

Barnes Preserve Preservation Commission
Master Plan Draft

With this Master Plan, established through the 2009 Dismal Swamp Preservation Act (NJ 40:55D-88.1-7) of the State of New Jersey, the Dismal Swamp Preservation Commission (redesignated as the Peter J. Barnes III Wildlife Preserve Commission in 2021 (A5822); hereafter stated as the Barnes Preserve Commission) establishes itself as a Regional Planning Board with any or all of the powers and duties of a municipal planning board. This Master Plan supersedes any municipal ordinances or local master plans or land use guidelines. Any property located in the Dismal Swamp Preserve (hereafter, the Barnes Preserve) will herein be managed by the Barnes Preserve Commission under the guidelines established by this Master Plan.

Lying within the watershed of the Bound Brook, the Barnes Preserve, located within the communities of the Borough of Metuchen, Edison Township, and the Borough of South Plainfield, is one of the largest remaining wetland ecosystems in the highly urbanized landscape of northern Middlesex County.

In 1989, the [United States Environmental Protection Agency \(USEPA\) designated the Dismal Swamp](#) (pp. 92, 108) as a National Priority Wetland. A USEPA Priority Wetland designation is applied to those areas identified by various federal, state, and private contributors which are considered to be the most important and vulnerable wetlands in the country. The Barnes Preserve's designation was based on its large size and nature of the wetlands, wildlife habitat value, its flood storage function, and its vulnerability to development pressures.

Wetlands are protected by federal and state regulation. However, wetlands have not always been viewed as they are today, and extensive areas of wetland have been either lost or compromised as a result of development related activities. [According to the US Fish and Wildlife Service, 39% of the wetlands in New Jersey have been drained, ditched, filled, farmed or developed.](#) The degradation of wetlands and aquatic resources can also arise from the absence of stormwater management, a common element of older communities, that can result in modified flooding patterns and channel erosion as well as excessive nutrient inputs associated with non-point source pollutants. The loss and degradation of wetlands has especially common in the highly developed landscapes of northern and central New Jersey.

Therefore, the simple existence of the 784-plus acre Barnes Preserve is not only unique but can benefit the communities in which it exists; most importantly, preservation requires sound stewardship and planning. It is embodied in the Barnes Preserve Preservation Act that a commission be established, "to provide comprehensive regulatory authority and regional planning for the area with a primary focus on protecting and preserving the ecological, historical, and recreational values of the area." The Barnes Preserve shall be comprised of all properties lying within the metes and bounds of the Barnes Preserve as identified on a map prepared by Najarian Associates dated July 9, 2021 (and approved by Metuchen on November 8, 2021, Edison on October 13, 2021, and South Plainfield on April 4, 2022), as well as any

properties draining into the Barnes Preserve or its tributaries which are purchased or leased by the commission or other related entities at a later date for the purposes of conservation. This Master Plan shall provide the substantive standards and direction for implementing the goals and requirements of the Barnes Preserve Preservation Act and provide the basis for future projects and programs.

In anticipation of this requirement, the Edison Wetlands Association completed a management plan, titled the Dismal Swamp Conservation Area Management Plan (prepared by Princeton Hydro), dated April 2009, that includes an inventory and assessment of the region, for the purpose of developing preservation strategies for this sensitive ecological resource. In general, this Management Plan summarizes existing information on Wildlife Inventories, Wildlife Habitat Conditions, and Stewardship Issues and Opportunities. This master plan is based upon recommendations from this management plan, which outlines short term and long-term stewardship recommendations for the Barnes Preserve, specifically addressing the following general topics:

- Stewardship
- Regional water quality and stormwater management
- Public access and education
- Land acquisition
- Remediation and restoration

The following sections identify and describe more specific goals for the Barnes Preserve. The goals set forth below are based on the management plan and are designed to be broad statements of intent that will serve as a basis for developing policies to guide the commission's decision making. The goals provide guidance to be used in the development of long-term programs for improvement of the Barnes Preserve, actions taken by governmental and nongovernmental partners, as well as non-regulatory efforts of member municipalities and other landowners within the Barnes Preserve.

Stewardship

The Barnes Preserve contains a large forest community in a highly developed landscape. Forests such as this provide a variety of important ecosystem functions, including the recharge of ground water aquifers that supply regional aquifers, water quality enhancement, flood storage, sequestration of atmospheric carbon, and wildlife habitat. With regard to plants and animals, the Barnes Preserve provides critical habitat that is important for the maintenance of regional biodiversity. The stewardship elements of the plan are designed to better characterize the Barnes Preserve, as well as to develop plans to enhance its ecological values and functions. All specific elements requiring surveys, studies or recommendations will be developed by professional consultants hired by the Commission or its members. The Commission can also utilize fully qualified volunteers when possible. Specific stewardship goals for the Barnes Preserve include the following:

1. Develop a set of ordinances to guide all potential developments to maintain the highest possible protection standards, including but not limited to stream corridor and stream buffer protection, stormwater control, flood control and floodplain protection, wetlands protection and buffers, and vernal pond buffers.
2. Preserve, to the maximum extent possible, contiguous areas of land in its natural state, and to protect the natural, scenic, and other resources, including but not limited to contiguous forest.
3. Maintain forest cover to the maximum extent possible in the natural as well as the built environment.
4. Limit human development in order to protect and enhance forest resources, forest ecosystem functions, wildlife habitat, and the quantity and quality of water resources.
5. Encourage the restoration of the forested wetland resources through wetland habitat enhancement/restoration and stewardship practices.
6. Protect forest resources on a site-specific basis during local development review by the Commission especially in areas of wetland, riparian buffer and encroachments that result in habitat fragmentation.
7. Prioritize at-risk sites and seek funding to purchase real property, conservation easements, or development rights, and/or enter into long-term lease arrangements in order to best steward the Barnes Preserve. Funding or other resources shall also be used to preserve, restore and enhance degraded wetland habitat in order to restore ecological and societal function and services to the maximum extent practicable.
8. Implement programs which encourage the inclusion of appropriate rare, threatened, and endangered wildlife and habitat protection and enhancement, and appropriate wildlife and invasive species management techniques adopted by any federal, state county or municipal government entity. These actions will include, but not be limited to resources such as [New Jersey's Wildlife Action Plan](#).
9. Conduct a detailed and comparative survey of the fauna in order to help prioritize areas for preservation, maintenance, or restoration of habitats.
10. Conduct a detailed and comparative survey of the flora in the Barnes Preserve utilizing the [Native Plant Profiles](#) developed by Bowman's Hill Wildflower Preserve, in order to help prioritize areas for maintenance or restoration.
11. Implement resource management programs to encourage restoration and stewardship practices on public and private lands, including ecological and watershed protection measures.
12. Seek to obtain from National Audubon Society a designation for the Barnes Preserve as an [Important Birding Area \(IBA\)](#) due to its "significant importance for birds and biodiversity." Among the more than 120 sites in New Jersey, only one portion of the Arthur Kill shoreline in Middlesex County is currently listed as an IBA.
13. Develop a strategy to reduce the impact of invasive flora and fauna.

Regional Water Quality in Stormwater Management

Based on the biological monitoring of macroinvertebrate diversity (aquatic insects and crustaceans) conducted by the NJDEP, [the waters of the Bound Brook and Green Brook are designated as moderately impaired for aquatic life](#). Impacts from stormwater runoff from the commercial, residential developments, and major roadways likely contribute to the impairments of water quality. With less than 30% of the watershed undeveloped and 70% of the watershed developed with impervious cover greater than 20%, runoff and nonpoint source pollution is likely contributing to the impairments of water quality and the habitats for aquatic species. As such, in order to improve the water quality of the Bound Brook, it is essential that we develop plans to retrofit or improve existing stormwater runoff while ensuring compliance with stormwater rules for new developments in the watershed. Specific goals include the following:

1. Develop a watershed management plan and regional stormwater plan in accordance with the requirements set forth by the NJDEP so that the Bound Brook watershed is able to obtain funding through the 319 (h) program.
2. As part of the 319 watershed restoration plan, determine where water quality improvements are necessary or beneficial, develop watershed based plans to achieve such stormwater improvements such as restoration techniques, including disconnection and reduction of existing impervious services, develop implementation mechanisms, and implement these plans.
3. Reduce or avoid water quality impacts to the existing storm water requirements related to water quality for new land uses through Barnes Preserve Commission review.
4. Encourage the use of low impact development measures and stormwater management measures that emphasize water quality and volume control.
5. Develop a mitigation plan for projects in the watershed that cannot comply with stormwater recharge requirements.
6. Identify stream restoration opportunities to stabilize eroded stream banks that contribute to water quality degradation.
7. Identify restoration opportunities that would reconnect streams to their floodplain in order to enhance water quality and reduce downstream flooding.
8. Require that proposed development within the Barnes Preserve area conform to buffer requirements of N.J.A.C 7: 13 (Flood Hazard Area Rules), and N.J.A.C 7: 7 (Freshwater Wetland Rules), and with any applicable requirements of a regional stormwater plan adopted pursuant to N.J.A.C 7: 8 (Stormwater Management Rules).

Public Access and Education

The Barnes Preserve is a unique and valuable natural area but it remains underutilized. Improving access and enhancing the trail network would facilitate the use of the site by

residents and foster a greater understanding of this valuable regional amenity. We will address these shortcomings in the Barnes Preserve by working to:

1. Encourage public access through the development of a trail network.
2. Develop a Greenway plan with goals that emphasize the protection and preservation of Greenway connections along wetlands and riparian corridors that shall preserve floodplains, riparian buffers, woodlands, critical wildlife habitats, and protect water quality.
3. Seek to connect a Barnes Preserve Greenway network of trails to the trails developed in accordance with the Middlesex County Greenway plan.
4. Enhance the existing entry points in trail networks on the property owned by Edison Wetlands Association, the municipalities, and Middlesex County.
5. Increase public outreach, awareness, and support for this regional resource through educational signs that explain the characteristics and values of the riparian, wetland, and forest habitats of the Barnes Preserve.
6. Place informational kiosks and signage at key access points to better inform the public concerning upcoming improvement projects and to increase public awareness.
7. Continue to restrict the use of off-road vehicles and truck access and install additional barriers to reduce access in areas. Increase police and law enforcement patrols to better restrict off-road vehicles, illegal hunting, and illegal dumping.
8. Identify areas where additional public parking areas may be needed to facilitate improved public use of the lands.

Land Acquisition

1. Seek to preserve environmentally sensitive areas including stream corridors, wetland areas, and woodlands through public and private endeavors.
2. Prioritize the acquisition of properties that would increase the continuous nature of the lands comprising the Barnes Preserve and riparian buffer areas along stream corridors.
3. Seek funding to facilitate further acquisition of additional lands.
4. Institute and encouraging creative methods for financing the acquisition and preservation of open spaces.

Remediation and Restoration

1. Fully remediate and restore any contaminated sites within the Barnes Preserve, including federal Superfund sites and other contaminated sites overseen by the State of New Jersey, to the highest possible standard. Sites shall be remediated utilizing permanent remedies, and shall not utilize capping in place, monitoring, natural attenuation, or any other temporary remedies to address contaminated soil, sediments, wetlands, surface water, or groundwater. Upon cleanup, such properties shall be restored to their original condition, including replanting of native vegetation and restoration of wetlands where applicable. Such sites will also incorporate safe public access and passive recreation into restoration plans and activities, unless such will negatively impact the long-term health of the ecosystem.
2. For any properties draining into the Barnes Preserve, native vegetation and balanced redevelopment will be strongly encouraged.
3. Where possible, facilitate a time critical cleanup for any known, ongoing sources of contamination within the Barnes Preserve. This includes actively encouraging the federal or state government to devote any necessary resources to addressing such cleanup needs, including assuming control of cleanups in the event that responsible parties are not proactively remediating contaminated sites.

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