



**TOWN OF CONCORD
COMMUNITY PRESERVATION COMMITTEE**

141 KEYES ROAD, CONCORD, MA 01742
TEL. (978) 318-3290 FAX (978) 318-3291

Application for CPA Funding

Due no later than 4:00pm on Friday, September 17, 2021

Applicant: White Pond Advisory Committee

Co-Applicant (if applicable): N/A

Project Name: Treatment and Prevention of Cyanobacteria Blooms in White Pond

Project Location/Address: White Pond, Concord MA 01742

Purpose: (Select all that apply)

- Open Space
- Community Housing
- Historic Preservation
- Recreation

Project Budget:

Amount of CPA Funds Requested: \$ 36,000.00
 Amount from Other Funding Sources: \$ 00
 Total Project Budget: \$ 36,000.00
 (If multi-year project, note current phase only)

Please check which of the following is included with this Application:

- One Paragraph Project Summary *
- Map (if applicable)
- Narrative *
- Selection Criteria and Needs Assessment
- Detailed Project Budget *
- Feasibility Assessment
- Statement of Sustainability (if applicable)
- Timeline *
- Architectural plans, site plans, photographs (if appropriate)
- Copy of Audit or most recent Financial Information (Non Profit Organizations Only)*
- Letters of Support (if any)

* Required Documentation

The Contact Person for this Project is: WPAC Co-Chair Beth Kelly

All Correspondence should be mailed to: Beth Kelly

The Contact Person can be reached by phone at: (978) 857-6442 or by email at: Beth@Kellyqc.com

Signature of Applicant: Beth Kelly CO-CHAIR WPAC

Signature of Property Owner (if different): N/A

For Historic Preservation Projects Only – please check the box below left and acknowledge:

I/We have read the U.S. Secretary of the Interior's Standards for the Treatment of **Historic Properties** and understand that planning for and execution of this project must meet these standards.

Project Summary: Treatment of Cyanobacteria blooms in White Pond to ensure safety for visitors, recreational enjoyment and open space

White Pond is in peril due to six years of recurring cyanobacteria blooms (also called toxic blue-green algae blooms, or toxic blooms). As a result of these unsafe conditions, White Pond was closed for swimming beginning July 18, 2021 through the season end. Residents as well as visitors on abutting conservation trails have been warned to stay out of the water due to health risks. The White Pond Advisory Committee (WPAC) is now seeking funding to continue in-pond remediation in White Pond to mitigate cyanobacteria outbreaks. A pilot program has received a National Science Foundation (NSF) grant and has been approved by the town. This program has been successful as it effectively mitigates toxic blooms apparent on the water's surface and sediment. It is critical that an in-pond water quality treatment program continues.

Narrative and History of Cyanobacteria Blooms in White Pond

A collaborative remediation effort involving the White Pond Advisory Committee (WPAC), community and town efforts is now essential to reduce the sources of pollution that contribute to larger, more frequent recurring toxic blooms. Without this remediation, a reasonable expectation is that White Pond will remain closed in summer months for years to come.

After many years of repeated toxic algae bloom outbreaks, the operation of an in-pond treatment program to mitigate the cyanobacteria this year was deployed. The WPAC arranged a pilot program after approval by the town. This A-POD program has been proven to physically remove toxic algae from White Pond and represents a newer method of intervention. It effectively mitigates toxic blooms apparent on the water's surface, in substrate, sediment and could be utilized as an initial and periodic prevention measure. Compared to other pond treatments for toxic blooms like copper sulfate or alum, this type of treatment is non-invasive, cost-effective and works naturally to mitigate blooms.

The current pilot trial in White Pond has accomplished the following:

- Water flow patterns have been identified that help position treatment tools more efficiently to trap and ultimately remove cyanobacteria.
- There have been increases in cyanobacteria density trapped in a short time frame (less than one day).
- Documented that zooplankton in White Pond are able to proliferate without predation by fish in the A-POD. Zooplankton are an important contributor to the reduction of toxic blooms.
- More comprehensive data will be available at the end of the trial and can be provided to the Community Preservation Committee (CPC).

The generous gift of the White Pond Associates beachfront and the development of that area has transformed the town's role in the pond's management. This creates a new opportunity for town and community engagement in the pond's well-being. This proposal to the CPC supports the White Pond Vision 2021, which has been requested by the Select Board from WPAC. The WPAC 2021 Vision Draft v5a is attached. The WPAC looks forward to working with the town to

ensure that White Pond may exist indefinitely as treasured natural resource for Concord and the surrounding community for future generations.

The Value of White Pond to Concord

White Pond is a Concord jewel. Henry Thoreau, who investigated the kettle pond and surrounding area regularly, wrote in *Walden* that “perhaps the most attractive, if not most beautiful, of all our lakes” is White Pond. Current Concord residents know it too, as White Pond has provided outstanding aesthetic and recreational opportunities that encourage greater well-being for thousands of people. Boating, fishing, hiking, biking, skiing, skating, swimming, and wildlife viewing are just some of the pleasures of this great resource. White Pond is a rare gem, beloved by local and out-of-town visitors.

The beauty and benefits of White Pond are enjoyed all year round. Besides bathing, swimming and beach community, visitors come in every season for fishing, relaxation and appreciation of the diversity of birds. A healthier pond supports all these pursuits as well as its greater ecological system and offers a more inclusive experience all who care to visit. The urgency of the Bruce Freeman Rail Trail project and the new development on Route 117 in Sudbury will mean more visitors than ever access White Pond.

Of particular concern is that the overlapping combination of factors that attract people to White Pond contribute to repeated toxic algae blooms. Overuse can become environmental abuse, making the pond unsafe for humans, fish and surrounding wildlife. The Town of Concord, neighboring residents and visitors have a short window of opportunity to work collaboratively to remediate these harmful conditions and preserve White Pond for generations.

This Concord Preservation Act funding request is for \$35,000 to cover one year of treatments, including disposal of the collected toxic blooms.

Remediation as one stage of improving water quality

The leading concern for the health of White Pond is the state of water quality. Excess nutrients (phosphorus and nitrogen) in the water have led to a dramatic increase in the number of cyanobacteria (toxic algae blooms) that naturally exist in stagnant water. Nutrients arrive in the form of run-off/leaching from septic tanks and fertilizers, and over-use including trash and refuse left behind by visitors. These nutrients impact the entire pond and not just local areas. Each one of these contributions have feasible solutions that require coordination with science-based protocols to resolve. The public health concerns are potentially serious and range from dog fatality to suspected Lou Gehrig’s disease (ALS). When a toxic bloom dies it releases toxins into the surrounding water, leading to unseen but still harmful impacts.

Working with the Town, WPAC seeks to establish a pond-wide testing, water quality monitoring and remediation program for White Pond. The testing and water quality monitoring will be managed through the town budget process with oversight by the Selects Board, the Board of Health, and the Department of Natural Resources. A primary step will be to establish a water quality program to be measured each year. Toxic algae blooms may appear or disappear from day to day, but this does not mean the water is safe for swimming or recreation. Water quality testing will remain an important part of assessing water safety.

Project Timelines

- 1) Continued deployment of the A-POD pilot currently in place at Thoreau Cove through October 2021, paid for by the NSF grant.

- 2) Deploy larger treatment program with zooplankton sanctuary for treatment summer 2022.

Project Budget – one year

1) In-pond water quality treatment 2022.	\$30,000.00
2) Plan for cyanobacteria disposal as needed. Town sets aside an area for disposal, projected as part of the regular town compost pile.	\$5,000.00
3) Final documentation	\$1,000.00
Total.....	\$36,000.00

Needs Assessment

The White Pond master plan, which was commissioned by White Pond Associates in 2012, had envisioned the White Pond would be a sustainable resource for years to come including offering a safe open recreational site to the community. Unfortunately, this has not been the case. Poor water quality has kept the pond closed most all summer in 2021 based on visible blooms, similar to prior years starting in 2015.

The Town of Concord has commissioned several master plans (West Concord Master plan, Open Space and Recreations Plan and the Towns Master Plan) which either mentioned the need to maintain White Pond and or more green space in Concord. In particular the Open Space and Recreations Plans recognized White Pond as a “sensitive deep glacial kettle Pond”.

The WPAC has written Vision statements in 2015 and 2021 addressing the unique and precious ecosystem of White Pond while addressing the needs for a water quality program and remediation of the recurrent algae blooms.

This remediation project meets the goals of the Community Preservation Act funds as defined in the 2020 Community Preservation Plan. It covers goals #1, #2 and #4 including Protect Water Resources, Quality of Ground Water, Protect Ponds, Improve Connectivity to Recreational Resources, Improve Collaboration and management amongst others.

Specifically, the CPC stated in the 2020 Community Preservation Plan that it supports projects that work towards “the protection and rehabilitation of the White Pond Reservation.”

Documents/Photos/Attachments

- 1) Pictures of toxic algae blooms
- 2) A-POD in action
- 3) White Pond Vision 2021 Draft v5a URL
- 4) A-POD proof of concept URL

1. Bloom August 18, 2021 north end of White Pond and Beach front



2. A-POD in action



3. White Pond Vision 2021 Draft v5a URL

<https://finadium.com/wp-content/uploads/2021/09/White-Pond-Vision-v5a.pdf>

4. A-POD proof of concept URL

<https://img1.wsimg.com/blobby/go/e1a0d8ef-1a45-48df-b439-6d7479d51a27/downloads/Patent%20reference%20Version%20Sep%202018%20to%202019%20Up.pdf?ver=1616691479727>