Wharton Brook
Watershed Based Plan Lite

Prepared by the CT

SOUTHWEST CONSERVATION DISTRICT

WHARTON BROOK HEADWATERS- NORTH FARMS RESERVIOR.
PHOTO TAKEN BY SWCD STAFF.
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I. INTRO TO WATERSHED PLANNING PROCESS

A. BACKGROUND OF FUNDING

This project and all associated reports, mapping, meetings and tours was funded by The Community Foundation for Greater New Haven. The Southwest Conservation District (SWCD) requested funding for the project via the Quinnipiac River Fund annual request for proposals. All dollars awarded from this funding opportunity were used to develop enhancements to the existing Quinnipiac River Regional Watershed Based Plan (WBP). Total funds of the award were $9710.

The SWCD is a natural resource focused 501c3 organization that provides technical assistance and guidance to municipalities, private landowners, agricultural producers on a range of ecological topics. Our team offers these services across 43 municipalities primarily New Haven and Fairfield County. A central focus of our mission is working to improve water quality and assist partners with protecting their aquatic resources.

B. TIMELINE OF PROJECT

The efforts to enhance and revitalize the existing Quinnipiac River Regional Watershed Based Plan actually started in 2021. The Land Use Law Center (LULC) hosted several stakeholder meetings for the watershed and reviewed the existing WBP. SWCD participated in these sessions and provided feedback for the team to evaluate. A major outcome of these sessions was that the current WBP was a good document for the watershed. But that it was also too large of a scale, outdated and didn’t provide enough precise information for guiding implementations in the smaller watersheds that feed into the Quinnipiac.

SWCD gathered information and support from LULC to take the next steps of addressing the concerns and issues noted by the stakeholders in the Quinnipiac Regional Watershed. An application was generated for funding of enhancements to the existing WBP, with support from stakeholders and LULC staff in early 2022. The proposal focused on continued stakeholder meetings and conversations throughout the 2022 year and into 2023. These stakeholder meetings were held via ZOOM to benefit the stakeholders from a wide geographic range across the Quinnipiac watershed. In addition to the larger stakeholder meetings, multiple sub-regional watershed meetings were held specifically with local stakeholders. These subregional watershed meetings focused on
gaining insights on the prioritized sub-regional watersheds. An outcome of these meetings was also watershed tours of areas with known water quality issues or potential implementation project locations.

C. STAKEHOLDERS’ PARTICIPATION

A wide range of organizations were represented at the stakeholder meetings that were organized for this planning effort. Several new entities became involved in the project work through these sessions. While no meeting ever had all of the members on this list participate, the meetings usually had about 10-15 participants. This group of members was surveyed via google poll for their priority watersheds for the deeper project work funded in this program. These watersheds ended up being Wharton Brook, Muddy Brook and Tenmile River. Members of this list additionally attended the smaller watershed meetings to provide local insights and also participated in phone calls and provided data, local information and participated on tours with SWCD staff. SWCD thanks everyone on this list for their participation in the project!

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<tr>
<th>Stakeholder Name</th>
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<td>Al Guarnieri</td>
<td>Trout Unlimited</td>
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<td>Anne Hartjen</td>
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<td>Joy Vanderlek</td>
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<td>Lisa Fitch</td>
<td>Quinnipiac River Marina</td>
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<td>Lynn Sadosky</td>
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<td>Mary Mushinsky</td>
<td>River Advocates and State Representative</td>
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<td>Melissa Mostowy</td>
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D. CREATING PLAN DOCUMENTS

To generate this watershed planning guidance, SWCD gathered information from the above stakeholder list and surveyed CT DEEP and other watershed documents to compile information about the watersheds in the Quinnipiac Regional. Review of the previous watershed plan was also conducted in this process.

The team at SWCD generated ARCGIS maps based on feedback and priorities from stakeholders in meetings. These maps are included in the report and draft versions were also shared with stakeholders for feedback and review. Finals maps included data sets from municipalities and other sources. The content of the maps is detailed in the report and this text was drafted by SWCD staff.

In addition to the maps potential watershed implementation project sites were visited by SWCD staff and municipal staff where available. Aerial photos of these sites and descriptions of the water quality issues are included in the report. SWCD staff provide possible next steps to improve the water quality issues at the sites. Most of this information comes from previous experience or solutions recommended in CT DEEP stormwater guidance.

Finally, SWCD accumulated possible funding sources for watershed projects mentioned in the report. There are most likely additional potential projects in the watershed which could benefit from funding in these sources. SWCD staff utilized Federal, State and Local sources to gather information on these funding sources.
This report document has been compiled, written and finalized by SWCD staff. All information was accurate at the finalization of the report and it is possible that funding information could change or that mapping information could be updated in the future. Additionally, as projects are implemented, the impacts on water quality will be reduced in the watershed. If there are questions or clarifications on the content included in this report, please contact the staff at SWCD by utilizing information on our website https://conservect.org/southwest/.
II. WATERSHED CHARACTERISTICS

A. DESCRIPTION OF WATERSHED

The Wharton Brook sub watershed is located mostly within the Town of Wallingford. The northernmost tip of its headwaters lies in Meriden, and its confluence into the Quinnipiac River is in New Haven.

Wharton Brook’s watershed covers approximately 7.65 square miles. Approximately 70% is developed and approx. 21% is covered by impervious surfaces (USGS Streamstats).

Within the watershed, there are over 6 miles of Category 1 highway (I-91), approx. 1 mile of Category 2 secondary highway (State Highway 68), over 3 miles of Category 3 local connecting roads (State Highway 150), and approx. 68 miles of Category 4 local roads (USGS Streamstats).
B. LOCAL WATERSHEDS

There are three smaller, local watersheds within Wharton Brook’s watershed; Wharton Brook & Catlin Brook, Unnamed Tributary, and Allen Brook.

Wharton Brook starts at the outlet of North Farms Reservoir and flows southwesterly through Simpson Pond to the Quinnipiac River.

The Unnamed Tributary starts just west of State Highway 150 and between Airline Road and I-91. It then flows southwesterly to just downstream of Reskin Drive where it joins the Wharton Brook mainstem.

Allen Brook starts just east of I91 near the Wallingford/North Haven line, it then runs parallel and crosses under with I91, through Allen Brook Pond, shortly after which it joins the Wharton Brook mainstem.

Additionally, Allen Brook flows through The Tradition Golf Club at Wallingford. Tyler Sears, Golf Course Superintendent, shared that they’ve improved their Integrated Pest Management practices in the last 5 years to reduce the environmental footprint of golf course treatment practices. One valuable practice to improving water quality is the addition of Lucy, a border collie, who deters geese away from Allen Brook. Excessive waterfowl can lead to increased bacteria and nutrient loads, decreasing water quality.
C. WATERBODY IMPAIRMENTS

Wharton Brook is considered an impaired waterbody. According to CT DEEP’s 2022 List of Impaired Waters for Connecticut (EPA Category 5), Wharton Brook and the unnamed tributary to Wharton Brook do not support Aquatic Life.

CT DEEP lists the cause as “unknown”. In earlier reports, they listed potential sources to include industrial point source discharges, landfills, illicit discharge, and residential areas.

Further, the suitability for Wharton Brook and the unnamed tributary to Wharton Brook for Recreational Use was reported as not assessed and Fish Consumption was reported as insufficient information.

Additionally, the tributary Allen Brook was reported as non-supporting for Recreational Use and as not assessed for Aquatic Life in 2022.

North Farms Reservoir was found fully supporting for Recreational Use and insufficient information for Aquatic Life in 2022. Also in 2022, Allen Brook Pond was found to be fully supporting for Recreational Use and as not assessed for Aquatic Life.

These use designations are used to show what uses are suitable in each waterbody based on water quality assessments. Data used to make these assessments include ambient physical and chemical; benthic invertebrate and fish community; indicator bacteria; indicators of productivity and enrichment/eutrophication; aquatic toxicity; tissue contaminant; sediment chemistry/toxicity; and effluent analysis.
The Town of Wallingford conducts water quality sampling on many stormwater outfalls that empty into the mainstem of Wharton Brook for their MS4 reporting. MS4s are municipal separate storm sewer systems that are regulated by CT DEEP following EPA’s Stormwater Rule. MS4 reporting includes a water quality monitoring program to aid in identifying pollution sources that contribute to waterbody impairments.

Types of sampling done in the Wharton Brook watershed include Turbidity, E. coli, Total Coliform, and Phosphorus. The most up to date locations inspected by Atlas/ATC Group Services LLC. are shown on the map.

There was no CT DEEP Ambient Water Quality Monitoring Program sampling done within the Wharton Brook watershed in 2020, the most recent data available.

Allen Brook Pond, which is a CT State Swimming Water Area, is tested regularly for E. coli and Total Coliform bacteria to determine safety for public use. DEEP staff collect samples weekly and the Department of Public Health (DPH) analyzes these samples in their laboratory. Results are reported as pass/fail on the [CT State Swimming Water Quality Report](#) weekly.
E. AQUATIC RECREATION

Most of the aquatic recreation in the Wharton Brook watershed occurs in the North Farms Reservoir and Allen Brook Pond.

North Farms Reservoir is maintained by CT DEEP and is a state boat launch. It features a trailered launch and parking for 20 vehicles. Further it has a boat speed limit of 8 mph. This pond is very shallow (<2m) and experiences lots of vegetation including 2 species of aquatic invasives. During our site visit, we also noted evidence of fishing.

Allen Brook Pond is located within Wharton Brook State Park & Natural Area Preserve. This property is maintained by CT DEEP and includes foot trails, a swimming beach, picnic areas and fishing. Wharton Brook State Park is a designated Trout Park, which means it is regularly stocked with trout grown in CT Fish Hatcheries and is easily accessible to encourage fishing. Further, CT DEEP and Department of Public Health test and report on Allen Brook Pond weekly to ensure public safety for swimming and recreational use.

Other ponds within the watershed include North Farms Pond, which is located south of North Farms Reservoir, north of Grieb Road. Also, Simpson Pond, which is located just northeast of State Highway 150, west of East Main Street. Simpson Pond comes up on some fishing websites as a possible fishing spot.
F. PUBLIC OPEN SPACE AND ENVIRONMENTAL JUSTICE

EJ & DC Communities & Public Open Space in the Wharton Brook Watershed

Legend
- Public Open Space
- Lakes
- Rivers
- Interstate
- State Highway
- US Highway
- Distressed Communities
- Environmental Justice Communities
- DEEP Properties
- Wharton Brook Watershed

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This map shows public open space and CT Distressed and Environmental Justice Communities within the Wharton Brook watershed. This information can help guide projects to improve water quality and open space opportunities for these communities that have been historically overlooked.

**Distressed Communities** are annually identified by the Connecticut Department of Economic and Community Development as CT’s most fiscally and economically distressed. Municipalities’ tax base, resident incomes, and resident need for public services are used to determine which municipalities should be receiving targeted state funding. No Distressed Communities are found near the Wharton Brook Watershed.

**Environmental Justice Communities** include Distressed Communities as well as 2022 census blocks where 30% of the population is living below 200% of the federal poverty level. There is one of these blocks within the Wharton Brook Watershed, near Lyman Hall High School & Kendrick Park and is represented in yellow with black overlay. There is also another block just outside of the watershed, near Doolittle Park.

Wallingford Parks & Recreation Department manages Kendrick Park, Doolittle Park, Marcus Cooke Park, Lyman Hall High School & Pat Wall Field and Pond Hill/Pire Park. These properties offer varying arrays of sports fields, basketball courts, trails, playgrounds, picnic areas, and tennis courts.

Wallingford Land Trust (WLT) manages Taylor Lane, Ravenswood, Shookies Pond and Briar Ridge. These properties offer trails and forested open space.

CT DEEP manages North Farms Reservoir and Wharton Brook State Park. These properties both offer aquatic recreation. Additionally, Wharton Brook State Park provides walking trails.

Town of Wallingford manages the Municipal Recreation Areas on Kondracki Lane and Reskin Drive. While they are classified as recreation areas in tax records, these areas don’t appear to be utilized as such. Their close proximity to the Unnamed Tributary and Wharton Brook makes them ideal candidates for municipal riparian and floodplain restoration projects.
G. IMPERVIOUS COVER

The Wharton Brook watershed is largely developed. Its headwaters are currently less developed, with many farms, forests, and some residential properties.

Impervious cover is area covered with surfaces that prevent stormwater from slowing and infiltrating into the ground, such as roads, parking lots, and roofs. Additionally, when stormwater runs along these surfaces, it heats up and collects pollutants, such as oils, heavy metals, nutrients, and sediment.

Impervious Cover Percentage is calculated by the amount of impervious cover in each of Wharton Brook’s local watersheds. *(Note that more local watersheds are shown in this map, because the Wharton Brook mainstem is broken up into multiple local watersheds based on CT DEEP river segments. Different sections of the Wharton Brook mainstem have differing impervious cover percentages.)*

CT DEEP suggests that to maintain water quality sufficient for Aquatic Life, impervious cover percentage should be less than 12%. While removing all impervious cover is unfeasible, Best Management Practices (BMP) and Low Impact Development (LID) can be utilized to reduce its negative impacts on our waterbodies.

The map shows that roughly half of the watershed has an impervious cover percentage of 16-34% (shown in red). Another large portion has an impervious cover percentage of 11-15% (shown in yellow). The headwaters of the Wharton Brook and a small area where the Wharton Brook flows into the Quinnipiac River have impervious cover percentages of 6-10% (shown in green).
**H. IMPORTANT WILDLIFE HABITAT**

Wildlife plays an important role in keeping our ecosystems functioning. Maintaining adequate habitat for wildlife is not only beneficial for those species, but also for the health of our waterbodies.

Within the Wharton Brook watershed, there are several areas that are listed in the Natural Diversity Database. Denoted in a dark purple overlay, these areas represent known locations, both historic and extant, of state and federal listed species.

Additionally, the watershed contains DEEP Critical Habitat, which are ecologically important areas necessary for CT’s species of Greatest Conservation Need from the Comprehensive Wildlife Conservation Strategy. Denoted in yellow, these habitats are located near and downstream of Allen Brook Pond.

The map also includes CT Wetland soils which are regulated areas. All land use activities in these areas must be approved by local conservation commissions. They provide valuable wildlife habitat as well as clean stormwater, flood protection, regulate streamflow, and control erosion. The light green areas are alluvial and floodplain soils, which are directly adjacent to the Wharton Brook and its tributaries. The dark green areas are poorly drained and very poorly drained soils and can be located further from waterbodies.
III. POTENTIAL PROJECT SITES

A. BACKGROUND OF SITES IN WATERSHED

Multiple stakeholder meetings throughout the past year and a subsequent tour of the Wharton Brook watershed with Wallingford municipal staff on July 13th, 2023 helped identify four potential project sites within the Wharton Brook watershed.

These locations have been on the radar of stakeholders for years. Some have been continually degrading and becoming more urgent, while others need some updates to ensure water quality health. This list is in no way inclusive of all projects that can or should be done within the Wharton Brook watershed to improve the water quality of Wharton Brook, its tributaries, and ultimately the Quinnipiac River.

We provide an overview of each location to illustrate the current state of each area and where it is located. We then list some possible action plans and ideas for dealing with the various issues each site faces.
B. **OVERVIEW SITE #1**

**Northfield Road Crossing** - Severe erosion threatens the town bridge that was replaced in 2018 & a residential home on Park Lane. Luckily, the current private property owner on Northfield Road has access to heavy equipment to remove the large trees that regularly fall into the river. However, this is not sustainable in the long term and does not address the continued erosion of the cut bank. There was a proposed 319 project in the past, but the proposal was not funded due to decreases in state budget and the need for a town engineer.

1. **Aerial Map**

Wharton Brook bends sharply, eroding its eastern bank just upstream from the Northfield Road crossing bridge. The erosion is continually approaching the nearby residential home on Park Lane.
2. Site Photos

View upstream from the Northfield Road Crossing Bridge.

The recently replaced Northfield Road Crossing Bridge.

Existing riffles in Wharton Brook that direct flow towards eroding bank.
3. Potential Implementation Plan

- **Retry past plan** – Rework and repose the attempted 319 project proposal.

- **Stream enhancement** – Stream work could include reorientating riffles to direct flow away from eroding bank, installing root wads to build eroded stream banks, stabilizing banks with live stakes of willow, and planting a riparian buffer. The aerial below shows that mature trees were removed for the replacement of the bridge. There is now a grassy slope instead of a mix of shrubs and trees.

![Aerial view of the Wharton Brook Watershed with a grassy slope where mature trees were removed for the replacement of the bridge.](image)

**Root Wads**

- The rootwad composite includes: Rootwad with tree trunk (bole), Footer log, Bank log, Habitat limbs & tops, and Vegetation.
- Stabilize streambanks and provide aquatic habitat.
- Correct orientation is critical to function properly.
- Use in combination with a soil bioengineering system or vegetative plantings to stabilize the streambank.
- This type of BMP requires professional design and installation.

![Diagram of root wad components](image)
4. Possible Responsible Parties / Actions

- The property is privately owned, but the severe erosion from the river affects other private property owners and Town of Wallingford maintained downstream road and bridge.

- Town of Wallingford could pursue funding for and manage a project that deals with erosion and streambank stabilization.

- The SWCD could potentially assist with pursuing funding for and managing an erosion control and streambank stabilization project.

Stone Toe Protection

- A row of stone is placed at the parallel at the base of an eroding bank.
- Over time, sediment deposits onto these rocks and stabilizes the bank.
- Use in combination with a soil bioengineering system or vegetative plantings to stabilize the streambank.
- In this method, the eroding slope above the stones does not remain vertical but gradually slumps to a stable slope.

Image courtesy of Massachusetts Clean Water Toolkit
c. **OVERVIEW SITE #2**

**Doolittle Park** - Proposed project in the original 2013 Quinnipiac WBP by Fuss & O’Neil to address erosion. Part of the proposed plan was implemented. Some native vegetation was planted but was disturbed by lack of communication between partners for appropriate riparian buffer management and damage in 2021 from Hurricane Ida. There were additional plans to restore the floodplain, but there was difficulty securing matching funds for the project.

1. **Aerial Map**

In this area, Wharton Brook experiences overland flow and erosion as well as flooding over the streambanks, depositing sediment, and debris into mowed areas.
2. Site Photos

Existing effective riparian buffers with layers of trees, shrubs, and herbaceous plants.

Existing streambanks lacking riparian buffers and eroding away.
Narrow riparian buffer with little shrub and tree cover. Located just upstream of an eroding access point.
This pair of culverts are across from calved banks which are shown below.

The sections of the streambank calve away, eventually eroding away & contributing to the sediment load of the river.

The streambank across from the culverts would benefit from stabilization.

Additionally, adding riparian buffer above the culverts would add stabilization and prevent climbing on the uneven surfaces.
3. Potential Implementation Plan

-Riparian buffer enhancement – The added riparian buffer has been growing since installation (see time lapse below). To ensure a biologically diverse habitat within the riparian buffer, create an invasive plant management plan. Additionally, continue to add native shrubs and herbaceous plants to ensure the streambank remains vegetated to mitigate erosion. Some areas could use a wider buffer.

-River Access Points - Design secure access points to Wharton Brook. It is important to foster community interest and concern about the Wharton Brook by letting citizens see and experience the river. This can be accomplished by providing access points to the river in public areas, like Doolittle Park. Currently, Doolittle Park’s access points are mowed grass to the river’s edge with eroding streambanks. Access points should be stabilized to both provide safe access and to reduce erosion. Utilize the National Park Service’s River Access Planning Guide.

-Infiltrate Stormwater Runoff – Another aspect of the original proposed project at Doolittle Park was the installation of infiltration trenches. These or bioretention areas can be installed to help infiltrate stormwater runoff from the parking lots or overland flow into the ground before reaching Wharton Brook.

-Restore Floodplain Function – A past project that was developed at SWCD was to reconnect Wharton Brook’s floodplain in Doolittle Park. The plan was to lay down the bank (4-10’ wide) and utilize as a floodplain & plant a riparian corridor of appropriate native plant species. Due to lack of funding and resources, the plan was never implemented.
Connected Floodplain

Image Courtesy of The American River’s Reconnecting Rivers to Floodplains Guide -
Stair Step Launch Design

Image Courtesy of Guide to Developing Water Trails in Iowa -

Bioretention Area for Parking Lot Runoff

Image Courtesy of Guide to Developing Water Trails in Iowa -
4. **Possible Responsible Parties / Actions**

- Wallingford Parks & Rec Department is responsible for the maintenance of Doolittle Park and should be included throughout the project process to ensure that they have the support they need to appropriately maintain any project work completed.

- Local Volunteer Groups could assist with project installation and maintenance.

- Town of Wallingford could pursue funding for and manage a project that deals with erosion and streambank stabilization.

- The SWCD could potentially assist with pursuing funding for and managing an erosion control and streambank stabilization project.
D. OVERVIEW SITE #3

William’s Place- Severe erosion from failed local and state stormwater infrastructure. One broken culvert carries stormwater from East Main Street, while the other broken culvert carries stormwater from Woodhouse Avenue and the golf course.

1. Aerial Map

After the broken culverts, there is severe erosion affecting multiple properties that abut the tributary to the Wharton Brook.

Time lapse aerials show the gully is deepening, widening, and lengthening over time.
2. Site Photos

Damaged, exposed, and disconnected culverts.
View looking from where system was once underground.

Looking back at system & previously underground pipes.
Severe erosion, undercutting, & cut banks.
3. Potential Implementation Plan

-Repair Failed Stormwater Infrastructure – The Town of Wallingford & CT DOT need to collaborate to repair the severely damaged culverts and outfall.

-Stabilize Streambanks – Due to the severity of the erosion a combination of hard armoring, bioengineering and live plantings is suggested. Possible techniques include bank shaping, gabions, rock riprap, vegetation, and vegetated geogrids. These techniques will provide stabilization protection to the toe and upper bank of the streambank as well as help control runoff.

-Infiltrate Stormwater Runoff Citizen Campaign – Provide educational outreach to citizens on reducing their stormwater runoff. An effective outreach campaign could potentially decrease the overall stormwater runoff being diverted to this location. Topics include rain garden installations, rain barrel installations, and replacing grassed medians with pollinator/xeriscaping gardens. Actions include public workshops, demonstration examples on municipal properties, flyers/handouts, partnering with local watershed groups, “Adopt A Storm Drain” program, and special awareness events.

4. Possible Responsible Parties / Actions

-CT DOT and Town of Wallingford could pursue funding and manage the repair of the broken stormwater infrastructure.

-Town of Wallingford could pursue funding and manage a streambank stabilization project.

-Town of Wallingford, volunteer groups, and/or watershed/neighborhood associations could pursue funding for and manage a citizen outreach campaign.

-The SWCD could potentially assist with pursuing funding for and managing a citizen outreach campaign and/or a streambank stabilization project.
Streambank Stabilization Techniques
Image Courtesy of Erie County Soil & Water Conservation District -
https://ecswcd.org/docs/stabilization.pdf

Bank Shaping
Reduce the slope of the streambank to a more stable angle.

Vegetation
A mixture of trees, shrubs, and herbaceous plants should be used to maximize stability. Vegetation will need protection until it becomes established and will become more effective over time. Stakes and erosion control matting can be used to protect newly planted vegetation.

Vegetated Geogrids
Alternating layers of live stakes/vegetation and compacted soil wrapped in geotextile fabric.

Gabions
Wire baskets filled with rocks.


E. OVERVIEW SITE #4

North Farms Reservoir- This large, shallow pond is state owned and a source of recreation for Wallingford residents. This body of water and the surrounding area is the headwaters of the Wharton Brook. Surrounded largely by undeveloped forest and agricultural fields, its industrial zoning now makes it a target for new development. Two large development projects are already underway, and more are likely to follow. The increase in impervious surfaces and loss of vegetated areas for natural filtration will contribute to degraded water quality in the Wharton Brook.

1. Aerial Map
2. Site Photos

North Farms Reservoir is currently surrounded by forest and residential development.
3. Potential Implementation Plan

- Change Zoning Designations – Currently, the area around North Farms Reservoir is zoned industrial. Not only does this designation promote the development of this area but also burdens the roads around the reservoir. The town doesn’t have roadbed rights so are unable to adjust the roads, which are currently too small to handle traffic that will come from a developed industrial area. Changing this designation could lessen future development in the headwaters of Wharton Brook and immediate watershed of North Farms Reservoir.

- Incorporate Green Infrastructure into Wallingford’s Development Regulations – Town of Wallingford zoning regulations could be updated to include green infrastructure mandates. Many CT municipalities have updated their regulations.
to help comply with MS4 regulations. Review of other municipalities regulations during a regulation review by the Wallingford Land Use Commissions could help to protect the watershed in this area. Specifically, a few examples of potential updates could be, section 6.18 - Sediment & Erosion Control, 6.14 - Landscaping, Screening, and Buffer Areas, and 6.30 – Grading; Water and Watercourses could be updated. Additionally, the current zoning regulations list the defunct New Haven County Soil and Water Conservation District. The Southwest Conservation District is the new organization after a merger of New Haven County with Fairfield County and is Wallingford’s County Soil and Water Conservation District (Section 6.18, B.2.).

**-Incentivize Infiltration** – Develop a municipal stormwater and flood control utility with a credit and incentive policy. The utility would provide a source of revenue for the Town’s stormwater management and flood control programs by charging a fee to customers in accordance with the ordinance. Additionally, a credit program could be utilized to incentivize activities that increase infiltration and reduce the impacts of stormwater runoff on the public stormwater system.

**-Work with Farmers to Protect Headwater Lands** – Strategize with farmers adjacent to North Farms reservoir to reduce runoff and also to keep land as forest or fields.

**-Stabilize Public Access Points** – Enhance the riparian buffer along the shoreline of North Farms Reservoir and prevent erosion in public space areas.

4. **Possible Responsible Parties / Actions**

-CT DEEP could pursue funding and manage a project to enhance riparian buffers around North Farms Reservoir and to stabilize public access points to the water.

-Town of Wallingford could change zoning designations and update zoning regulations. They could also develop a stormwater utility.

-The SWCD could potentially assist with drafting updated zoning regulations to minimize stormwater runoff from new developments. They could also assist with developing a stormwater utility.
Citizens living near the North Farms Reservoir could take actions on their own properties to help reduce pollutant runoff. These include minimizing fertilizer application, installing riparian buffers, and.

USDA-NRCS could potentially conduct outreach to adjacent farmers to implement conservation practices to minimize runoff and diversify farm operations to prevent the need for farmers to sell their farms to developers.

F. WATERSHED-WIDE RECOMMENDATIONS

While working to create this document, SWCD found that stakeholders had a limited knowledge of potential problems and projects within the Ten Mile River Watershed. One way to address this issue is to stream walk the Ten Mile River and its tributaries. The process of stream walking entails walking through planned sections of the river and noting potential issues, such as erosion, broken stormwater infrastructure and possible illicit discharges. Often the vantage point from the river itself offers a much clearer view of what is affecting the river. Once potential issues have been identified, they can be further investigated. Stream walks can be conducted by municipal staff, SWCD employees, and volunteers. While it focuses on more of a habitat centered stream walking assessment, this [EPA link](#) provides a great outline of the stream walking process.
## II. FUNDING OPPORTUNITIES AND STRATEGIES

<table>
<thead>
<tr>
<th>Grant Program Name</th>
<th>Web Link</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT DEEP 319 Clean Water Act Non-Point Source</td>
<td><a href="https://portal.ct.gov/DEEP/Bus">https://portal.ct.gov/DEEP/Bus</a> iness-and-Financial-Assistance/Grants-Financial-Assistance/Clean-Water-Act-Section-319-Nonpoint-Source-Grants</td>
<td>Grants are awarded for projects that address Nonpoint Source impacts in surface waters including creation and implementation of approved Watershed Based Plans. Typical maximum awards are under $500,000 from a total available of approximately $1.2 million. Available Annually</td>
</tr>
<tr>
<td>CT DEEP Open Space and Watershed Land Acquisition</td>
<td><a href="https://portal.ct.gov/DEEP/Op">https://portal.ct.gov/DEEP/Op</a> en-Space/Open-Space-and-Watershed-Land-Acquisition-Grant-Program</td>
<td>The Open Space and Watershed Land Acquisition (OSWA) Grant Program provides financial assistance to municipalities and nonprofit land conservation organizations to acquire land for open space, and to water companies to acquire land to be classified as Class I or Class II water supply property. Available Annually</td>
</tr>
<tr>
<td>CT DEEP Clean Water Fund</td>
<td><a href="https://portal.ct.gov/DEEP/Mun">https://portal.ct.gov/DEEP/Mun</a> icipal-Wastewater/Financial-Assistance-for-Municipal-Wastewater-Projects</td>
<td>The Clean Water Fund is the mechanism through which CT DEEP provides financial assistance to municipalities for projects addressing wastewater needs.</td>
</tr>
<tr>
<td>NRCS NWQI Funding</td>
<td><a href="https://www.nrcs.usda.gov/pr">https://www.nrcs.usda.gov/pr</a> ograms-initiatives/national-water-quality-initiative</td>
<td>As USDA’s premiere water quality initiative, National Water Quality Initiative (NWQI) provides a way to accelerate voluntary, on-farm conservation investments and focused water quality monitoring and assessment resources where they can deliver the greatest benefits for clean water.</td>
</tr>
<tr>
<td>Connecticut Hazard Mitigation Grant Program</td>
<td><a href="https://www.fema.gov/grants/mitigation">https://www.fema.gov/grants/mitigation</a></td>
<td>The purpose of the Hazard Mitigation Grant Program (HMGP) is to help communities implement hazard mitigation measures following a Presidential Major Disaster Declaration.</td>
</tr>
<tr>
<td>National Coastal Wetlands Conservation Grants</td>
<td><a href="https://www.fws.gov/service/">https://www.fws.gov/service/</a> national-coastal-wetlands-conservation-grants</td>
<td>The National Coastal Wetlands Conservation Grant Program annually provides grants of up to $1 million to coastal and Great Lakes states, as well as U.S. territories to protect, restore and enhance coastal wetland ecosystems and associated uplands.</td>
</tr>
<tr>
<td>America the Beautiful Challenge Grant</td>
<td><a href="https://www.nfwf.org/progra">https://www.nfwf.org/progra</a> ms/americabybeautiful-challenge</td>
<td>Intended to streamline grant funding opportunities for new conservation and restoration projects around the U.S., the America the Beautiful Challenge consolidates funding from multiple federal agencies and the private sector to enable applicants to conceive and develop large-scale projects that address shared funder priorities and span public and private lands.</td>
</tr>
<tr>
<td>Five Star and Urban Waters Restoration Grant Program</td>
<td><a href="https://www.nfwf.org/progra">https://www.nfwf.org/progra</a> ms/five-star-and-urban-waters-restoration-grant-program</td>
<td>Grants seek to address water quality issues in priority watersheds, such as erosion due to unstable streambanks, pollution from stormwater runoff, and degraded shorelines caused by development.</td>
</tr>
<tr>
<td>Long Island Sound Futures Fund</td>
<td><a href="https://www.nfwf.org/progra">https://www.nfwf.org/progra</a> ms/long-island-sound-futures-fund</td>
<td>The National Fish and Wildlife Foundation’s Long Island Sound Futures Fund supports projects to fully restore the health and living resources of Long Island Sound.</td>
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<tr>
<td>Grant Program Name</td>
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<tr>
<td>Long Island Sound Stewardship Fund</td>
<td><a href="https://licf.org/for-nonprofits/proposals/">https://licf.org/for-nonprofits/proposals/</a></td>
<td>The Long Island Sound Stewardship Fund (LISSF) is a competitive grant program seeking proposals to restore and protect the health and living resources of Long Island Sound.</td>
</tr>
<tr>
<td>National Culvert Removal, Replacement and Restoration Program</td>
<td><a href="https://www.fhwa.dot.gov/engineering/hydraulics/culvertd/aquatic/culvertaop.cfm">https://www.fhwa.dot.gov/engineering/hydraulics/culvertd/aquatic/culvertaop.cfm</a></td>
<td>An annual competitive grant program that awards grants to eligible entities for projects for the replacement, removal, and repair of culverts or weirs that meaningfully improve or restore fish passage for anadromous fish.</td>
</tr>
<tr>
<td>Water Infrastructure Finance and Innovation Act (EPA)</td>
<td><a href="https://www.epa.gov/wifia/what-wifia">https://www.epa.gov/wifia/what-wifia</a></td>
<td>A federal credit program administered by EPA for eligible water and wastewater infrastructure projects.</td>
</tr>
<tr>
<td>Coastal Zone Management Act Grants (NOAA)</td>
<td><a href="https://www.noaa.gov/infrastructure-law/infrastructure-law-climate-ready-coasts/coastal-zone-management">https://www.noaa.gov/infrastructure-law/infrastructure-law-climate-ready-coasts/coastal-zone-management</a></td>
<td>Projects funded through coastal zone management grants will advance the national goals and priorities of the CZMA and NOAA, as well Administration initiatives including America the Beautiful and the New Blue Economy.</td>
</tr>
<tr>
<td>Building Resilient Infrastructure and Communities (BRIC) (FEMA)</td>
<td><a href="https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities/before-apply">https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities/before-apply</a></td>
<td>Applicants must have received a major disaster declaration within seven years prior to the annual grant application period start date. Funds may be used for capability and capacity building activities, mitigation projects, and management costs.</td>
</tr>
<tr>
<td>Quinnipiac River Fund (Community Foundation for)</td>
<td><a href="https://www.cfgnh.org/strengthening-nonprofits/about-our-grantmaking/grants-to-apply/">https://www.cfgnh.org/strengthening-nonprofits/about-our-grantmaking/grants-to-apply/</a></td>
<td>Annual funding opportunity. The mission of the Quinnipiac River Fund is to improve the environmental quality of the Quinnipiac River and New Haven Harbor and their watersheds.</td>
</tr>
<tr>
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| Greater New Haven) | for/grants-for-the-quinnipiac-river | }
III. CONCLUSIONS FOR WATERSHED

A. GENERAL RECOMMENDATIONS

This document is just the next step in the iterative process of improving the health of the Wharton Brook Watershed. While the process will be long and ongoing, stakeholder efforts will make a difference. Stakeholders should include not only decision makers, but also community leaders and individuals to be effective. It is our hope that this document includes steps that each Wharton Brook stakeholder can use to contribute to protecting the water quality of Wharton Brook and its tributaries. The SWCD will remain engaged with Wharton Brook’s stakeholders through an annual review of potential projects to ensure they get the support they need.

B. POSSIBLE NEXT STEPS

In addition to the potential projects given in this document, residential landowners could take actions at home to reduce stormwater runoff and to increase the water quality of Wharton Brook. These actions include:

- Plant riparian buffers to protect Wharton Brook as well as streams, wetlands, ponds, and lakes within its watershed.
- Plant a pollinator garden.
- Create layered landscaping with various sized native perennials, shrubs, and trees to provide a multitude of habitat for various bird species.
- Install a rain garden and direct your downspout into it.
- Minimize or discontinue use of chemical pesticides and fertilizers.
- Decrease turfgrass lawn area or replace it with more pollinator friendly species; Pennsylvania sedge (Carex pensylvanica) is good for shady areas while wild strawberry (Fragaria virginiana) is good for sunnier spaces and white clover (Trifolium repens) is appropriate in both sunny & shady locations.
- Replace medians with pollinator and/or xeriscape gardens.
- Utilize rain barrels to collect water for home landscaping.
- Form a Wharton Brook Watershed Association.
- Volunteer to help remove invasive species, maintain trails, and to remove trash from area waterbodies.
- Support the creation of a Wallingford Master Plan that is focused on conservation.