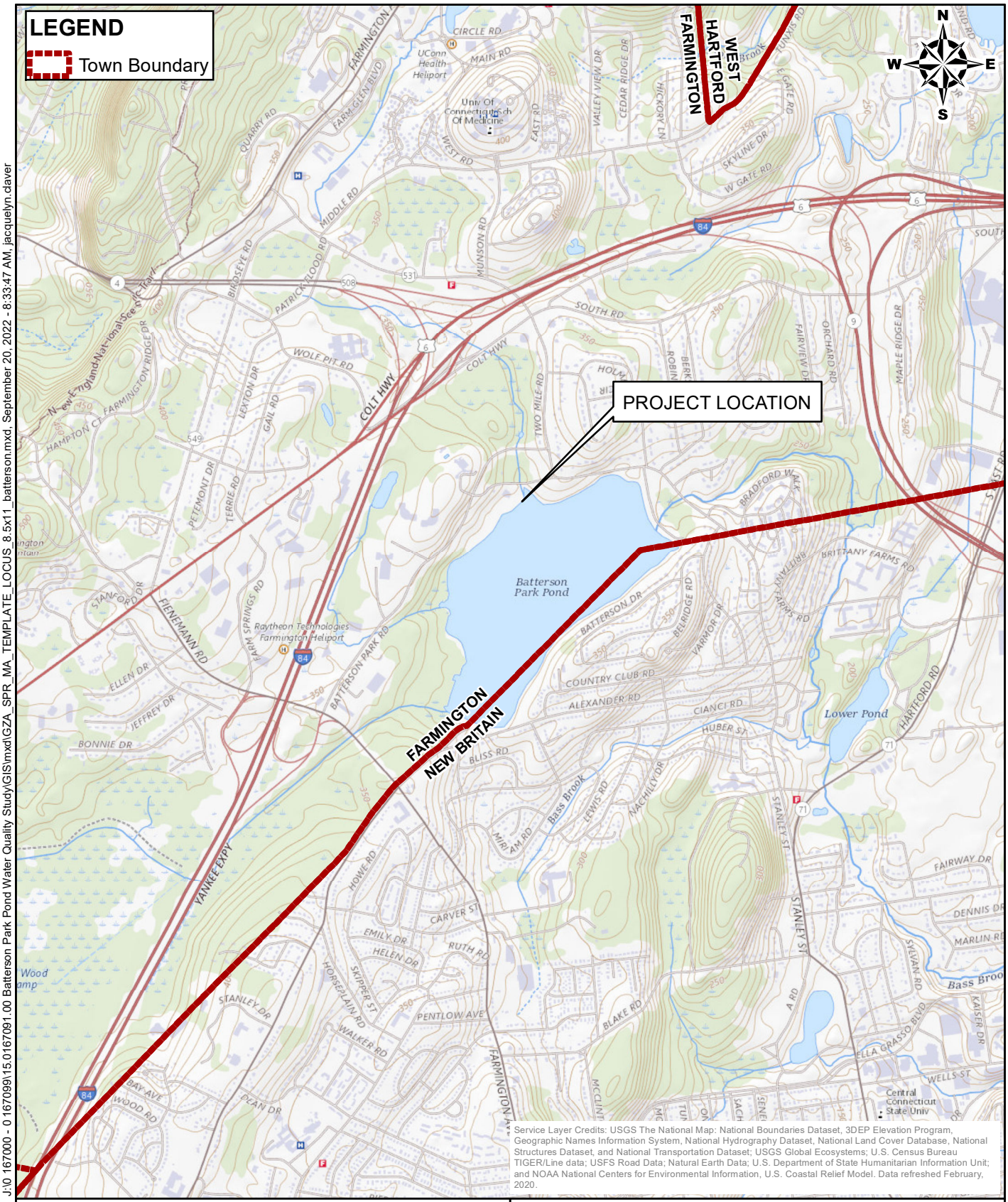
3.5 SUMMARY

The management approach that appears to be most applicable and that could be designed, permitted, and implemented most rapidly to address nutrient and bloom issues is a Diffused Air Artificial Circulation System. Diffuser components would need to be installed in several locations of the deepest spots. A land-based compressed air system would also be needed. Additional diffuser components could also be installed along the outer edge of the swimming area to maintain good circulation. A chemical feed system could be integrated into the diffused air circulation system to facilitate chemical treatments such as algaecides or low-dose nutrient inactivants as monitoring indicates a need.

Additional analysis would be required to provide recommended locations for the diffusers, the final configuration of the system and compressors (number of lines, one or more compressor locations) based on available power, property accessibility for long term operation and maintenance, permitting and contracting concerns.

To address bacteria issues, a combination of approaches including nonpoint source strategies such as signage and prohibition of waterfowl feeding and pet use of areas of the park, as well as focus on designs that will not attract waterfowl; and a structural strategy/strategies such as shifting the beach southward and/or adding a subsurface diversion below the water surface could be beneficial, as well as further review of potential sources.

Figures



Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed February, 2020.

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SCALE IN FEET

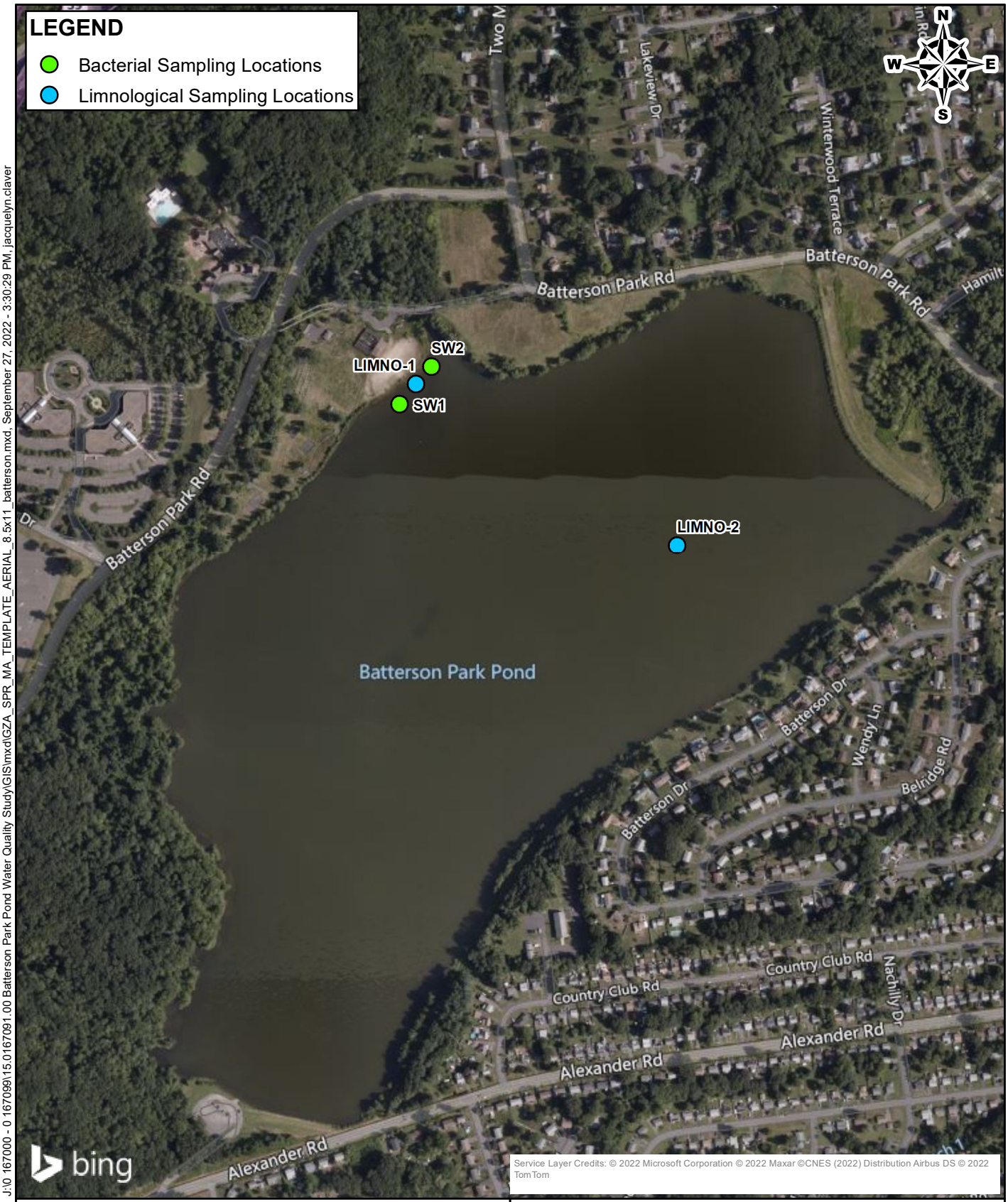
BATTERSON PARK POND WATER QUALITY STUDY
FARMINGTON AND NEW BRITAIN, CT

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
CONSTRUCTION SOLUTIONS GROUP LLC
EAST HARTFORD, CT

LOCUS MAP

PROJ MGR: JRB	REVIEWED BY: STR	CHECKED BY: SLL	FIGURE
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 2,000 ft	1
DATE: September 2022	PROJECT NO: 15.0167091.00	REVISION NO:	



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SCALE IN FEET

BATTERSON PARK POND WATER QUALITY STUDY
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SAMPLING LOCATIONS

PROJ MGR: JRB	REVIEWED BY: STR	CHECKED BY: SLL	FIGURE
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 600 ft	2
DATE: September 2022	PROJECT NO: 15.0167091.00	REVISION NO:	

Appendix A - Limitations

USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) has prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not identified in the agreement, for any use, without our prior written permission, shall be at that party's risk, and without any liability to GZA.

STANDARD OF CARE

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Report and/or proposal, and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the data gathered and observations made during the course of our work. Conditions other than described in this report may be found at the subject location(s). Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during its study. Additionally, GZA makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a local, state or federal agency.

3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.

LIMITS TO OBSERVATIONS

4. Natural resource characteristics are inherently variable. Biological community composition and diversity can be affected by seasonal, annual or anthropogenic influences. In addition, soil conditions are reflective of subsurface geologic materials, the composition and distribution of which vary spatially.

5. The observations described in this report were made on the dates referenced and under the conditions stated therein. Conditions observed and reported by GZA reflect the conditions that could be reasonably observed based upon the visual observations of surface conditions and/or a limited observation of subsurface conditions at the specific time of observation. Such conditions are subject to environmental and circumstantial alteration and may not reflect conditions observable at another time.

6. The conclusions and recommendations contained in this report are based upon the data obtained from a limited number of surveys performed during the course of our work on the site, as described in the Report. There may be variations between these surveys and other past or future surveys due to inherent environmental and circumstantial variability.

RELIANCE ON INFORMATION FROM OTHERS

7. Preparation of this Report may have relied upon information made available by Federal, state and local authorities; and/or work products prepared by other professionals as specified in the report. Unless specifically stated, GZA did not attempt to independently verify the accuracy or completeness of that information.

COMPLIANCE WITH REGULATIONS AND CODES

8. GZA's services were performed to render an opinion on the presence and/or condition of natural resources as described in the Report. Standards used to identify or assess these resources as well as regulatory jurisdiction, if any, are stated in the Report. Standards for identification of jurisdictional resources and regulatory control over them may vary between

governmental agencies at Federal, state and local levels and are subject to change over time which may affect the conclusions and findings of this report.

NEW INFORMATION

9. In the event that the Client or others authorized to use this report obtain information on environmental regulatory compliance issues at the site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this work, may modify the conclusions stated in this report.

SCREENING AND ANALYTICAL TESTING

10. GZA collected environmental samples at the locations identified in the Report. These samples were analyzed for the specific parameters identified in the report. Additional constituents, for which analyses were not conducted, may be present in soil, groundwater, surface water, sediment and/or air. Future Site activities and uses may result in a requirement for additional testing.

11. Our interpretation of field screening and laboratory data is presented in the Report. Unless otherwise noted, we relied upon the laboratory's QA/QC program to validate these data.

12. Variations in the types and concentrations of contaminants observed at a given location or time may occur due to release mechanisms, disposal practices, changes in flow paths, and/or the influence of various physical, chemical, biological or radiological processes. Subsequently observed concentrations may be other than indicated in the Report.

INTERPRETATION OF DATA

13. Our opinions are based on available information as described in the Report, and on our professional judgment. Additional observations made over time, and/or space, may not support the opinions provided in the Report.

ADDITIONAL INFORMATION

14. In the event that the Client or others authorized to use this report obtain additional information on environmental or hazardous waste issues at the Site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.

ADDITIONAL SERVICES

15. GZA recommends that we be retained to provide further investigation, if necessary, which would allow GZA to (1) observe compliance with the concepts and recommendations contained herein; (2) evaluate whether the manner of implementation creates a potential new finding; and (3) evaluate whether the manner of implementation affects or changes the conditions on which our opinions were made.

COST ESTIMATES

16. Unless otherwise stated, our cost estimates are only for comparative and general planning purposes. These estimates may involve approximate quantity evaluations. Note that these quantity estimates are not intended to be sufficiently accurate to develop construction bids, or to predict the actual cost of work addressed in this Report. Further, since we have no control over either when the work will take place or the labor and material costs required to plan and execute the anticipated work, our cost estimates were made by relying on our experience, the experience of others, and other

sources of readily available information. Actual costs may vary over time and could be significantly more, or less, than stated in the Report.

GZA GeoEnvironmental, Inc.

Appendix VI: Summary of Public Comments from input sessions in Farmington, Hartford, & New Britain

Public comments from the public input sessions in Farmington (December 4th), Hartford (December 6th), and New Britain (December 7th) as well as comments submitted after these sessions will be summarized here in the final report to the Connecticut General Assembly.

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

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Generated by eNDDB on:
8/28/2023

Eric Hammerling
Towns: New Britain,Farmington
Preliminary Site Assessment: 514469624

Subject: Batterson Park Pond

Current data maintained by the Natural Diversity Database (NDDB) and housed in the DEEP ezFile portal, indicates that populations of the following State Endangered, Threatened, or Special Concern species (RCA Sec. 26-306) and/or Critical Habitats have been documented within or in close proximity to the area delineated. Please see the attached table for species and/or Critical Habitat information.

Please note that, for purposes of preliminary site assessments, certain sensitive species are not identified beyond their taxa. If additional information is required regarding sensitive species please email deep.nddbrequest@ct.gov, include a snapshot of your map (found at the end of this document), your last name, and the subject area town.

Please be advised that this is a preliminary assessment and not a Natural Diversity Database determination. The purpose of this information is to provide a general planning tool which identifies those species that have been reported and may occur on or near the mapped area. A more detailed application and review will be necessary to move forward with any environmental authorization, permit, license, or registration applications submitted to DEEP. If such review is required, please return to the DEEP's ezFile Portal and select Natural Diversity Database Review to begin the review process.

This Preliminary Site Assessment does not preclude the possibility that species not previously reported to the Natural Diversity Database may be encountered on the site. You are encouraged to report incidental observations to the Natural Diversity Database using the appropriate survey form and follow the instructions for submittal. We recommend field surveys be conducted in order to evaluate potential habitat and species presence. Field surveys should be performed by a qualified biologist with the appropriate scientific collecting permits at a time when these target species are identifiable. A report summarizing the results of such surveys should include:

1. Survey date(s) and duration
2. Site descriptions and photographs
3. List of component vascular plant and animal species within the survey area (including scientific binomials)
4. Data regarding population numbers and/or area occupied by State-listed species
5. Detailed maps of the area surveyed including the survey route and locations of State listed species
6. Statement/résumé indicating the biologist's qualifications

The site surveys report should be sent to the CT DEEP-NDDB Program (deep.nddbrequest@ct.gov) for further review by program biologists.

Natural Diversity Database information includes all information regarding listed species available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, land owners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Database and accessed through the ezFile portal as it becomes available.

This letter is computer generated from our existing records and carries no signature. If however, any clarification/error is noted, or, if you have further questions, please contact the following:

CT DEEP Bureau of Natural Resources
Wildlife Division
Natural Diversity Database
79 Elm Street
Hartford, CT 06106-5127
(860) 424-3011
deep.nddbrequest@ct.gov

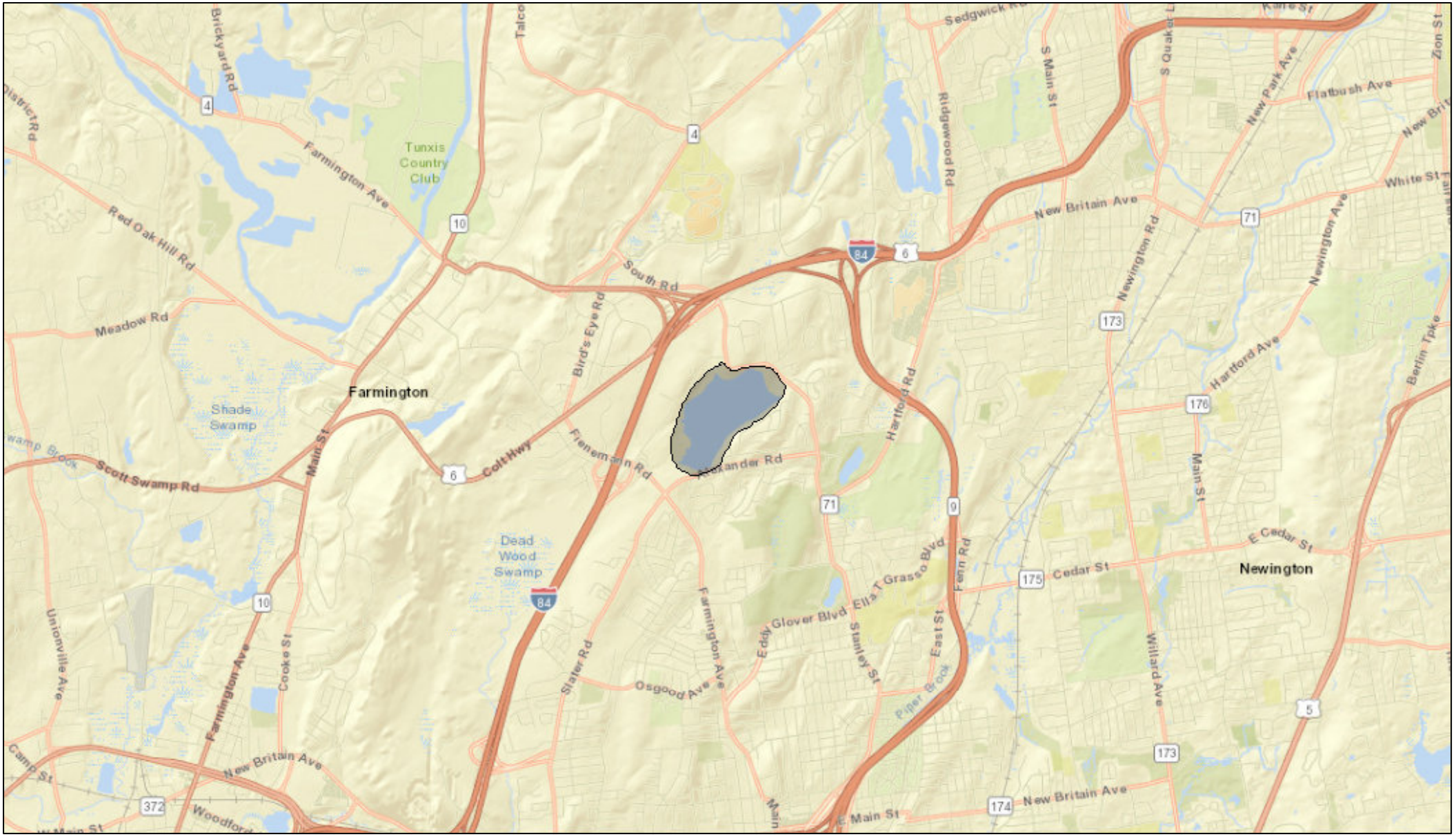
Please include a snapshot of the map, your last name, and the subject area town when you e-mail or write. Thank you for consulting the Natural Diversity Data Base.

Common Name	Spotted turtle
Scientific Name	*Clemmys guttata*
Taxa	reptile
Status[1]	SC
General Ecology	Individuals of this species are associated with wetlands and vernal pools. Over the course of a season and lifetime, individuals will travel large distances (up to 1km) over upland forest and fields between multiple wetlands. They overwinter burrowed into the mud in wetlands between Nov 1- March 15. They do not begin to reproduce until 7-10 years old and adults can live at least 30 years. This species is threatened most by any activities that reduce adult survivorship including road kills, commercial and casual collection, increased predation in areas around commercial and residential development, mortality and injury from agricultural equipment or other mechanical equipment.
Common Name	Eastern box turtle
Scientific Name	*Terrapene carolina carolina*
Taxa	reptile
Status[1]	SC
General Ecology	In Connecticut, these turtles are found in well-drained forest bottomlands and a matrix of open deciduous forests, early successional habitat, fields, gravel pits, and or powerlines. Turtles are dormant between November 1 and April 1 and hibernate in only a few inches from the surface in forested habitat. The greatest threat to this species is habitat loss, fragmentation, and degradation

	due to development. This species is very sensitive to adult mortality because of late maturity (10 years old) and long life span (50-100years). Vehicular traffic, heavy equipment used for farming, and ATV use in natural areas are implicated specifically in adult mortality through collisions. Illegal collection by the pet trade and unknowing public for home pets exacerbates mortality rates and removes important individuals from the population. Predation rates are also unnaturally high because of increased predator populations (e.g. skunks, foxes, raccoons, and crows) that surround developed areas.

[1]E = State Endangered, T = State Threatened, SC = State Special Concern, FE = Federally Endangered, FT = Federally Threatened, NA = Not applicable.

Batterson Park Pond Map



August 28, 2023

1:76,779

0 0.5 1 2 mi

0 1 2 4 km

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community