February 2023

Ponkapoag Pond Master Plan

Canton & Randolph, MA

Prepared for

Massachusetts Department of Conservation and Recreation

Prepared by

HALVORSON Tighe&Bond STUDIO

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Planning and Landscape Architecture

Tighe & Bond
Civil Engineering, Transportation, Green Infrastructure, Permitting

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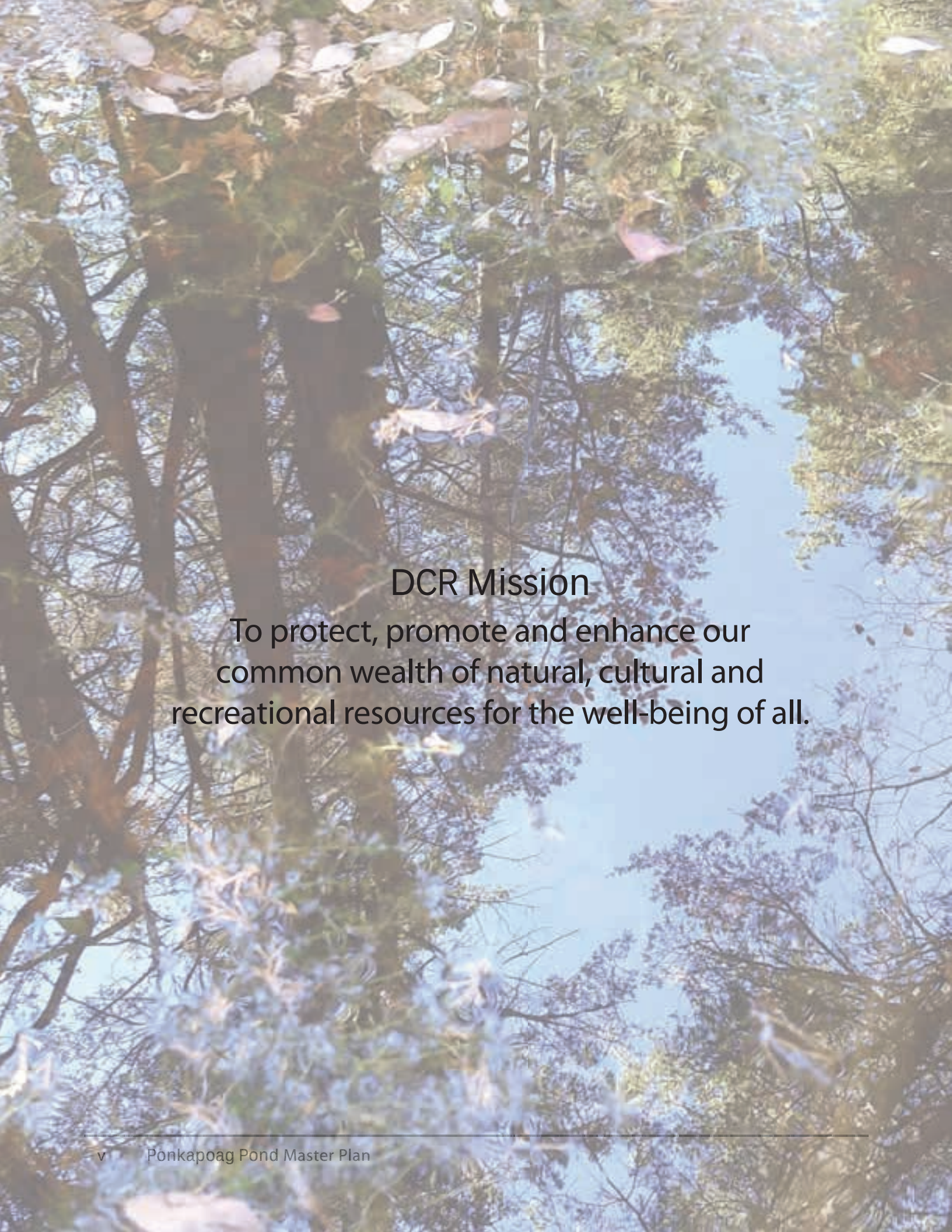

DCR Mission

To protect, promote and enhance our common wealth of natural, cultural and recreational resources for the well-being of all.

Executive Summary

Background of the Master Plan

The purpose of the Ponkapoag Pond Master Plan is to assess the site's natural, cultural, and recreational resources and make recommendations for sustainable site improvements that reduce environmental impacts, maintain the historic integrity and character of the site's cultural elements and landscapes, and integrate sustainable practices into site operations and maintenance.

Ponkapoag Pond and Bog, located on the border of Canton and Randolph, MA, 13 miles from downtown Boston and within 7,000 acre Blue Hills Reservation, is a unique landscape due to its significant cultural, natural, and recreational resources. The site's history dates back over 10,000 years ago as a settlement area for Native Americans. There are numerous ancient and historic archaeological sites as well as historic resources that have been identified within the Ponkapoag Pond Study Area. The area is designated as an Area of Critical Environmental Concern (ACEC) due to its unique ecological resources and its wetlands, vernal pools, and upland forests that are home to nine state-listed rare plants and wildlife. Its diverse plant community includes upland forests, wooded swamps, shrub swamps, shallow marsh and bog. The site and study area offers various public recreational activities, ranging from hiking trails, fishing, and boating opportunities as well as uses by privately managed facilities at the YMCA Ponkapoag Outdoor Center for programming and use as day camps for city youth and AMC Ponkapoag Camp with overnight cabins, tent sites and pond access.

Today, the Ponkapoag Pond and Bog are facing new demands and challenges due to increases in uses and changes in adjacencies at the perimeter. The Department of Conservation & Recreation (DCR) is committed to meeting diverse needs for outdoor recreation while also protecting the site's sensitive cultural and natural resources. The Goals of the Ponkapoag Pond Master Plan are to:

- Respect its Cultural Resources,
- Protect the Natural Resources, and
- Enhance the Visitor Experience.

The master plan was developed with the participation of DCR staff and stakeholders. The Working group included Friends of Blue Hills, AMC Ponkapoag Camp, and YMCA staff. The consultant team conducted multiple site visits with DCR staff and the Working Group to assess and collect information, which confirmed site, building, and utility conditions. DCR and the working group reviewed and provided feedback during the design process. In addition, stakeholders were engaged through local outreach and coordination including officials from the towns of Randolph and Canton, state officials, abutting property owners, local tribal organizations, and town historical commissions. To solicit the public's ideas and feedback, the design team held two public meetings: on December 8, 2021 to present the draft Master Plan, and on June 8, 2022 to provide updates to the Master Plan.

Existing Condition Assessment

With project goals in mind, the design team assessed the existing conditions and site issues and organized them into the following six categories:

- Cultural Resources
- Natural Resources
- Circulation, Facilities and Infrastructure
- AMC Ponkapoag Camp - Site & Buildings
- YMCA Ponkapoag Outdoor Center - Site & Buildings
- Signage and Way Finding

The findings of this assessment helped identify various issues relating to the need for preservation of natural and cultural resources, and to required improvements to circulation, facilities, accessibility, and user experience. These identified needs were further addressed in the Master Plan recommendations.

Recommendations and Opportunities

The Master Plan recommendations are responsive to the stated goals for Ponkapoag Pond and were affirmed throughout the master planning process. Their prioritization and implementation will contribute to fulfilling DCR's mission "to protect, promote and enhance our common wealth of natural, cultural, and recreational resources for the well-being of all."

The summary of recommendations below is organized by the focus areas/subjects. More specific recommendations are provided and elaborated on in later sections of the Master Plan.

Regulation Compliance

Proposed improvements are to comply with the applicable laws and regulations for cultural and environmental resources as well as accessibility during phases of planning, design, permitting and construction.

Overall Park Circulation Improvements

- Enhance visitors' arrival experience by installing identification signs and welcome orientation signage at each entrance.
- Enhance safety by providing separation between varying outdoor recreation user groups and their activities, and clear identification signage.
- Enhance parking lot areas to expand capacity, comply with accessibility, and improve surface conditions and stormwater management to protect surrounding natural resources.
- Provide accessible compliant paths within parking lots and trails connecting to the parking lots.
- Strengthen existing trail connections with adjacent neighborhoods.

Green Dot Loop Improvements

- Enhance trail accessibility by improving trail surfacing and applying stormwater best management practices.
- Enhance visitor experience and education by providing site furniture, directional signage, and interpretive signage.
- Adjust trail alignment to avoid conflicts between users and to discourage practices that contribute to erosion and degradation of sensitive resource areas.
- Close unofficial trails and institute DCR's Encroachment Policy on adjacent landowners that are adversely affecting the site and its sensitive ecologies.

Boardwalk at Ponkapoag Bog Improvements

The Master Plan recommends reconstruction of an accessible, elevated boardwalk along the existing alignment and footprint of the existing walkway, to minimize disturbance from human activities and to discourage adverse impacts to adjacent undisturbed areas.

Fisherman's Cove Improvements

Master Plan improvements propose a sustainable and accessibly compliant waterfront area with site facilities/amenities for visitors to enjoy Ponkapoag Pond while protecting sensitive natural resources. The site facilities include accessible portable restrooms, picnic areas, a non-motorized boat launch area, and benches along the trail and the water's edge. Installing welcome and orientation signs and interpretive signage provides visitors the information about the park's natural, historical, cultural, and recreational features.

Habitat Restoration and Protection

Master Plan recommendations for habitat restoration and protection efforts focus on several key elements, including invasive species management, habitat restoration, water management, and outreach and

education. The Landscape Management Plan (LMP) in appendix A has been developed to complement this Master Plan, and offer invasive plant monitoring and management, along with appropriate planting recommendations to augment or restore native vegetation for each plant community type found within the project site.

AMC Ponkapoag Camp Improvements

The Master Plan site improvement recommendations include providing accessible paths between camp facilities/buildings, as well as accessibility improvements at the parking lot, swimming area, and picnic areas, while maintaining the intentionally rustic setting and sensitive natural resources.

There are three camp building improvement priorities. First is providing accessibility to the main lodge, cabin, and restroom facilities for guests with disabilities. Second is the renovation of both the main lodge and Sheldon Cabin to address deferred maintenance and significant utility deficiencies. The third is the stabilization and preservation of the three remaining historic cabins (North, Spang, and Folsom), which are currently at risk of permanent loss of character-defining features and materials due to age-related deterioration. All three of these priority projects require further professional study to establish a full scope of work and related cost projections.

YMCA Ponkapoag Outdoor Center Improvements

The proposed Master Plan site improvements focus on enhancing accessibility on all routes throughout the camp circulation and facilities, updating the existing aging and deteriorating facilities, and providing new program spaces.

Proposed building improvements increase functionality, accessibility, and building performance and energy efficiency. Recommendations range from demolition and full replacement of existing facilities that are past their service life, to minor renovations and repairs that enhance existing functionality, or reactivate an underutilized resource - while maintaining a unified architectural character to enhance a "sense of place" at the Outdoor Center.

To protect the sensitive natural and cultural resources in and around the YMCA campsite while enhancing the camper's and public's experience, the approach to site and building improvements should minimize ground disturbance, and where practical and feasible construct over, not below existing grade.

Signage and Wayfinding

Master Plan recommendations focus on a thoughtfully considered signage and wayfinding system—improving the visitor experience, and increasing accessibility to Ponkapoag Pond and Bog study area. By incorporating identification, directional, informational, interpretive, and regulatory signage, visitors can identify ways to access and better navigate the Pond, develop a deeper understanding of the area, and know what is and isn't permitted throughout.

An updated signage system will reinforce the park's identity and location within the Blue Hills Reservation. A series of interpretive panels and information signage details the many environmental, historical, cultural, and recreational highlights—helping visitors discover all the park has to offer and placing them in a richer context.

PART ONE
INTRODUCTION

1.1 | OVERVIEW OF STUDY AREA

PONKAPOAG SECTION OVERVIEW

Blue Hills Reservation, managed by the Department of Conservation & Recreation (DCR), is a 7,000-acre state park located 16.5 miles south of downtown Boston, extending from Quincy to Dedham and Milton to Randolph. Rising above the horizon, Great Blue Hill reaches a height of 635 feet; the highest of the 22 hills in the Blue Hills chain. From the rocky summit visitors can see over the entire metropolitan area. With its scenic views, varied terrain, and 125 miles of trails, the Blue Hills Reservation offers year-round enjoyment for the outdoor enthusiast.

The Ponkapoag Section is situated at the south end of the Reservation in Canton and Randolph, bordered by Routes 128, and 24 to the north and east. Randolph Street and its associated residential neighborhoods are located to the south. The Ponkapoag Golf Course and Indian Line Farm border the west edge of the section. The Ponkapoag Section, approximately 1,368 acres, includes Ponkapoag Pond and Bog, associated waterways and wetlands, adjacent upland forest, rustic lodging facilities operated by Appalachian Mountain Club (AMC), YMCA Ponkapoag Outdoor Center operated by the Young Men's Christian Association (YMCA), Fisherman's Cove, Ponkapoag Dam, and a network of trails maintained by DCR (DCR, 2017).

According to USGS, the name Ponkapoag is derived from a tribe name meaning "a spring that bubbles up from red soil", "sweet water", and "shallow pond" (Douglas-Lithgow, 1909), (US-T121). The name **Massawachusett** – "the place of many great hills"- is where the Massachusett people took their name and is what is now called the Blue Hills, which features prominently in the view

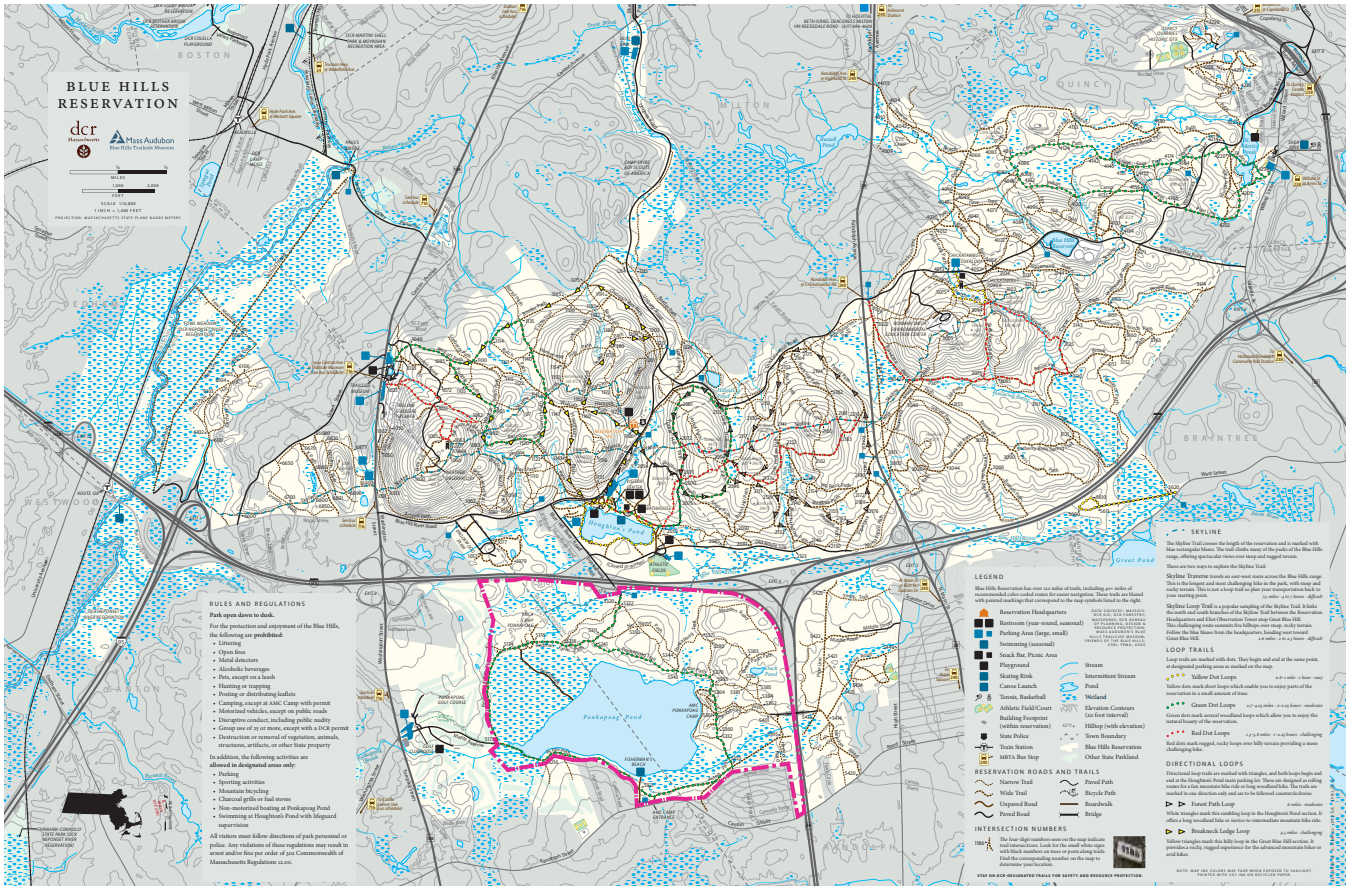

Figure 1-1. Map of Blue Hills Reservation. Ponkapoag Section, the Master Plan study area, situated at the south of the Reservation is highlighted with the pink dash line (Map credit: Massachusetts Department of Conservation and Recreation).

from Ponkapoag Pond. The Massachusett Tribal Nation has existed for years beyond counting in pre-historic times, and a well-documented existence in historic and modern times (Massachusett Tribe, 2019).

The Ponkapoag Section is designated as part of the **Fowl Meadow and Ponkapoag Bog Area of Critical Environmental Concern (ACEC)**, see Figure 1-2. This area has been designated as an ACEC due to the value and uniqueness of its natural communities, wildlife habitats, historic and archaeological resources, water supply importance, and recreational and educational values of the area. The area's landscape designation is Parkland, Zones 1, 2, and 3. Descriptions of these designations are provided in Section 4.2 of the Resource Management Plan for the Blue Hills Planning Unit (DCR, 1992 & 2017).

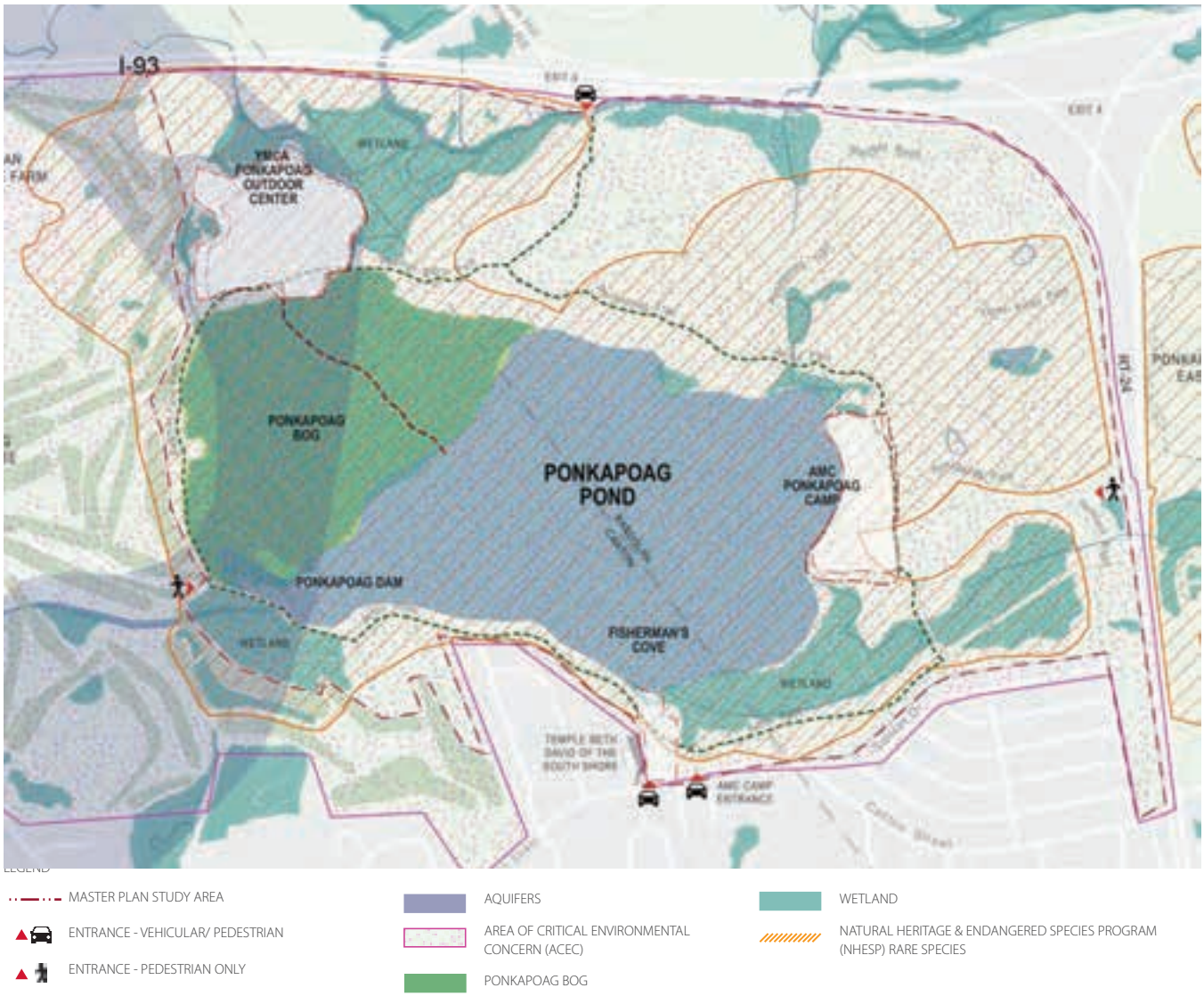

Figure 1-2. Landscape Designations

Figure 1-3. AMC Ponkapoag Camp

Figure 1-4. YMCA Ponkapoag Outdoor Center

Figure 1-5. Ponkapoag Dam

Ponkapoag Pond and Bog

Ponkapoag Pond is located within the Neponset River Watershed. The area of the pond and watershed is approximately 213 acres and 1,280 acres (2 square miles), respectively. The pond has a maximum water depth of seven feet and an average depth of four feet. Water discharges from the pond through the dam into Ponkapoag Brook and serves as a source of irrigation for the Ponkapoag Golf Course. The Pond, more than 10 acres in area, is designated as a Great Pond in Massachusetts. Ponkapoag Pond is listed in the **Massachusetts Integrated List of Impaired Waters for the Clean Water Act** as being impaired for mercury in fish tissue and for non-native aquatic plants. The mercury impairment is a result of atmospheric deposition. A Total Maximum Daily Load (TMDL) has been developed for the mercury impairment and is included in the **Northeast Regional Mercury Total Maximum Daily Load Final Addendum for Massachusetts** (MassDEP, 2020 & 2017).

Thousands of years ago, glacial activity scoured the pond and bog, and filled them with melted ice. Poor drainage resulted in gradual accumulation of organic material. Plants growing in the shallower portions of the pond die and their remains sink to the bottom and spread into the deeper western areas of the pond bottom. As this material decays, the resulting bubbles of entrapped marsh gas render it buoyant and cause clumps of it to rise to the surface. These clumps, seeded by natural agencies, become floating islands of vegetation. Many of them sink with the added material and repeat the process, and others attach to the edge of the marsh and extend to the shore, reducing the overall pond area. This continues now in much the same fashion as it did thousands of years ago. The growth of mosses, ericaceous plants, grasses, and sedges have contributed to the bog's acidic conditions. A quaking mat of Leatherleaf, Sheep Laurel, and Sphagnum mosses float on the surface of the ancient peat.

Ponkapoag Bog is comprised of Atlantic White Cedar bog and Level Bog areas. The Atlantic White Cedar Bog is one of the state's most threatened natural community

and has a state rank of S2 - Imperiled from NHESP. The Level bog is also a quaking bog, where the peat forms a level mat over the pond surface and floats.

AMC Ponkapoag Camp

The AMC Ponkapoag Camp is situated in the wooded area at the eastern end of the pond on a knoll and between wetlands to the north and south. It was established in 1921 as a weekend camp site near Boston that provides swimming, boating, fishing, and other outdoor recreation opportunities for members and visitors with day-use pass. AMC Ponkapoag Camp's swimming area is the only permitted swimming area at Ponkapoag Pond. There is a lifeguard on duty during scheduled hours and regular water testing per state's requirements.

Camp facilities include one main lodge building, 19 cabins, two tent sites, and outhouses as well as a swimming area and boat launch dock at the pond's edge. Four historic cottages built between 1922 and 1930 are listed in the National Register. The AMC owns and maintains all structures and buildings and leases the land from DCR.

Figure 1-6. Ponkapoag Pond Master Plan Study Area

YMCA Ponkapoag Outdoor Center

The YMCA Ponkapoag Outdoor Center located at the northwest corner of Ponkapoag Pond, was established in 1923 and has been in continuous use since then. It hosts the YMCA of Greater Boston's summer day camp for children age 7 to 13 on Monday through Friday.

The site includes a spacious activity lodge, two small cabins, two outdoor swimming pools, three covered pavilions, a basketball court, an archery range, high and low ropes courses, a stage, a picnic area, and an open field. The YMCA owns and maintains all structures and buildings and leases the land from DCR.

Ponkapoag Dam

The Ponkapoag Dam, located along the southwestern shore of Ponkapoag Pond in the Town of Canton, was built as a control structure for irrigation supply for the Ponkapoag Golf Course in the 1940's and was reconstructed in 2008. The earthen dam is about 7 to 8 feet high and 1,300 feet long. The brook that flows from the dam winds its way through woods and eventually joins the Neponset River. It is a prime spot to view the Pond and Bog and surrounding vista of the Blue Hills to the north.

The Ponkapoag Pond Dam is managed by the DCR in accordance with an Operations and Maintenance Plan. Routine visual inspections are performed by DCR staff and the golf course superintendent. A Professional Engineer also inspects the dam a minimum of once every five years. The dam controls flow into Ponkapoag Brook, where water is directly withdrawn for golf course irrigation. The Ponkapoag Pond Water Level Monitoring Plan is ongoing, and water is monitored within the pond and brook (DCR, 2011). Water levels need to be maintained within a specific range predetermined by NHESP, so as not to impact the bog.

Fisherman's Cove

Fisherman's Cove is located along the southern shore of Ponkapoag Pond within the Town of Canton. The site consists of a small sand/gravel area at the pond edge and a gravel path connecting the pond to the parking area at the south entrance fronting on Randolph Street. It is a popular spot for launching non-motorized boats and picnicking. Swimming is prohibited in this area by state legislation because of shallow water and adjacent sensitive wetland habitat.

Originally called Fisherman's Beach, DCR changed the name to Fisherman's Cove to avoid misrepresenting to the public that there is a beach area for swimming.

Ponkapoag Golf Course (Not Included in the Master Plan Study Area)

The Ponkapoag Golf Course was designed by noted golf course architect Donald Ross in the 1920s and 1930s. It opened to the public in 1936 and is the oldest public golf course in America. The facilities consist of two 18-hole courses, a clubhouse and pro shop, a driving range, a maintenance building, and a large parking lot. During the winter, the golf course is open to the public for cross-country skiing.

Indian Line Farm (Not Included in the Master Plan Study Area)

The former site of Indian Line Farm, a dairy established in the 1920s and later converted to an electronic manufacturing business, is adjacent to Route 138 and on the western edge of the Ponkapoag Golf Course. The 44-acre parcel of land within the Blue Hills Reservation is a historic landscape with enormous cultural and natural value. This area is administrated by DCR Boston Region but managed by Blue Hills Complex Field Operations Team (DCR, 2017).

CULTURAL RESOURCES

The Ponkapoag Section is rich in history as part of the larger 7,000-acre Blue Hills Reservation and has been an important settlement area for native peoples for over 10,000 years, up until the 1700s. Several hundred generations of Native Americans made this area their

home, both seasonally and year-round. Remnants of agricultural land uses during the 18th and 19th centuries are still visible on the landscape. The early 20th Century saw the introduction of recreational activities to the pond with the development of the AMC and YMCA camps and construction of a Donald Ross-designed golf course.

NATURAL RESOURCES

As mentioned above, the Ponkapoag Section is designated as an ACEC, partially due to its unique natural resources including wetlands, vernal pools, and upland forests that are home to many state-listed plants

Figure 1-7. Ponkapoag Bog

Figure 1-8. Ponkapoag Section recreation resources

and wildlife. The area is made up of several distinct natural communities, four of which are considered rare in Massachusetts: the Atlantic White Cedar Bog, Inland Atlantic White Cedar Swamp, Level Bog, and Woodland Vernal Pool. The pond and its environs provide high quality habitat for nine state-listed species. A more detailed description of the natural communities, habitat types, rare species, and invasive species encountered within this area is provided in Part II of this Master Plan. Additional vegetation and invasive species information is also detailed within Appendix A. Ponkapoag Pond and Bog Landscape Management Plan (LMP).

RECREATIONAL RESOURCES

The Ponkapoag Section offers a variety of recreation activities in addition to YMCA summer camps, and AMC overnight cabin and tent site rental. Fisherman's Cove provides access to Ponkapoag Pond for fishing and non-motorized personal boats. Shore-based fishing is available in multiple areas around the pond, most popular at Ponkapoag Dam and Fisherman's Cove. The site's 12.6 miles of trails offer varying degrees of difficulty to suit several skill levels. The Green Dot Loop trail is a 3.9 mile heavily used loop trail that perimeters Ponkapoag Pond. Primary trail activities are walking, hiking, horseback riding, jogging, nature study, dog walking (on-leash), mountain biking, cross-country skiing, and snowshoeing. A floating log boardwalk winds through Ponkapoag Bog and ends at the open water of the pond.

CHALLENGES

The Ponkapoag Section is threatened by the demands of outdoor recreation and the challenge to balance increased public access against the DCR's mission to protect the site's cultural and natural resources. Increasing public use of the site, adjacent horse stable operations, encroachment of the adjacent properties, and lack of stormwater management at the site threaten the sensitive natural environment. Conflicts between overlapping recreational activities, lack of equitable accessibility to public amenities, and lack of unified wayfinding and interpretive signage detract from the overall visitor experience.

Figure 1-9. Ponkapoag Section and Blue Hills in the background

List of Acronyms

AMC Appalachian Mountain Club

ENF Environmental Notification Form

FBH Friends of the Blue Hills

LMP Landscape Management Plan

MBUAR Massachusetts Board of Underwater Archaeological Resources

MEPA Massachusetts Environmental Policy Act

MHC Massachusetts Historical Commission

MPC Metropolitan Park Commission

OCR DCR's Office of Cultural Resources

PNF Project Notification Form

YMCA Young Men's Christian Association

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)

Areas of Critical Environmental Concern (ACECs) are places in Massachusetts that receive special recognition because of the quality, uniqueness, and significance of their natural and cultural resources. These areas are identified and nominated at the community level and are reviewed and designated by the state's Secretary of Energy and Environmental Affairs.

The purpose of the program is to preserve, restore, and enhance critical environmental resources and resource areas of the Commonwealth of Massachusetts. The goals of the program are to identify and designate these ecological areas, to increase the level of protection for ACECs, and to facilitate and support the stewardship of ACECs (DCR, 2022).

1.2 | MASTER PLAN

The purpose of the Master Plan is to assess the site's natural, cultural, and recreational resources and make recommendations for sustainable site improvements that reduce environmental impacts, maintain historic integrity and character of the site's cultural landscapes, and integrate sustainable practices into site operations.

MASTER PLAN SCOPE

The Scope of this Master Plan includes Ponkapoag Section bounded by I-93 to the north, Route 24 to the east, Randolph Street and private property parcels to the south, and Ponkapoag Golf Course to the southwest and west. The YMCA Outdoor Center and the AMC Ponkapoag Camp are part of this area.

MASTER PLAN GOAL AND OBJECTIVES

The Master Plan's goals are as follows: Respecting its Cultural Resources, Protecting the Natural Resources, and Enhancing the Visitor Experience. These goals will be further realized through the following objectives:

Respect Cultural Resources

- Preserve the distinct scenic and historic qualities of the park; and
- Provide opportunities for recreation and education to the public while respecting and protecting the site's rich history.

Protect and Enhance Natural Resources

- Safeguard the values of the ACEC;
- Improve water quality;
- Preserve the floodplain;
- Protect and enhance natural resources; and
- Make recreation sustainable and appropriate for the sensitive environment.

Enhance Visitor Experience

- Maintain and enhance recreational opportunities;
- Improve accessibility and safety throughout park facilities and trails;
- Enhance public amenities and facilities;
- Diversify available public programming and activities;
- Promote recreation and other activities that increase appreciation of the natural and cultural environment and their protection;
- Promote educational opportunities; and
- Provide clear and concise park wayfinding, interpretive and rules signage.

MASTER PLAN PROCESS

This Ponkapoag Pond Master Plan was achieved through a collaborative process led by DCR, supported by their consultant team, and informed by an engagement process, which included meetings with the working group, stakeholder group, and the general public.

The consultant teams Master Planning process has included:

- Gathering and assessing existing historic and archaeological documentation, GIS, information, and resources on the site;
- Gathering and assessing existing conditions information for the site including wetlands, invasive species, topography, drainage, and signage;
- Gathering and assessing existing building conditions;
- Gathering and assessing existing utilities;
- Preparing and presenting on September 14, 2021 to DCR the consultant team's "what we heard document" focused on observations and initial

thoughts regarding the following priority site areas: the Green Loop Dot trail, AMC Camp, YMCA Camp, Fisherman's Cove, and Signage; and Preparing and presenting written and graphic site analysis and Master Plan recommendations in Engagement meetings with the Working Group on November 16, 2021 and the Public on December 8, 2021.

The engagement process included:

A. Working Group Site Visits and Meetings: The Working Group consisted of staff and volunteers from the Friends of the Blue Hills and AMC Ponkapoag Camp, and YMCA staff. The consultant team conducted multiple site visits with DCR staff and the Working Group to collect information and confirm site, building, and utility conditions. Site visits and meetings consisted of:

- Kick Off meeting with The Working Group on June 22, 2021;
- Green Dot Loop Trail site walk and meeting on July 19, 2021;
- Site visit and meetings at AMC Camp, YMCA Camp and Fisherman's Cove on July 26, 2021;
- Site visit and meeting at YMCA Camp on August 16, 2021, to obtain more detailed information; and
- Site visit and meeting at AMC Camp on August 31, 2021 to obtain more detailed information.

B. The consultant team and DCR then met with the Working Group on November 16, 2021 to present initial findings and Master Plan recommendations.

C. Stakeholder Engagement: DCR officials and staff met with the Stakeholder Group, which included officials from the towns of Randolph and Canton, state officials, and abutting property owners. Local outreach and coordination include interested local tribal organizations and town historical commissions prior to the Master Plan finalization and project implementation.

D. Public Presentation: A public presentation prepared by the consultant team and organized by DCR was held virtually on Zoom on December 8, 2021. There were

DCR'S VISION

TO PROTECT AND RESTORE THE ECOLOGICALLY AND CULTURALLY SENSITIVE LANDSCAPE AS WE CREATE AN ACCESSIBLE AND SUSTAINABLE OUTDOOR DESTINATION THAT PROVIDES AN OPPORTUNITY TO EDUCATE PARK USERS ABOUT THE RICH AND DIVERSE ECOLOGY OF THE AREA.

Figure 1-10. View of Ponkapoag Pond and Bog from the Dam

Figure 1-11. The Ponkapoag Section offers a variety of recreation activities

approximately 84 attendees of which 69 were from the public and 15 were from DCR and the design team.

E. Master Plan Updates Presentations: The consultant team and DCR then met with the legislators from the towns of Randolph and Canton and state officials on May 17, 2022 to present Master Plan updates. A Working Group meeting was held on May 31, 2022 for Master Plan updates that incorporate comments from previous meetings. A public presentation prepared by the consultant team and organized by DCR was held virtually on Zoom on June 8, 2022. There were approximately 44 attendees of which 36 were from the public and 8 were from DCR and the design team.

Notes from site visits, meetings and public comments are located in Appendix B.

PART TWO
EXISTING CONDITIONS ASSESSMENT

2.1 | CULTURAL RESOURCES

BRIEF HISTORY

Native American Settlement from 12,000 Years Ago to 1620

Ponkapoag Pond has attracted people to its natural beauty and resources for over 10,000 years. It is an ancient landscape shaped by the retreat of ice age glaciers that has a remarkable biodiversity of plant and animal communities. Native Americans chose the pond as a favored place to camp repeatedly throughout the millennia between the end of the ice age and the arrival of European settlers in 1620. Within eastern North America, this period is conventionally divided by archaeologists into three major chronological periods of Native American cultural lifeways: Paleoindian (12,000-9,000 years before present), Archaic (9,000-3,000 years before present), and Woodland (3,000-400 years before present). The Archaic and Woodland periods are further divided into Early, Middle, and Late sub periods. These period distinctions are an archaeological convention to measure linear time and are not the only way people have related to these places and spaces over time. They are used here for simplicity of deep time presentation, but probably do not reflect the lived realities of people living around the pond over the past 10,000 years.

The initial settlement of New England by Native Americans in the Paleoindian period (12,000-9,000 years ago) included use of finely flaked, fluted lanceolate points for hunting. Sites from this period suggest that mobility was key and included large and probably loosely defined hunting and foraging territories, as well as maintenance of wide kinship ties that included trading or acquiring exotic stone for tool making often from hundreds of miles away. While archaeological sites from this early period are scarce, at least one significant Paleoindian site with multiple campsite locations has been investigated in the Canton area.

Figure 2-1. A depiction of Ponkaoag Pond on details from the combined 1830 town plans of Canton and Randolph, Massachusetts. (Source: Digital Commonwealth)

Throughout southern New England, Native American settlement becomes more evident and consistent during the Archaic period (9,000-3,000 years before present), as a mixed pine-oak forest was established, followed by an oak-hemlock forest by about 6,000 years ago. Settlement around major ponds and wetland systems occurs in the early part of the Archaic, and it is during the Early Archaic that the earliest Native American visits to Ponkapoag Pond have been documented through artifacts dating from that time. Settlement along river drainages also became consistent, with travel facilitated by dugout canoes and in later times Birchbark canoes. Riverine travel and settlement would characterize Native American communities for the following 8,500 years. Native lifeways included seasonal camps focused on abundant resources, including anadromous fish migrations in the streams, the hunting of deer, fowl and small game, and gathering plant resources, especially nuts and berries in season, as well as edible roots and seeds such as chenopodium. Ponkapoag was repeatedly used for camp sites throughout the Archaic period and can be considered a hub of Native American settlement.

The Woodland period (3,000-400 years before present) is marked by basic technological and economic changes, notably the production and use of pottery and a gradual shift to include food production (maize, beans, squash, sunflower, and other vegetables) by about 1,000 years before present. Hunting, fishing, shellfishing, and continued harvesting of wild plant resources continued in importance. Within Massachusetts generally, the Woodland period is best known in the coastal regions and along rivers. Ponkapoag continued to be utilized

by Native Americans throughout this period, but the occurrence of artifacts dating from the Woodland period seems to have diminished after 2,000 years before present, while coastal and riverine locales were inhabited with greater intensity.

Native American Settlement after 1620

Chickataubut was the Sac'hem of the Neponset Band of the Indigenous Massachusett people in 1620, which included the region that now includes the towns from Milton (Neponset) and Dorchester south to Plymouth, the Boston harbor Islands, and many other villages along the southeast coast. Chickataubut consented to the occupancy of Dorchester (occupancy, not sale, as evidenced by Dorchester's English inhabitants still seeking a deed from his son Josiah Wampatuck in 1666 (which they never received). Chickataubut, his people having been ravaged by the diseases brought by the English, died at Moswetusett Hummuck (Quincy) in 1633 of Smallpox. Before he sickened and died, in a treaty with the English he reserved Ponkapoag for his own people (Massachusett Tribe, 2019).

The Indigenous bands of Massachusett, along with the rest of the native population, took their names from the place where they dwelled. The people who dwelled at Neponset (the Neponsets) were forced to move to Ponkapoag and were then called Ponkapoags. The Massachusett continued their rule over all of the Massachusett Territories. Although the move to Ponkapoag happened under the rule of Kutshamikin, Wampatuck (Josias Chickataubut), son of Chickataubut, took up his rule when he came of age. Wampatuck, though raised to observe the religion of the Puritans, abandoned the religion as an adult and returned to the indigenous way of life. The Ponkapoags were not confined to Ponkapoag Plantation, but moved freely about their territories visiting and staying with different bands of the Massachusett (Massachusett Tribe, 2019).

Ponkapoag Plantation was a "Praying Town" of about 6000 acres established by missionary John Elliot in 1657 on the western side of Ponkapoag Pond for Christianized Native Americans. The inhabitants of the Plantation, numbering around 12 families or 60 people in 1674, continued to be mobile, trying to integrate more traditional foraging patterns with new activities oriented toward the neighboring colonial communities (Carlson 1987, Gookin 1674). These activities included the production of cedar shingles, timber, woven baskets, brooms, and other commodities for sale to colonists, as well as the sale of labor as itinerant construction workers. Prior to King Philip's War, no English settlers lived in the area that was to become Canton and it was one of the few areas in eastern Massachusetts at that time where native settlement was a prominent feature of the landscape. Agriculture, grazing, and fishing formed the economic base of the community. During King Philip's War (1675-1676), the Ponkapoag men were sent to Long Island in Boston Harbor and then to a fort at Bush Hill in Milton, Massachusetts. Following this, all of the Ponkapoag community was sent to Deer Island in Boston Harbor, where they were met with harsh conditions and meager resources (Carlson, 1987).

Following King Philip's War, Ponkapoag's Native American survivors returned to the Plantation in order to remain close to their lands around Ponkapoag Pond.

Figure 2-2. This ancient Native American quartz projectile point is from an archaeological project conducted by UMASArchaeological Services in the Ponkapoag area. (Source: Donta and Barker, 2009)

With the influx of colonial settlers, native population dwindled steadily throughout this period, with English settlers outnumbering Indian families by the early eighteenth century. European settlement into the town also resulted in encroachment onto the Ponkapoag Plantation, which was progressively reduced in size through this period, to about 1,500 acres in the 1720s and 700 acres by 1760 (Edens and Laden, 1993).

During the eighteenth century, some Ponkapoag men left the community to work as scouts and soldiers, and Ponkapoag documents suggest that it was primarily women and children who inhabited the Praying Towns toward the end of the century (Clements, 2005). A census of the Punkapoag Indians taken in 1784 determined that the tribe consisted of 21 males and 32 females. During the late 1700s and early 1800s, the guardians appointed for the Indians at Ponkapoag sold off the reservation land in parcels, with the last parcels being sold in 1827 (Edens and Laden, 1993). In 1857 the Ponkapoag guardians claimed that the "Punkapoag tribe of Indians is nearly extinct; only some fifteen or twenty and those mostly of mixed blood, remain" (Massachusett Tribe, 2019); despite the claim of the guardians, Ponkapoag family names from the 1800s include Bancroft, Burr, Burrill, Philbrick, Croud, Robbins, Davis, Black, Elisha, Hunt, Mooney, Moore, Myers, Roby, Smith, Stemberg, Hall, Jackson, Lewis, Manuel, Talbot, Thomas, Toney, Williams, and Foster. The modern day Massachusett Tribe at Ponkapoag is very much alive and is governed by two branches of tribal government. Information about the tribe can be found on their website: http://massachusetttribe.org/.

Figure 2-3. Mr. Rogers Camp at Ponkapoag (1927). (Source: Appalachian Mountain Club http://www.amcsem.org/hiking.ttbh_history.essays_04.pdf)

Figure 2-4. A boy takes a canoe out onto Ponkapoag Pond in the early 1900s. (Courtesy of the Historical Society. Source: Canton Citizen)

Euro-American Settlement

The towns of Canton and Milton were originally part of the Dorchester "New Grant" in 1636, which extended south to the boundary with Plymouth Colony and encompassed multiple towns including Milton and Canton. Milton was established in 1662 while the area which later became Canton was part of the South Precinct of Dorchester in 1715. Prior to 1640 Randolph was known as Cochato and claimed by Braintree in 1640; in 1708 it became part of Braintree's south precinct, and its third precinct in 1727. The incorporation of Randolph as a town took place in 1793 and Canton in 1797.

European settlement in Canton began along what is now Washington Street, first near Ponkapoag Pond, then on Packeen Plain and the East Branch of the Neponset River. Packeen Plain, later known as Canton Center, became the population center, while the East Branch of the Neponset River provided hydrological power for early mills and a major iron foundry. At Ponkapoag, Robert Redman leased approximately 118 to 125 acres of land from the Ponkapoag Indians in 1725. A number of land and mill privilege transactions took place throughout the eighteenth century, with Ezekiel

Fisher having established a mill on Ponkapoag Brook by 1769. Other farms were established or changed hands. Among family names in the deeds in the Ponkapoag Pond area was the Tucker family, who in 1869 sold Henry Pierce a property and residence that became Pierce's home. Pierce became the mayor of Boston and a congressional representative. In 1895 Pierce gave to the Commonwealth of Massachusetts, with life tenancy rights, over 833 acres, half of which today are in the Blue Hills Reservation and have been under MDC ownership since 1928.

Blue Hills Reservation

The Blue Hills Reservation was established in 1893 by the Metropolitan Park Commission (MPC) and since its beginning, the reservation has been the largest protected open space in metropolitan Boston. Land acquired or gifted to the MPC, including land from Henry Pierce, forms the Ponkapoag section of the Blue Hills Reservation. Within the Ponkapoag Pond study unit, three historic landscapes are present in whole or part: The AMC camp, the YMCA camp, and the Ponkapoag Golf Course.

The Ponkapoag Camp of the AMC was established in July 1921 by the AMC on the east side of Ponkapoag Pond. It includes four historic cottages that were built between 1922 and 1930. Twenty-six additional buildings and structures are also present. All buildings and structures in this landscape are AMC-owned. The cottages and the landscape itself are listed in the National Register. A Boy Scout Camp site is located in the northeast corner of this section established ca. 1953 (DCR, 2017).

The Ponkapoag Camp of the YMCA (formerly known as Camp Dorchester) was established as a summer camp by the YMCA in 1923 and has been in continuous use since that time. This complex currently includes numerous non-historic, YMCA-owned structures. Due to its continuous use, this site has potential historic significance (DCR, 2017).

The largest and most well known landscape in this section of the reservation is the Ponkapoag Golf Course situated on the west side of Ponkapoag Pond, a portion of which is within the study unit. The landscape includes buildings that pre-date the establishment of the golf course and are associated with the Redman Farm, including the Redman Farmhouse and corn crib, both constructed circa 1795. The original golf course, an 18-hole course, was designed by noted golf course designer Donald Ross in 1931. Nine more holes designed by Ross were developed in 1938 and in 1956 the second course was completed with the addition of nine holes designed by William Mitchell. Additional expansion has included the Club House/Locker Building, the pumps and drainage system, and shelters added along the course in 1969–1970 (Pearl, 2008).

ARCHAEOLOGICAL AND HISTORICAL RESOURCES

Information on the archaeological resources is presented at a general level, without specific locational information. This information is not made public in order to avoid unauthorized excavation and/or removal of archaeological resources. The DCR cannot present specific information about archaeological sites.

There are numerous ancient and historic archaeological sites that have been identified around Ponkapoag Pond, many of which are within the Ponkapoag Study Area. These sites span 10,000 years, with repeated, long-term habitation during the Archaic Period (9,000–3,000 years before present) and less intensive use during the Woodland Period (3,000-400 years before present), on a more or less continuous or seasonal basis. Considered as a whole, these ancient sites represent temporary and seasonal residences of the Native American community spanning several hundred generations.

Historical resources include stone field walls throughout the Study Area that date from the eighteenth and nineteenth centuries when Ponkapoag was actively farmed. The west side of Ponkapoag Pond, extending

west of the Ponkapoag Pond Study Area also includes buildings associated with Redman Farm, and a mill site (Ezekiel Fisher saw/grist mill site).

The Blue Hills Reservation Era is also important for its historical resources at Ponkapoag. The AMC Camp, which is located on the east side of Ponkapoag Pond, is listed in the National Register of Historic Places, with four of the cabins (three standing and one an archaeological foundation site) that date from the 1920s being listed as contributing resources. Other sites in the Study Area include several foundations, including former cabin pilings and foundations, a pad foundation, and outdoor fireplaces.

Ponkapoag Golf Course located to the west of Ponkapoag Pond is historically significant as the nation's oldest public golf course and was designed by the renowned golf course architect, Donald Ross in the 1920s and 1930s and opened to the public in 1936 as a nine hole golf course and which represent the front nine holes. Donald Ross was re-commissioned three years later to design an additional 18 holes. The final nine holes which represent the current back nine holes were designed by William Mitchell and opened for play in 1954. The Ponkapoag Golf Course is also included in the Massachusetts Historical Commission (MHC) state inventory of historic properties **(CAN.940).**

2.2 | NATURAL RESOURCES

TOPOGRAPHY

The Ponkapoag Pond study area exhibits varied topography as a result of glacial activity. At the center of the study area is Ponkapoag Pond itself, a shallow spring-fed kettlehole pond that is also classified as a Great Pond. The southern shoreline of Ponkapoag Pond is generally low to moderately sloped and is comprised of a generally low-relief fringe of freshwater and/or emergent wetland bordering on the pond which then transitions into an undulating forested upland. The landscape to the southeast of the pond consists primarily of a broad forested swamp with pit and mound topography that slopes moderately upward away from the pond in this location. The western end of Ponkapoag Pond is covered by an open, flat quaking bog. Areas landward of the bog to the west consist of an undulating and maintained golf course. The terrain to the north and west of the pond exhibits distinct variation with steep, rolling slopes and areas of exposed ledge with scattered boulders and glacial erratics.

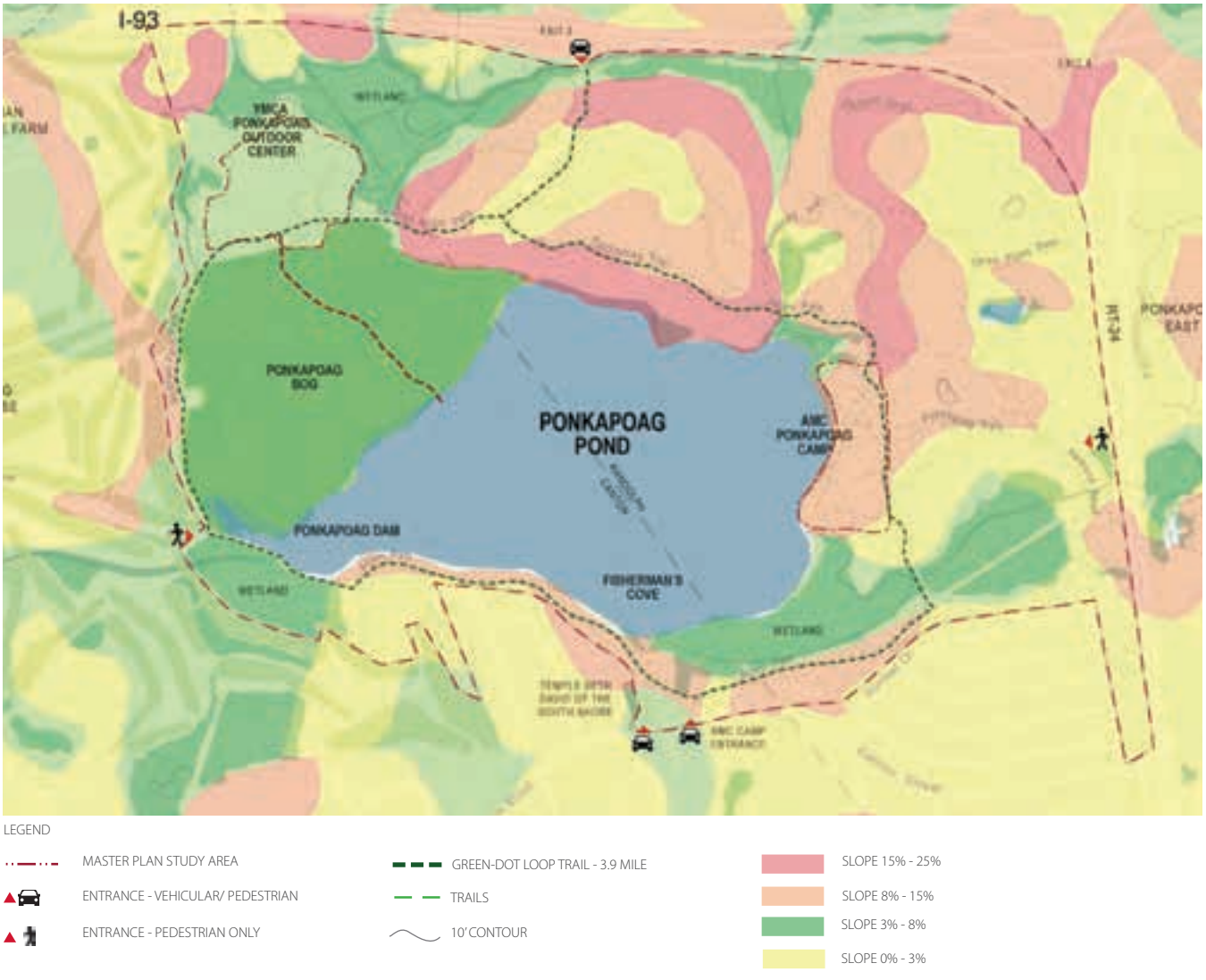

Figure 2-5. Slopes diagram (Source: MassGIS NRCS SSURGO- Certified Soil)

HYDROLOGY

Ponkapoag Pond is spring fed and is situated atop a medium-yield aquifer. The pond also receives water input via surface runoff from the surrounding properties and from the wetland system along the southeast edge of the pond. The pond is dammed along the southwest shore adjacent to the golf course. Ponkapoag Brook is a perennial stream that originates from the dam outflow and flows to the west and into the Neponset River. Forested and scrub-shrub wetlands sporadically border Ponkapoag Brook as it flows from the pond through the golf course. Duck Pool is a smaller spring-fed and precipitation fed pond located in the eastern/northeastern region of the study area. Duck Pool has no inlets or outlets. The Blue Hill River is the second perennial stream within the study area and is located along the northern boundary roughly parallel to Interstate 95. This perennial stream flows generally west to east and unnamed intermittent tributaries contribute to its base flow. Areas of forested and scrub shrub swamp border the Blue Hill River in the north and northwest portions of the study area. Groundwater in these wetlands is routinely at or near the ground surface. An unnamed intermittent stream flows west from Route 24 east through a forested swamp into Ponkapoag Pond. Hillside spring seeps are visible throughout the property. A number of potential and certified vernal pools are also present in the study area, and are characteristic of seasonally-inundated isolated depressions, either as a result of high groundwater or a perched/poorly drained area.

PLANT COMMUNITIES

The Ponkapoag Pond property contains a wide variety of plant communities, further illustrating that this area supports a great diversity of uplands and wetlands,

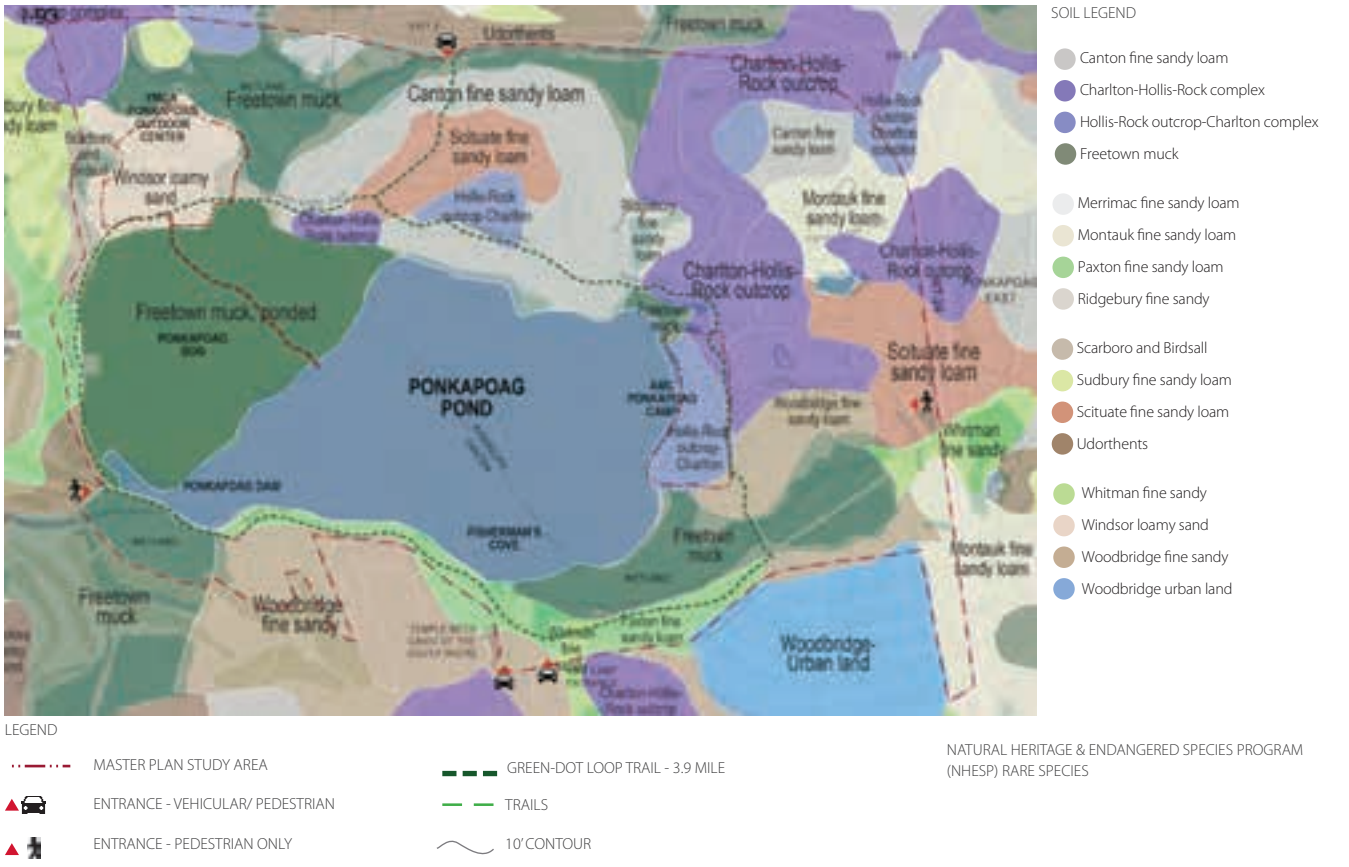

Figure 2-6. Soil classification map (Source: MassGIS NRCS SSURGO- Certified Soil)

which in turn, provide a large variety of habitat to support local and migrant species. The plant communities are depicted in Figure 2-7. There is a mix of upland and wetland forest types, with the majority of upland forested areas being dominated by a mix of hardwood oaks ***(Quercus rubra, velutina, and alba)*** and White Pine ***(Pinus strobus)***. Forested wetland areas were dominated by Red Maple ***(Acer rubrum)*** with the exception of the forested portion of Ponkapoag Bog, which is dominated by Atlantic White Cedar ***(Chamaecyparis thyoides)***. The non-forested portions of Ponkapoag Bog are dominated by species such as Peat Moss ***(Sphagnum spp.)***, Skunk Cabbage ***(Symplocarpus foetidus)***, Leatherleaf ***(Chamaedaphne calyculata)***, a variety of Sedges ***(Carex spp.)***, and Sheep Laurel ***(Kalmia angustifolia)***. Commonly observed shrub vegetation throughout the site included Lowbush Blueberry ***(Vaccinium angustifolium)***, Maple-leaf Viburnum ***(Viburnum acerifolium)***, Sweet Pepperbush ***(Clethra alnifolia)***, and raspberry ***(Rubus spp.)***. Commonly observed herbaceous vegetation across the site included Canada Mayflower ***(Maianthemum canadense)***, Wild Sarsaparilla ***(Aralia nudicaulis)***, and Starflower ***(Lysimachia borealis)***.

Approximately 12 dominant plant community types are present within the Ponkapoag Section, and their defining characteristics are summarized in Appendix A. P**onkapoag Pond and Bog Landscape Management Plan (LMP).** These native plant communities will serve as reference communities against which long-term management and planting activities may be guided. For instance, management activities within an upland white pine forest will target maintaining that specific community, and any planting or restoration efforts may seek to mimic the species assemblage present in that reference community.

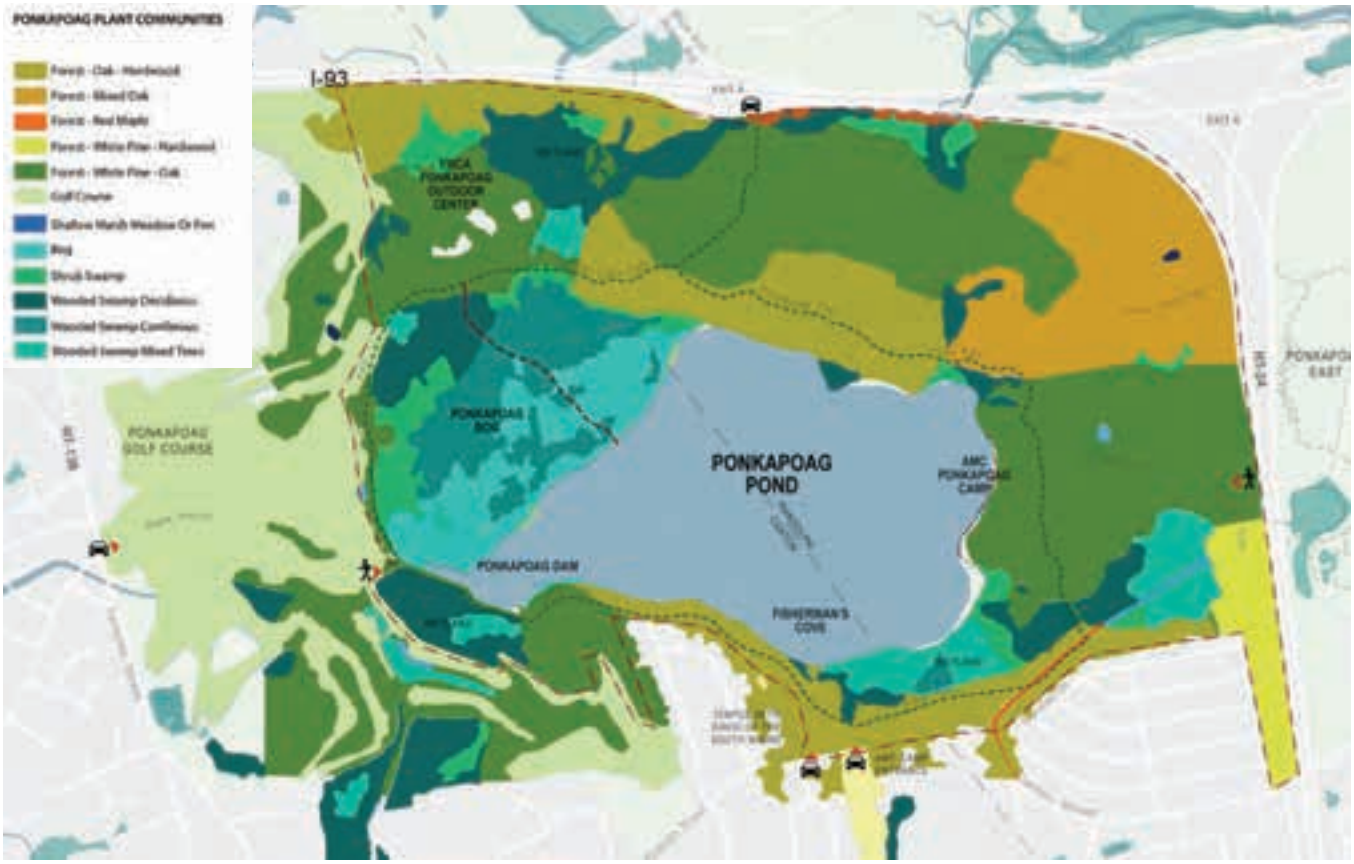

Figure 2-7. Plant communities

HABITAT COVER TYPES

Multiple habitat types were observed throughout the Ponkapoag Section, including transition hardwoods-white pine upland forest, large unfragmented landscape mosaics, small streams, shrub and forested swamps, lakes and ponds, riparian forest, vernal pools, peatlands and associated habitats, and marshes and wet meadows. A detailed discussion of these vegetation communities is provided in Appendix A. Landscape Management Plan.

RARE SPECIES

The Natural Heritage and Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife was consulted to determine if any records of rare, threatened, or endangered species exist within the property boundaries. As indicated in the Massachusetts Natural Heritage Atlas (15th Edition), Priority Habitat 1022 (PH 1022) and Estimated Habitat 767 (EH 767) are located entirely within the property. The site is home to five state-listed threatened or special concern insects, two state-endangered plants, one special concern mussel, and one state-threatened amphibian. See Figure 2-8 for state-listed rare species identified within the property.

Scienti c Name	Common Name	Taxonomic Group	State Status
Scheuchzeria palustris	Pod-grass	Plant	Endangered
Lycopus rubellus	Taperleaf water-horehound	Plant	Endangered
Callophrys hesseli	Hessel's hairstreak	Butterfly/Moth	Special Concern
Papaipema appassionata	Pitcher plant borer	Butterfly/Moth	Threatened
Enallagma daeckii	Attenuated bluet	Damselfly	Threatened
Enallagma pictum	Scarlet bluet	Damselfly	Threatened
Ligumia nasuta	Eastern pondmussel	Mussel	Special Concern
Ambystoma opacum	Marbled salamander	Amphibian	Threatened
Williamsonia lintneri	Ringed Boghaunter (Banded Bog Skimmer)	Dragonfly	Threatened

Figure 2-8. Table of nine state-listed species were identified within these habitat areas. The species listed above are protected under the Massachusetts Endangered Species Act (MESA, M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00). State-listed wildlife are also protected under the Massachusetts Wetlands Protection Act (WPA, M.G.L. c. 131, s. 40) and its implementing regulations (310 CMR 10.00).

INVASIVE SPECIES

The entirety of the Ponkapoag Pond loop trail, the YMCA and AMC camps, Fisherman's Cove, and the southern parking area located along Randolph Street were assessed for the presence of invasive species. Several invasive species were observed to be widespread throughout the entirety of this survey area, including Garlic Mustard (***Alliaria petiolata***), Multiflora Rose (***Rosa multiflora***), and Glossy Buckthorn (***Frangula alnus***). These species were most commonly observed growing along the disturbed areas along both sides of the loop trail as well as the southern parking area and Fisherman's Cove. A natural gas pipeline right-of-way is located adjacent to the loop trail within the southeast portion of the property, this area was dominated by additional invasive species such as Japanese Stiltgrass (***Microstegium vimineum***), Japanese Barberry (***Berberis thunbergii***), and Common Reed (***Phragmites australis***). Along the Ponkapoag Pond dam area within the western portion of the property near the golf course, invasive species such as Purple Loosestrife (***Lythrum salicaria***), Spotted Knapweed (***Centaurea stoebe***), and Reed Canary grass (***Phalaris arundinacea***) were observed. The areas surrounding the AMC camp located along the eastern shore of Ponkapoag Pond were largely free of any invasive species as the AMC and FBH has been implementing controls and managing the spread of these species well. Ponkapoag Pond itself is listed as impaired for non-native aquatic plants, specifically Eurasion Water Milfoil (Myriophyllum spicatum) and


Alliaria petiolata
Garlic Mustard


Rosa multiflora
Multiflora Rose


Frangula alnus
Glossy Buckthorn


Microstegium vimineum
Japanese Stiltgrass


Berberis thunbergii
Japanese Barberry


Phragmites australis
Common Reed


Lythrum salicaria
Purple Loosestrife


Centaurea stoebe
Spotted Knapweed


Phalaris arundinacea
Reed Canary grass


Acer platanoides
Norway Maple


Myriophyllum spicatum
Eurasion Water Milfoil


Cabomba caroliniana
Fanwort

Figure 2-9. Images of invasive plants found along Green Dot Loop trail, YMCA Outdoor Center , AMC Camp and Fisherman's Cove

fanwort (Cabomba caroliniana). It is assumed that other invasive non-native plants also exist outside of the immediate study areas and were not captured as part of this planning process. See Appendix C for the invasive species survey along Green Dot Loop trail, AMC and YMCA camps.

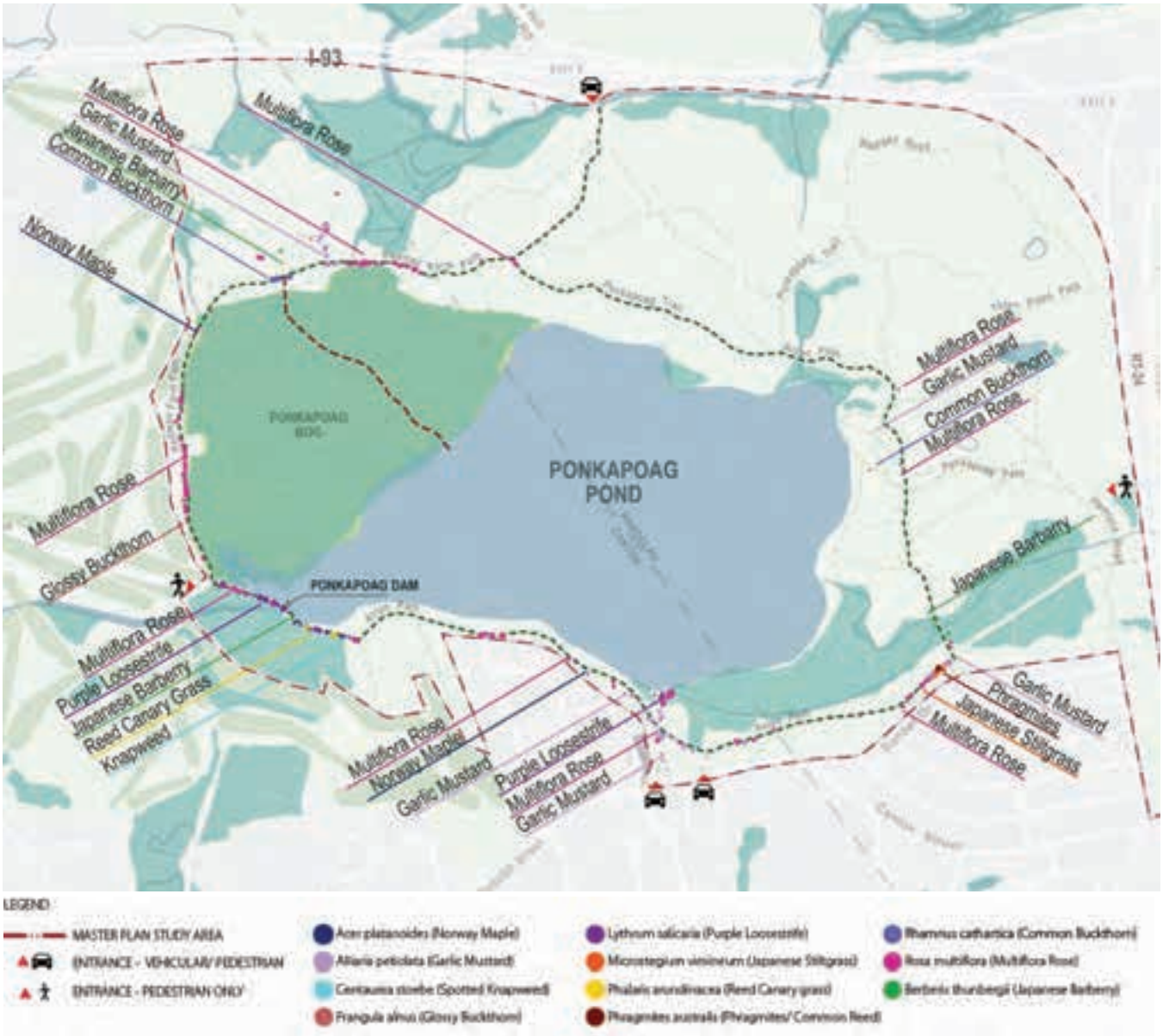

Figure 2-10. Invasive plants found along Green Dot Loop trail, YMCA Outdoor Center , AMC Camp, and Fisherman's Cove

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Figure 2-11. North entrance off I-93 ramp

Figure 2-12. South entrance at Fisherman's Cove

Figure 2-13. West entrance at Ponkapoag Golf Course

CIRCULATION ASSESSMENT

Entrances & Parking

The numbers below correspond to Figure 2-14. on the following page.

1. North Entrance: The north pedestrian and vehicular entrance to Ponkapoag Pond is located off the I-93 Exit 3 ramp with a park information kiosk and a vehicular gate. There are 11 parking spaces informally located on both sides of the entrance driveway prior to encountering the gate. The parking spaces are typically fully occupied during weekends which makes the narrow roadway difficult to turnaround causing safety concerns. A "No Parking" sign along the roadway is obscured by foliage and has not been enforced. During summer months, the vehicular gate is typically in an open position with a staff person limiting vehicular access to YMCA summer camp during pickup/drop-off hours. Only buses, parents and staff use this entry as their point of access and drive on Green Dot Loop trail for 3/4 mile to YMCA camp. There are no designated accessible parking spaces nor signage. The entrance signage and information kiosk at this entrance is set back and not visible to first-time visitors impacting one's arrival sequence, sense of welcome, and orientation.

2. South Entrance: The south vehicular entrance to Ponkapoag Pond is located on Randolph Street and is used by trail users and non-motorized boaters. This entrance is narrow and obscured by foliage from tree canopy and understory plantings and is lacking signage making it hard to identify and easy to drive past. A vehicular barrier gate is located between Randolph Street and the parking area and is open year-round.

The parking area is limited to 22 parking spaces and is characterized as rustic with parking knit in amongst the trees within the surrounding wooded area. An upper loop parking area consists of several head-in parking spaces with additional spaces located along the driveway, which also serves as a pedestrian walkway as it slopes down toward the pond, connecting to Green Dot Loop trail. As mentioned above, overflow parking

typically occurs on the Randolph Street roadway edge. The parking and pathway surfacing is loose gravel, in poor condition due to inadequate stormwater management and steep slopes resulting in potholes and erosion that adversely impact the accessibility of the path surface, adjacent natural areas, and the pond. Parking spaces are not standard dimensions but compact and lack sufficient backup space making parking and turning movements challenging and a safety concern. The current layout lacks a vehicular turnaround area as well as a trailer load/unload area for boaters. This entrance and pathway lack identification and wayfinding signage resulting in a lack of welcome and orientation and there are no designated accessible parking spaces nor signage.

3. AMC Ponkapoag Camp Entrance: The AMC Ponkapoag Camp vehicular entrance is located on Randolph Street approximately 400 feet east of the south entrance. A signalized crosswalk on Randolph Street is for horse riders and pedestrians. Access is restricted by a vehicular barrier gate with an access code made available only to paid AMC registered campers and day use visitors. Once through the gate, campers drive 3/4 mile on Green Dot Loop trail from this entrance to the AMC camp site at the east side of the pond (see Figure 2-14). This entrance lacks identification resulting in a lack of welcome and orientation.

4. West Entrance: The west entrance at Ponkapoag Golf Course consists of a 180-space public parking lot at the

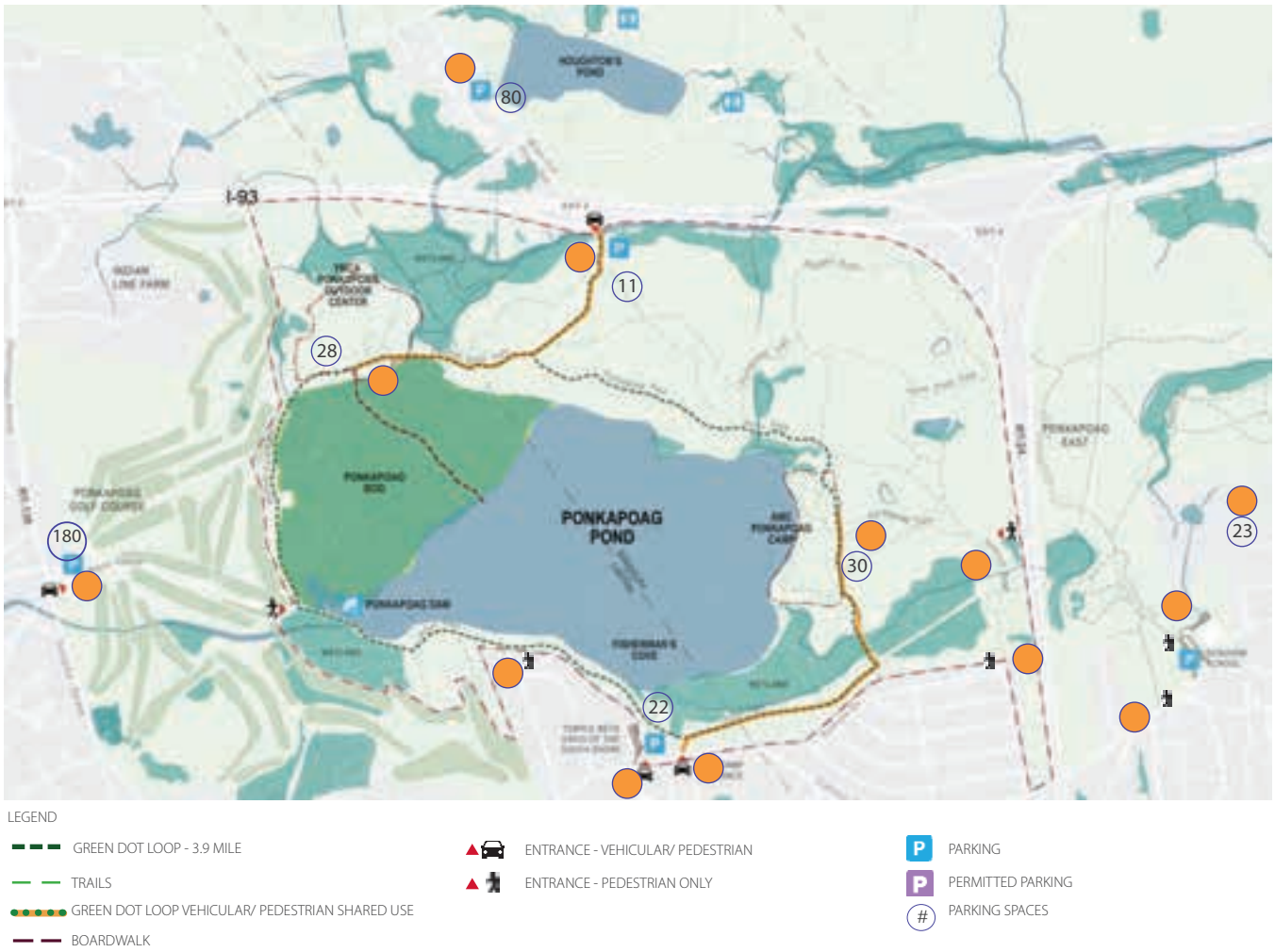

Figure 2-14. Park Circulation: entrances and parking lots

Golf Course. The parking area has been determined to be insufficient for the multiple users of the golf course, ice arena, and park trails. There are seven designated accessible parking spaces and signage.

5. East Entrance: The east entrance to Ponkapoag Section is a fire bridge/pedestrian bridge over Route 24 connecting users from Ponkapoag East Section to Ponkapoag Pond, its amenities and trail systems west of Route 24 via the Blue Hills Reservation Trail which terminates at Reed Street adjacent to the Donovan School. This is a pedestrian-only entrance without parking and lacking identification and wayfinding signage resulting in a lack of welcome and orientation.

Figure 2-15. AMC permit parking lot in front of the lodge

Figure 2-16. A small parking area adjacent to the lodge at YMCA camp

6. AMC Ponkapoag Camp Permitted Parking Lot: AMC Ponkapoag Camp located internally on the east side of the pond has a total of 30 parking spaces limited to registered campers and staff parking only. Parking resources include a small parking area adjacent to the lodge and restrooms, several spaces adjacent to cabins and a day-use parking lot providing parking spaces for cabin and tent users. The day use parking lot location is an aggregate surface which interrupts the Green Dot Loop and is located on a slope resulting in erosion gullying and sediment runoff to adjacent natural areas.

7. YMCA Camp Permitted Parking Lot: There are a total of 28 parking spaces at the YMCA Ponkapoag Outdoor Center for summer camp staff and buses. Permitted users drive 3/4 mile from the north entrance to the camp site, northwest of the pond.

8. Houghton's Pond Site 5 West Parking Lot: The paved parking lot is located outside the study area, west of Houghton's Pond on the Blue Hill River Road, 1/3 mile from the north entrance of Ponkapoag Section. This lot's capacity is 80 parking spaces and also serves as overflow parking for Ponkapoag Section. However, a lack of a continuous, accessible pedestrian connection over the I-93 highway poses safety as well as logistical concerns.

9. North Randolph Little League Parking Lot at Ponkapoag East: The DCR owned parking lot, outside of the study area, includes 23 parking spaces including two accessible parking spaces. It is leased to the Little League but currently used as paddocks by the adjacent equestrian center. Visitors could access Ponkapoag Section by trails and the east entrance.

10. Donovan School Parking Lot: The parking lot is owned by the Town of Randolph. There are trail heads at the northern and southern end of the parking lot to access Ponkapoag and Ponkapoag East Sections.

Trail Connections

There are approximately 12.6 miles of official trail and 0.8 miles of informal trails in Ponkapoag Section. Green Dot Loop is a well-used trail that circles the pond, including a shared-use access road from the north entry to YMCA camps. The southeast portion of the Green Dot Loop is also a shared-use road for accessing AMC camp. Most of the narrower, more typical recreation trails are at the northern upland forest. The Ponkapoag Trail system connects to other sections of the reservation, as well as to adjacent residential neighborhoods along Randolph Street and Canton Street. (See Figure 2-14, number 11.) The fire/pedestrian bridge over Route 24 provides a connection to trails in the Ponkapoag East Section. The Houghton's Pond Section may be accessed using Ponkapoag Trail. The unofficial trails connecting into adjacent resident's private lots or creating by users should be blocked off.

TRAIL CHARACTERISTICS AND ACCESSIBILITY

Green Dot Loop

The Green Dot Loop is a 3.9-mile perimeter loop trail around the pond connecting to the north, west and south entrances. Two segments of the trail share use with vehicles for access to the YMCA and AMC camps. (See Figure 2-14).

The Green Dot Loop trail is relatively level (slope is less than 5%) consisting of a compacted gravel surface along the south and west of the pond (see Figure 2-22, PT-1 clockwise to PT-2). The trail meanders along wetland edges and wooded areas in close proximity to residential neighborhoods, as well as between the golf course and Ponkapoag Bog. The westerly trail is routed east of the golf course and then crosses through the middle of the fairway at Course 2 hole #3. At this section, conflicting uses between golfers and trail users frequently result in unsafe situations.

Although the trail is in close proximity to the pond shoreline, the water is not visible due to the presence of dense wooded areas. The only area that allows good

Figure 2-17. General characteristics of Green Dot Trail at the southbound.

Figure 2-18. Green Dot Trail with drainage problems

Figure 2-19. Open view at Dam

Figure 2-20. General characteristics of Green Dot Trail at the northbound.

Figure 2-21. General characteristics of Northern Shared-use Access Road

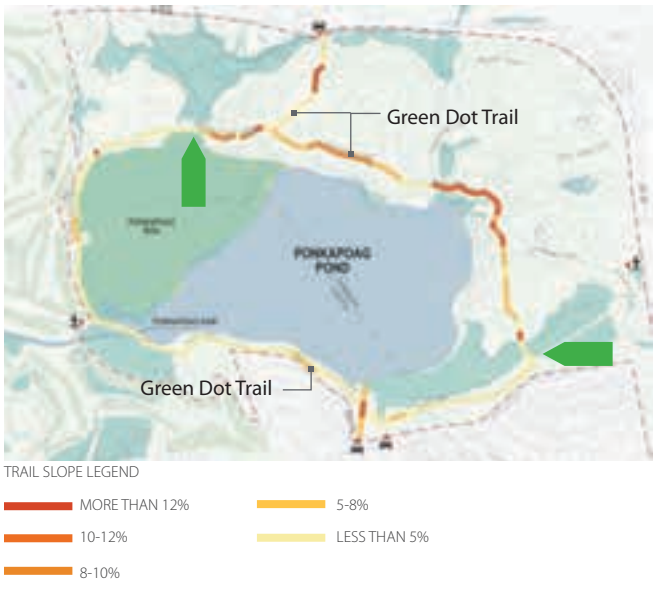

Figure 2-22. Trail slope diagram

view of the water sheet with Blue Hills in the background is adjacent to the dam and at Fisherman's Cove. Limited visual and physical access to the pond results in users creating their own connections via unofficial trails adversely impacting the understory and ecology of the woodland and destabilizing the pond's edge.

The terrain rises 90 feet above water level as the trail progresses northeast of the pond (see Figure 2-22, PT-2 clockwise to PT-1) where the Green Dot Loop trail narrows through hilly natural terrain that results in a series of topographic changes consisting of steep slopes. The trail surface is compacted native soils consisting of large aggregate. While the natural terrain and trail surfacing make accessibility challenging and impractical, this section of trail presents a unique upland forest walking/hiking experience compared to the flatter portions of the trail bordered by wetlands to the south.

Multiple segments of the Green Dot Loop are adversely affected by poor drainage resulting in muddy/wet path conditions that diminish accessibility and usability. As trail users traverse off the trail to avoid wet areas, they widen the trail resulting in loss of vegetation, habitat alteration and soil compaction. Erosion also degrades water quality of the pond and adjacent wetlands. In addition, nitrification from stormwater runoff and pollutants from the developed neighborhood and golf course represent a threat to the sensitive wetland and bog ecosystem.

Northern Shared-Use Access Road

The northern shared-use access road is part of the Green Dot Loop trail and provides vehicular access to the YMCA camp. After passing through the entry gate, it proceeds relatively flat for a short distance before steeply rising to a high point where it connects with the Green Dot Loop. The road and trail surface is compacted gravel with periodic evidence of erosion and standing water as a result of natural terrain and impacts of repeated vehicular use in the form of summer camp traffic and snow plowing during the winter. Speeding cars during the camp hours are a problem along this

road that enforcement by park rangers and YMCA staff. Better park regulation and signage at the entrance, as well as shared-use and speed limit signage are required.

Other Woodland Trails

The majority of the recreation trails around the pond are located in the northeast quadrant of the upland forest. The trails are 2 to 3 feet wide with the presence of tree roots and rocks creating uneven surfaces. Trails usually follow natural contours and wind through densely-wooded areas with dense ground cover on both sides of the trail. Mountain bikers and horse riders create unofficial trails that result in loss of vegetation, habitat alteration, and soil disturbance and compaction.

Boardwalk at Ponkapoag Bog

In the 1930s, Professor William J. V. Babcock, from Eastern Nazarene College in Wollaston, studied "invasion and succession of plant life" at the Ponkapoag Bog in the Blue Hills. He and his students visited the site in the winter, when the frozen ground allowed them to venture out onto the usually soggy expanse. In 1947, Babcock and Nazarene volunteers, dressed in hip boots, carried fallen logs from the surrounding landscape onto the bog to create a makeshift boardwalk, which made the sphagnum moss bog accessible for year-round study by walking on the floating log trail over the bog in early spring before things thawed too much.

The current boardwalk, approximately 2,000 feet long, winds through small islands of cedars and skunk cabbage on the bog's floating mat of sphagnum moss and emerges at the open water of the pond. The the boardwalk is seasonally submerged below the water surface and is not passable without water gear. Typically, boardwalk users are able to walk the first half of the boardwalk and beyond that requires waterproof boots or hip waders.

Figure 2-23. General characteristics of woodland trail

Figure 2-24. View at the end of Ponkapoag Bog boardwalk

Figure 2-25. Swimming dock at AMC Ponkapoag Camp

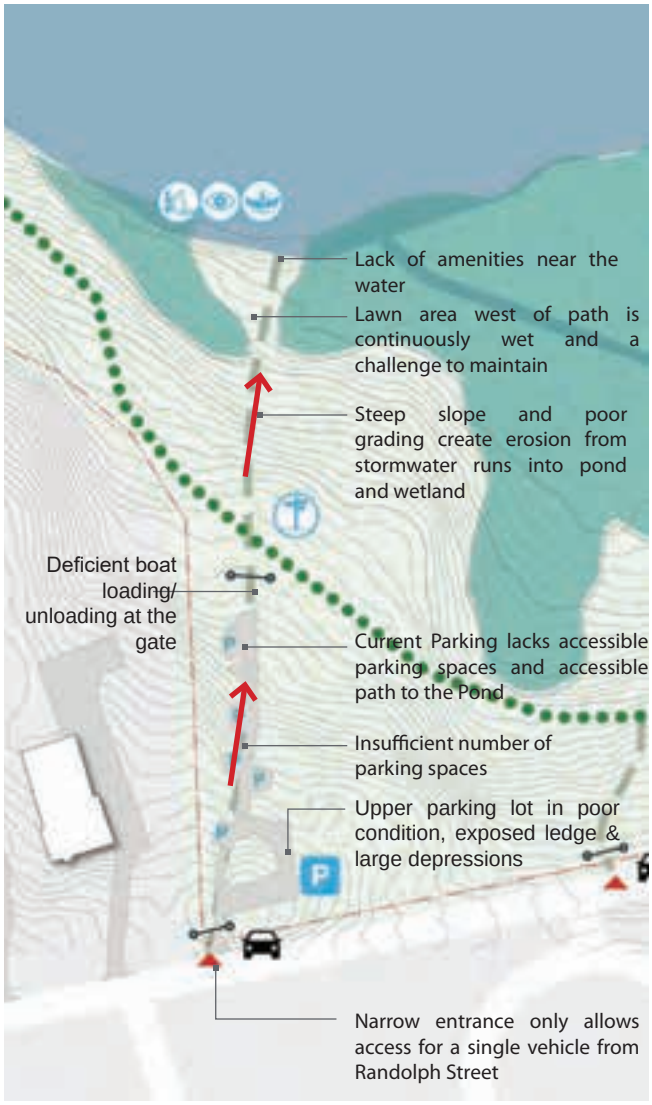

Figure 2-26. Fisherman's Cove issues

Figure 2-27. Deficient boat loading/ unloading at the gate

PARK FACILITIES

Ponkapoag Section offers a wide range of amenities and facilities that support a diverse range of recreational activities, however the majority of which are not open to the general public but restricted to AMC Ponkapoag Camp and YMCA Ponkapoag Outdoor Center users.

- The AMC Ponkapoag Camp facilities include a main lodge building, 19 cabins, four tent sites, two outhouses, one pavilion, a picnic area, a swimming area with life guard oversight, and a boat launch dock. The detailed facility assessment is in Section 3.7. The facilities are open year-round and available for registered campers or users with paid day-use passes.
- The facilities at the YMCA Ponkapoag Outdoor Center include a spacious activity lodge, several small cabins, two outdoor swimming pools, three covered pavilions, a basketball court, an archery range, high and low ropes courses, a stage, a picnic area, and an open field. The detailed facility assessment is in Section 3.8. The facilities at the YMCA camps only open during summer months and are restricted for registered campers and staff.
- Fisherman's Cove provides access to Ponkapoag Pond for fishing and boating. There is no designated boat launch ramp at the shoreline and vehicular access to the pond is restricted inland of the Green Dot Loop with a vehicular gate which is typically locked. The tight parking space layout and paved area make parking, vehicular turning movements, and circulation inefficient and unsafe. The placement of gate and bollards make it a challenge for people to navigate past or around when bringing a canoe or kayak to the pond.
- Ponkapoag Bog boardwalk is a floating boardwalk winding through Atlantic White Cedar Bog and terminates at open water in the pond. The majority of the boardwalk is typically submerged below the water surface and is not passable. The narrow wood plank composition makes the boardwalk unstable and difficult for two people to pass by

each other. It is common for visitors to frequently misstep onto adjacent vegetation having a profound impact on the sensitive ecosystem. This type of construction is also not ADA accessible.

- Ponkapoag dam shoreline is suitable for fishing. In spite of the diverse recreational opportunities and various facilities offered at Ponkapoag Pond, there are few facilities open to the public and free of charge, and these facilities are not fully accessible and are in need of improvement. Listed below are additional facility related issues observations within the Master Plan area:
- Lack of accessible site amenities, such as benches, picnic tables, etc.
- Lack of publicly accessible picnic areas
- Limited viewing opportunities of the pond and surrounding Blue Hills Reservation landscape
- Lack of access to the pond
- Limited accessibility on the floating boardwalk resulting in impacts to the sensitive habitat

Figure 2-28. Ponkapoag Section facilities and activities

Figure 2-29. Rutting and erosion along the path all the way down to the water at Fisherman's Cove

Figure 2-30. Pockets of ponding along the Green Dot Loop trail

RECREATION ACTIVITIES

In addition to the recreation activities at the YMCA and AMC camps, the extensive trail system offers walking, hiking, horseback riding, jogging, nature study, dog walking (on-leash), mountain biking, cross-country skiing, and snowshoeing for all age groups and is open to the public year-round. Wildlife watching, fishing, and boating are also popular activities in the park. Trail activities overlap and interact in a variety of ways. Some activities are compatible while others are competitive, which creates conflict between users, such as hiking, horseback riding, and mountain biking on narrow trails. During wintertime, cross-country skiers around the Green Dot Loop trail encounter snow removal vehicles clearing snow on the access road to the YMCA camp for fire truck access.

When park users are not following park rules, such as going off of official trails, trampling natural areas to create new trails, or unleashing dogs, these behaviors contribute to the degradation of the natural environment, resulting in vegetation loss, soil compaction, erosion, muddiness, degraded water quality, and disruption of wildlife.

INFRASTRUCTURE

Stormwater Infrastructure

The Ponkapoag Pond area consists of a combination of sloping and flat terrain with the majority of the area sloping at varying degrees of steepness towards the pond. Most of the areas from higher ground to the pond sheet flow in the direction of the pond and flow across the Green Dot Loop that surrounds Ponkapoag Pond. Where areas of stormwater collect and concentrate, there are occasional culverts and small bridge crossings under the Green Dot Loop. There are pockets of ponding along the trails where shallow low points exist along with areas of rutting from concentrated stormwater either running along or across and down the trail. There are no Best Management Practices to address stormwater conveyance or treatment.

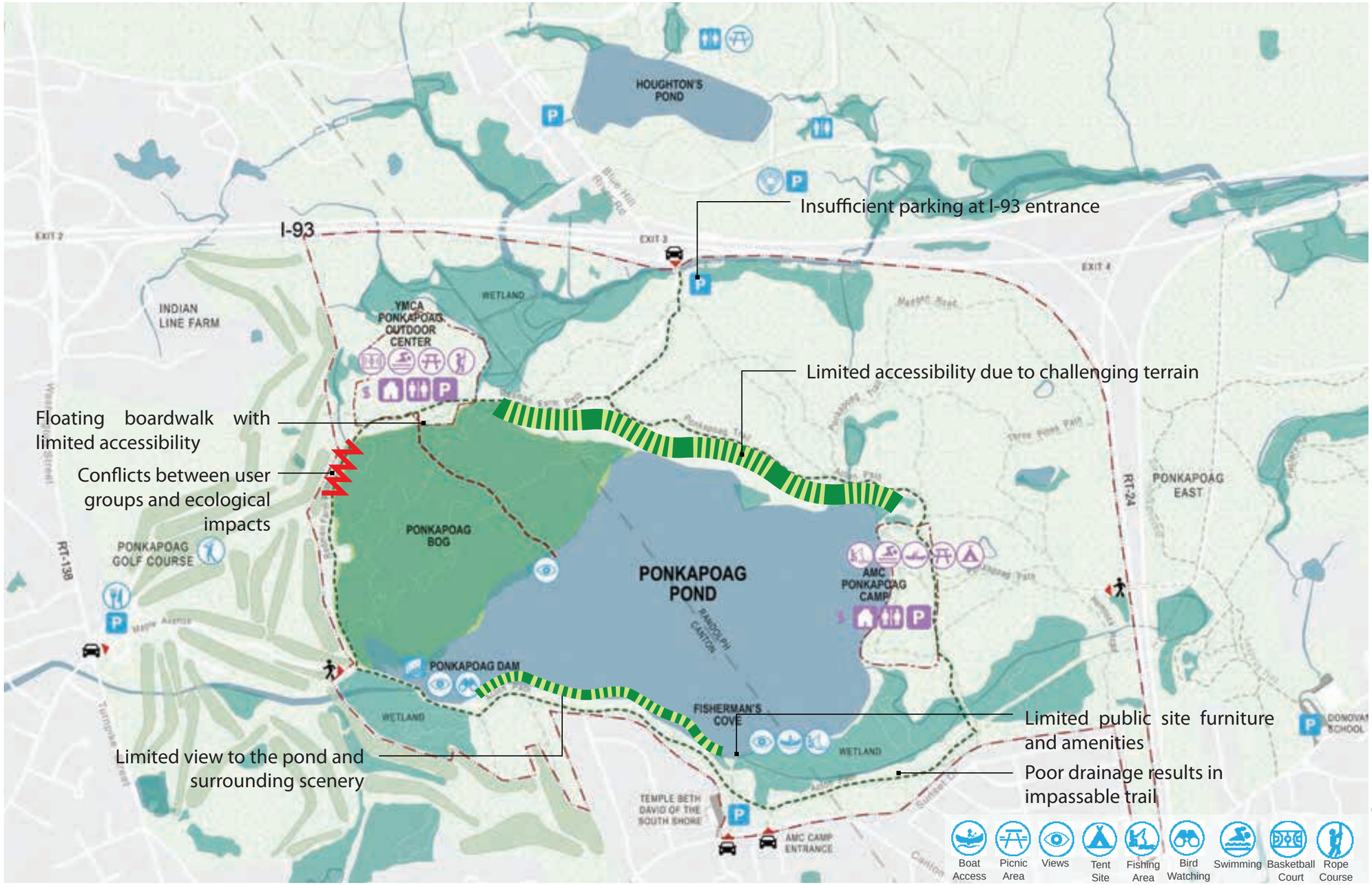

Figure 2-31. Existing Visitor Experience Issues and Observations

At Fisherman's Cove, there is a long gravel path that extends from the access road at Randolph Street down to the pond. Rutting along this path is evident through the parking area and along the path all the way down to the water.

At the Ponkapoag Pond Golf Course, stormwater flows from the northern portion of the golf course in the direction of the cedar bog.

Ponkapoag Pond is controlled by a dam located at the southwest corner. A weir controls the flow out of the pond towards the west as it splits the golf course.

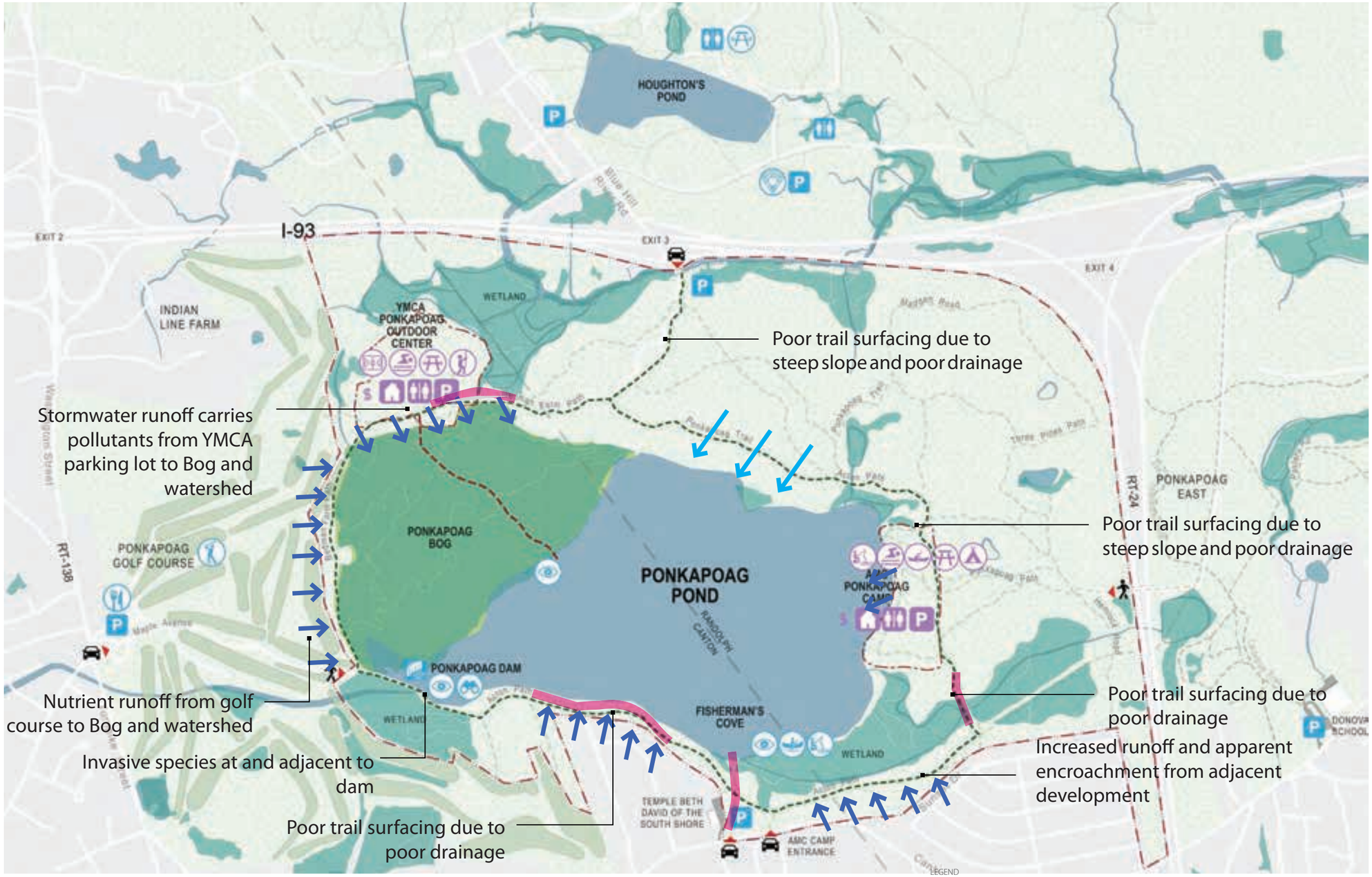

Figure 2-32. Existing Environmental Issues and Observations

2.4 | AMC PONKAPOAG CAMP

SITE ASSESSMENT

The Appalachian Mountain Club (AMC) Ponkapoag Pond Camp was established in 1921 as a weekend camp site near Boston that provides boating, fishing and other outdoor recreation opportunities for members. This land, even then, was part of the Blue Hills Reservation, and negotiations were begun at once with the Metropolitan District Commission for the privilege of establishing an AMC camp there.

The camp site is situated in a wooded area at the east end of the pond on a knoll overlooking the pond and between wetlands to the north and south. Visitors enter from the Randolph Street gated entrance and drive on the Green Dot Loop trail for 3/4 mile to the camp. After reaching the high point at the east of the pond, instead of going down slope along the trail, visitors turn left and arrive at the parking lot in front of the camp lodge.

The AMC Ponkapoag Camp facilities include one main lodge building, 19 rental cabins, one nature center, one cabin for the year-round camp caretaker, one cabin used by the summer caretaker, two tent sites, and outhouses. Four historic cottages built between 1922 and 1930 are listed in the National Register which are Spang, Folsom, North, and South cabin. South cabin was dismantled due to structural failure and only the stone chimney remains. Site amenities include a picnic area, an outdoor fire pit, a swimming area overseen by a life guard, and a boat launch area. The facilities are open year-round and are available for registered campers or users with day-use passes.

Missionary Point is located at the southern tip of the camp and includes one pavilion, four tent sites, a kayak storage rack and a boat launch dock. This area is scheduled and managed by the AMC, which operates a Youth Opportunity Program (YOP) during the summer.

The camp is operated and maintained to AMC's theme of being "purposefully rustic". Non-potable water from a nearby well is provided to the lodge kitchen and a faucet outside of the lodge for washing dishes. Limited electricity is used in the lodge by a propane-

fired generator that primes a battery-operated electrical system. There is no shower facility on site.

Each cabin is assigned a single parking space. Due to the topography and site challenges specific to each location, some cabins have their assigned parking space adjacent to the structure, while others have an assigned parking space at a more distant parking lot. A day-use parking lot located on a steep slope on the Green Dot Loop trail is for overflow parking.

Lease Agreement

Today, this camp site is part of a lease agreement for use of the site between the Commonwealth, Department of Conservation and Recreation, who owns the land and the AMC, who owns and maintains the structures and facilities and maintains the site including the shared Green Dot Loop trail/roadway between the AMC entrance on Randolph Street and the AMC camp. The lease for AMC camp is approximately 18 acres, but there is no current delineation or boundary of the lease site limits.

Utilities

A shallow well located behind the generator house is provided non-potable water at the lodge kitchen and a faucet outside of the lodge for washing dishes. Wastewater from the lodge sink drains to a small drywell under the lodge, and bathroom sinks and toilets drain to holding tanks that are pumped out regularly.

Figure 2-33. AMC Ponkapoag Camp site plan - existing site observation and issues

Figure 2-34. AMC cabin in the wood and overlook Ponkapoag Pond

There is a small propane fired generator used for pumping water to the buildings and it also provides residual electric power for battery charging and general-purpose power to the lodge. The site presents many challenges for small scale alternative sources of on-site electric power generation. Due to structural carrying capacity of existing structural roofs, thick conifer forestation, environmental concerns, and geography, the site would need additional investigation for the application of a small combination of wind, roof, or ground mounted (pedestal) PV systems close coupled with integral battery storage.

Figure 2-35. Swimming area

Figure 2-36. Picnic area adjacent to the lodge

Figure 2-37. Stair and retaining wall at the swimming area

Figure 2-38. non- accessible path to a cabin

Site Issues

1.The trail surfaces within the camp area are a mixture of compacted gravel surfacing and native soils. Most trails slope from east to west toward the pond with or without steps. There are a limited number of accessible routes among camp facilities due to varied and sometimes steep slopes of the natural terrain. The majority of the camp site slopes exceed 5% and are not compliant with Forest Service Trail Accessibility Guidelines (FSTAG) and Outdoor Recreation Accessible Route (ORAR) standard.

2. There is a non-accessible path to the swimming area /boat launch dock area as steep slopes are present as the terrain drops off precipitously toward the pond. A series of steps built into the slope help control erosion on some paths toward the water but limit accessibility.

3. There are no accessible parking spaces in front of the lodge.

4. The day-use parking lot is unsightly and improperly located on a sloping site which interrupts the Green-Dot Loop and overuse results in poor surface conditions to stormwater runoff and erosion which is adversely impactful to the surrounding natural areas.

5. The Missionary Point site including the pavilion, boat storage, and tent sites is only scheduled for use during summer months. This is a missed opportunity to take advantage of making full use of the amenities year around.

6. The trails running parallel to the contours are adjacent to a steep slope. Yellow rope is installed along the trails as visual warning but can't prevent people from falling.

7. The site pathways, grading, and drainage don't exhibit Best Management Practices visible to address capture, conveyance, and treatment of stormwater. Evidence of stormwater rutting was present along existing trails as a result of concentrated flow from stormwater runoff. Steep slopes are present throughout the camp, primarily along the western portion of the camp as the terrain drops off towards the pond. A series of steps controls erosion on some paths toward the water, while other areas are roped off where steep slopes exist to deter pedestrian circulation and minimize impact to the natural environment.

Figure 2-39. View of the Pond from AMC camp swimming area

BUILDING ASSESSMENT

The location and general layout of the AMC Ponkapoag Camp within the Blue Hills Reservation dates back to its establishment in 1921 by way of formal agreement between the Metropolitan District Commission and the Appalachian Mountain Club. The three oldest of the surviving cabins were constructed in the 1920s and are currently listed on the National Register of Historic Places. The Camp's main lodge and many of the other cabin structures are likely also eligible for listing given their post-war age.

The largest of the Camp's existing structures is the Lodge, which serves as the heart of the camp. Surrounding the Lodge are 19 guest cabins (including the historic cabins), several support structures (including a caretaker's cottage, one cabin used by the summer caretaker) and various outdoor amenities and spaces. The camp's range of structures all suffer from deferred maintenance and/or a general lack of universal accessibility, with most requiring some degree of upgrade and/or stabilization. In select cases, full replacement of a structure may be warranted, either because of existing material/structural degradation, or the inability to accommodate accessibility in instances where it is important or required (e.g., restroom facilities).

Priority projects based on the AMC's recent 2021 assessment of the camp include upgrades to the Lodge and Sheldon Cabin, which has served as the current caretaker's residence for more than forty years. Moreover, the Department of Conservation and Recreation's commitment to universal accessibility and to a sustainable future prioritizes additional projects such as accessible restroom facilities and on-site renewable energy installations for solar electric and solar hot water.

Fourteen of the camp's cabins are available for year-round rental and come outfitted with wood-burning stoves. Five of the nineteen existing cabins are only available during the summer. The Lodge, with working electricity for only a few hours each day, is open from the first Monday in July to Labor Day each year. The camp currently offers limited non-potable water, electricity, trash receptacles and potable water to renters and maintains a carry-in, carry-out philosophy. It also currently offers no accessible accommodations.

The ambiance of the AMC Ponkapoag Camp can be characterized as "purposefully rustic", which is considered an important attribute to preserve going forward. General maintenance of the camp is currently provided by volunteer work parties.

Figure 2-40. The Lodge and historic North Cabin at the heart of the AMC Ponkapoag Camp

AMC Ponkapoag Lodge

The Lodge is an approximately 1,150 square-foot, single-story wood-framed structure at the heart of the camp. An early 1935 camp map shows the Lodge in it's existing location, suggesting that the existing structure may contain original material dating back to that early period. Further materials analysis would be required to determine the specific age and condition of the Lodge's component parts and materials, but evidence suggests that at least some part of the existing Lodge may be more than fifty years old and therefore it may be eligible for listing on the National Register of Historic Places.

An initial conditions assessment points to the need for a renovation to address deferred maintenance and to prevent the Lodge from falling into disrepair. Examples of elements in need of repair or replacement include the Lodge's asphalt roof, T-111 exterior siding that is currently de-laminating, hinged awning windows, which are heavy and unsafe to use in their current configuration, and systems upgrades, such as a new fire alarm system, new lighting, and power receptacles. An additional area of concern is the Lodge's back of house kitchen. Currently only available to the summer manager for personal use, the kitchen has dated cabinetry, counters, appliances, and lighting, as well as a lack of hot water, an existing refrigerator that is run off of a diesel generator, and limited electricity.

As an assembly occupancy space, and the camp's main social hub in the summer, universal accessibility would be required as part of any substantial renovation, including establishing accessible routes to the Lodge's main entrance from parking and other areas of the camp. Adjustments to deficient door thresholds and clearances at door openings would be required to bring the structure into compliance.

Figure 2-42. The Lodge's main social space

Figure 2-41. The AMC Ponkapoag Camp lodge

Figure 2-43. Uneven settlement of structural elements

Restroom Facilities

The AMC Ponkapoag Camp's restroom facilities consist of three, unconditioned, single-story shed buildings located to the east of the Lodge. All three are effectively "outhouses" with toilet holding tanks requiring periodic pumping and non-potable cold water, seasonal sinks. Wood-plank ramps provide access to the interiors, although the slope of the ramps, non-code compliant railings, and lack of landings and proper push/pull-side clearances at the doorways collectively present a significant accessibility challenge. Dimensional limitations may also restrict accommodation of a code-compliant restroom on the interior.

The buildings all exhibit signs of structural failure, with uneven settlement visible at the existing septic tank base and CMU footing elements. Located along a steep slope, the surcharge of the hillside is slowly moving these foundation elements out of level. Existing settlement is significant enough to suggest that full building replacement may be a more cost-effective approach than stabilization and repair.

Figure 2-44. The Camp's restroom facilities, with men and women facilities at left and right and a storage shed is in the center.

Sheldon Cabin and Storage Shed

Sheldon Cabin has served as the permanent home of the AMC Ponkapoag Camp's caretaker since the early 1970s. The single-story, wood-framed structure is roughly 650 square feet (SF) in total, including a 170 SF enclosed porch that serves as the cabin's living room and a second, 200 SF screened porch that serves as a seasonal living space. A small, 100 SF storage shed is found in close proximity to the cabin.

Sheldon Cabin's current living conditions are rudimentary. A wood stove is the primary source of heat. A propane generator provides power for back-up heat and to run a refrigerator, a c. 1925 stove, a few lights, and a television. There is no running water and potable water jugs are used at the kitchen sink for general cleaning and dish washing. The cabin also has a chemical toilet. The exterior conditions of the cabin and shed are generally stable. There is evidence of localized wood rot and the shed's T-111 cladding needs to be replaced. On both structures, gutters, downspouts, and roofs are all approaching the end of their service lives.

Figure 2-45. Sheldon Cabin's accessory storage shed showing cisterns for non-potable rainwater collection. Also shown are potable water jugs for drinking water and a propane tank used for heating/cooking.

Figure 2-46. Sheldon Cabin as the current caretaker's permanent home

Figure 2-47. And undated photo of Folsom Cabin from the Massachusetts Historical Commission archives showing the cabin's "skirt" of vertical logs beneath the structure's entry porch.

Historic Cabins

On September 25, 1980, the AMC Ponkapoag Camp's four surviving log cabins dating back to the 1920s were added to the National Register of Historic Places (North, Spang, Folsom, and South). Three of those original cabins remain today, with South having been dismantled in 2005 due to structural failure. All that remains of South today is its stone chimney. A fifth log cabin, Corbin, burned down in the early 1980s, likely before the aforementioned listings were formalized. Remnants of Corbin's stone foundation can still be seen adjacent to the camp's beach front area.

The historic cabins were constructed out of Chestnut logs. These logs are still visible in the cabins today, although alterations over the years have modified the

Figure 2-48. Folsom Cabin today

original form and materials to varying degrees. All three remaining cabins are in need of stabilization and repair. Of the three, Folsom shows the most significant signs of structural failure from insect infestation and moisture, most visible in the chestnut log structural elements. Damage to North and Spang's log structures appears to be less significant, although there are signs of similar deterioration. Original window and door elements as well as roofs, wall cladding, and trim are also in need of critical repair and restoration at all three cabins. A detailed assessment of original and replacement materials will be needed to determine best preservation strategies that follow the Secretary of the Interior's Standards for Preservation. This assessment should be paired with a near-term treatment and stabilization plan to prevent further degradation.

Figure 2-50. Evidence at Folsom of insect infestation within Chestnut logs

Figure 2-49. Folsom's signs of material degradation due to moisture and insect infestation.

Figure 2-51. Structural degradation of Folsom cabin's support posts.

Figure 2-52. Spang's interior condition with exposed chestnut logs. Camp volunteers provide regular maintenance of the chinking between logs.

Figure 2-54. Spang's original log structure as seen behind its later front porch addition

Figure 2-53. Spang cabin with the original log structure seen at rear.

Figure 2-55. The remnants of South Cabin, which was dismantled in 2005 but remains on the National Register of Historic Places

Figure 2-56. Foundation remnants of Corbin, a fifth log cabin that burned to the ground in the early 1980s.

Figure 2-57. North Cabin's entrance

Figure 2-58. Dienes cabin's front facade

Cabins

Seventeen non-historic cabins exist throughout the camp. All of the structures are single-story wood-framed buildings and all have been characterized by camp volunteers as "Post War" structures. There is evidence that several cabins may date back to the early 1940s, while others may have been constructed as recently as the 1960s or 70s. More research is needed to determine the historical significance of each of the buildings, but most appear to meet the criterion of fifty years of age.

The cabins are all well maintained, although every year there are upkeep projects that range from painting and staining, to repairing door hardware, floor boards, railing, and roof shingles. Occasionally more substantial projects come up such as installing new footings. The volunteer group keeps a running list of maintenance projects and provides upkeep with limited resources.

None of the cabins have electricity or running water. Moreover, none of the cabins are currently accessible. Three cabins, Duncan, Pine, and Marian appear to be the best candidates for an accessibility retrofit given relatively flat sites and proximity to restrooms and/or the Lodge. Pine also offers generous interior dimensions.

Figure 2-59. Marian cabin

Figure 2-60. Rogers cabin's sleeping porch with operable awning windows

Figure 2-61. Duncan's interior condition

Figure 2-63. Rogers cabin's steep hillside location

Figure 2-62. Duncan cabin's relatively flat site offers potential for an accessibility retrofit

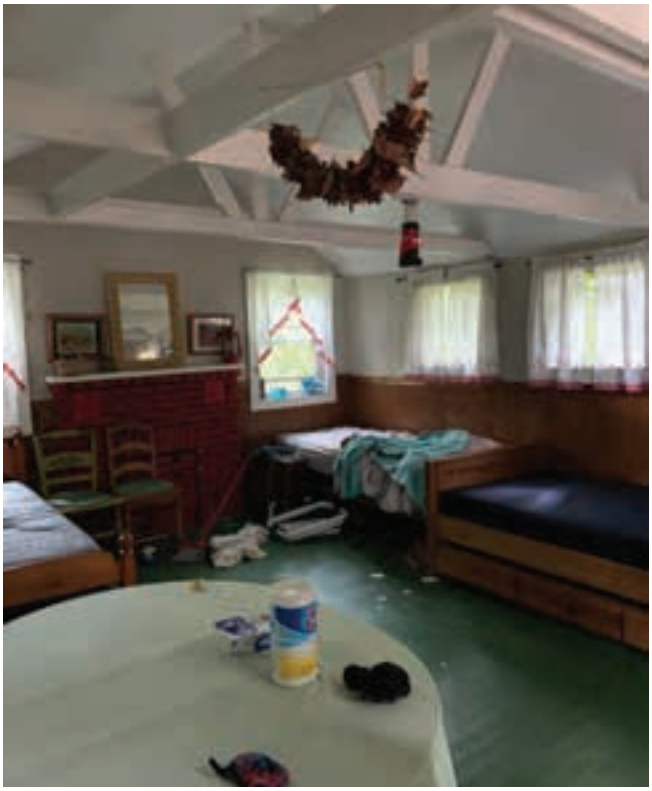

Figure 2-64. Interior conditions of Pine cabin

Figure 2-66. Smith cabin with stained plywood cladding

Figure 2-65. Pine cabin as another candidate for accessibility retrofit given proximity to the Lodge and generous interior dimensions

Figure 2-67. Nature Center interior

Nature Center

The AMC Ponkapoag Camp's Nature Center is a 100 square-foot, single-story wood-framed outbuilding located just east of the Lodge. The building's footprint comes very close to encroaching on the entrance drive serving the parking stalls in front of the Lodge. What's more, it blocks the view of the Lodge upon approach, which makes the small structure a candidate to be relocated. The structure is currently use as nature center including an exhibit space with various interior installations of flora and fauna typically found in the Blue Hills Reservation, bookshelves and a small collection of nature and wildlife books.

The structure's asphalt roof and painted clapboard exterior are both generally in good condition, although there are signs of deferred maintenance. The double hinged entrance doors are both showing signs of rot at their base. The uninsulated building's interior is simple and rustic. There is no electricity or running water in the building. Existing thru-vents provide a minimal amount of air ventilation.

Figure 2-68. The Camp's Nature Center

Miscellaneous Storage Buildings

The AMC Ponkapoag Camp does have several small storage buildings interspersed throughout the camp. the largest structure is located near the Lodge and central picnic area and accommodates tools and equipment that are used to maintain the camp. Potentially dating back to the camp's earliest years, it is a single-story wood-clad structure that sits on a stone foundation. Its exterior is in poor condition with broken and rotting wood cladding and heavily warped and rotting access doors. Its roof shows deformity given years of movement and its rolled asphalt sheet roofing is also deteriorating on its edges.

Figure 2-71. Signs of exterior deterioration

Figure 2-70. The storage building showing its stone foundation.

Figure 2-72. Youth Opportunities Program Storage Shed

AMC Youth Opportunities Program Storage Shed

The AMC Youth Opportunities Program makes use of the camp throughout the year, but primarily in the summer months. The Youth Opportunities Program Storage Shed supports educational and training outings on the site. As a relatively new structure, the shed is in good condition and appears to be well maintained.

Pavilion

The pavilion is located at Missionary Point and is used by the AMC's Youth Opportunities Program, although it is a permanent structure that is available to all camp-goers. The unpainted pavilion consists of prefabricated wood trusses supported by 6" x 6" pressure-treated wood posts on sonotube concrete footings. The roof is made up of asphalt shingles over plywood sheathing. There is no electricity or running water at the pavilion. The pavilion appears to be approximately twenty years old and is in good condition.

Figure 2-73. The Tent Site Pavilion

Generator Shed

The existing generator shed supports a deep cycle well that serves the camp. The propane-fired generator provides power for the well pump that supplies non-potable water from a well tank uphill to the camp's restroom structures and Lodge. The generator shed is well maintained, but is remote from the camp's many structures and somewhat unsightly along the park's Green Dot Loop trail. Well pump operations are also currently reliant on fossil fuels. Ideally a new location for a potable well can be identified closer to camp buildings, with a new a pump that could possibly be served by new on-site renewable energy sources.

Figure 2-74. The Generator Shed with its remote propane tank

2.5 | YMCA PONKAPOAG OUTDOOR CENTER

SITE ASSESSMENT

The YMCA Ponkapoag Outdoor Center is located at the northwest end of Ponkapoag Pond. It was established in 1923 and has been in continuous use since that time. It hosts the YMCA of Greater Boston's summer day camp for children age 7 to 13.

Campers and staff enter the site from the north entrance off I-93 and drive 1/2 mile south, turn west at the intersection of the Green Dot Loop trail and drive for 1/4 mile arriving at the parking lot south of the trail. Buses arrive at the camp site and turn around in the parking lot to drop off and pick up children. At busy times, the YMCA schedules one staff person at the north entrance and one staff person at the camp who communicate via radio to provide vehicular logistics and to avoid conflicts on the narrow roadway. Speeding is a re-occurring problem on the road during pick-up/drop-off hours.

The YMCA Ponkapoag Outdoor Center is located on flat higher ground above the pond and is surrounded by wetlands to the north and east, the bog to the south, ,and the golf course to the south and west. The camp site includes a lodge, several cabins for different classes, three pavilions, a restroom building, and a pool house.

Site amenities and recreation fields include: a picnic area, a ropes course, a basketball court, a swimming pool, an open field, a miniature golf, a ga ga ball pit, an outdoor classroom, a central outdoor gathering space with seating, and a small platform. The trail connections between each amenity are clearly marked and have various surfacing materials, such as compacted native soils or wood chips.

Lease Agreement

Today, this camp site is part of a lease agreement for use of the site between the Commonwealth of Massachusetts Department of Conservation and Recreation, who owns the land, and the YMCA, who owns and maintains the structures and facilities and maintains the site including the shared Green Dot Loop/Access Road between the north entrance at I-93 and the YMCA camp. The lease for the YMCA camp is 26 acres. but there is no delineation or boundary of the current lease site limits. The lease currently allows up to 400 campers for summer months. The lease between DCR and the YMCA currently stipulates a cost sharing agreement associated with capital and maintenance improvements and expenses with a 2:1 match of funds with DCR providing two times that of the YMCA.

Utilities

The site is serviced by 2 shallow, drilled wells (one located at the soccer field and the other at the pool area) that provides potable water and there are no known issues with the well or water. Hot water is provided by propane tank. Wastewater at the YMCA facility is currently distributed to 4 to 5 septic holding tanks across the camp and leaching tanks are located under the soccer fields.

Stormwater Management

The YMCA camp consists of uplands located on a generally flat site that flows off in all directions to the surrounding wetlands, including towards the bog. There were no Best Management Practices visible to address stormwater conveyance or treatment. Evidence of significant rutting caused by vehicles in soft soils were present at the bus turnaround and parking area.

The majority of the YMCA site is located on excessively drained soils surrounded by poorly to very poorly drained soils.

Operation and Maintenance

The signed lease with DCR permits the YMCA to use the camp site for only the summer months and during the weekdays. The YMCA has requested that DCR consider allowing the YMCA to expand the programs to include vacation weeks and weekends to be able to serve a larger population of users and to provide users with the opportunity to enjoy the site during all four seasons and utilize the facilities and engage in a broader range of activities including cross-country skiing. Before the season starts, the YMCA staff and volunteers inspect the site and perform maintenance including removal of fallen trees or trees that threaten public safety. Volunteer groups help repair or build some facilities, such as pavilions. Trees are mulched to provide supplemental wood chips to walking paths. The camp is closed during fall, winter and early spring months and buildings and restrooms are locked. YMCA staff periodically perform

Figure 2-75. Non-accessible path

Figure 2-76. Basketball court surface in need of renovation

Figure 2-77. Water ponding in some section of the access road and the parking lot

maintenance reviews of the facilities. While the camp is closed, the public is welcome to enter the site and walk around or use picnic tables. The YMCA maintains the access road from the I-93 entrance to the camp site and the parking lot.

Site Issues

1. Uneven parking surface with stormwater runoff to bog

2. Shared vehicular path in poor condition

3. Performance stage undersized

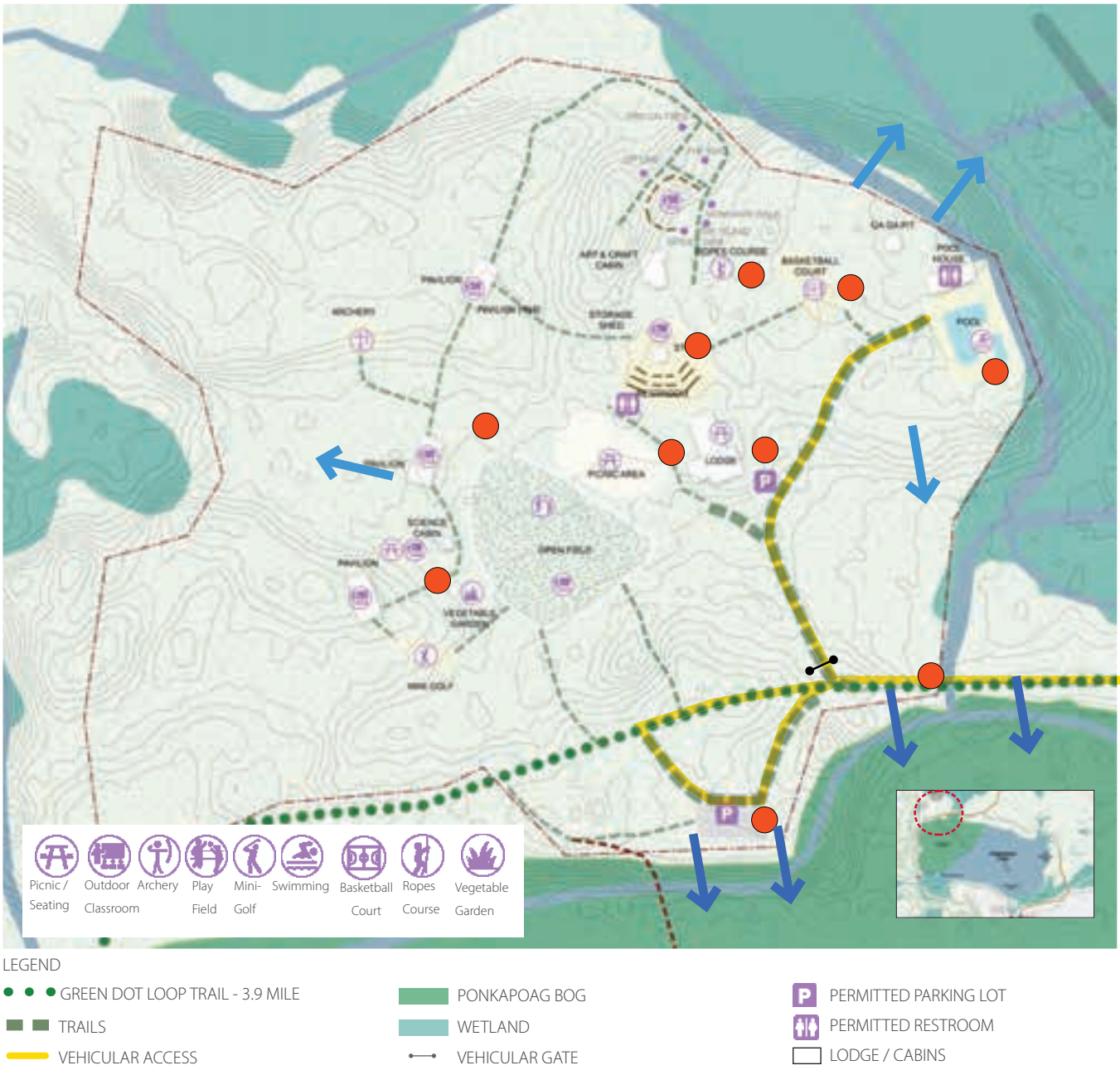

Figure 2-78. AMC Ponkapoag Camp site plan - existing site observation and issues

4. Shallow pool is non-functioning

5. Basketball court surfacing in poor condition

6. Surfacing and ropes course are not safety compliant

7. Limited accessibility due to non-ADA compliance surfacing materials

8. Lack of clear circulation route between facilities

9. Lack of accessible parking space

10. Invasive and poisonous plants within camp premises

11. Need more space for additional programs

Figure 2-79. Non-accessible drinking fountain and restrooms

Figure 2-80. Surfacing and ropes course are not safety compliant

BUILDING ASSESSMENT

The YMCA Ponkapoag Outdoor Center is currently home to a vibrant summer day camp operated by the YMCA of Greater Boston. For over 100 years, the 26-acre site has been used by the YMCA under an agreement with the Department of Conservation and Recreation, which owns the Outdoor Center's property and facilities. The Center serves campers who come from under-resourced urban communities and range in age from 7 to 13. In 2021, there were 168 total campers in the summer program, although pre-pandemic seasons accommodated upwards of 300-350 campers. The YMCA has aspirations for the Center to eventually accommodate up to 400 summer campers, as well as offer weekend and school break programming for campers and their families.

The Outdoor Center is organized by a collection of built structures and outdoor spaces. The Center's several buildings include a main lodge, a multi-fixture restroom building, three multi-purpose outdoor covered pavilions, a pool bath house, an arts and crafts cabin, a science cabin, and a variety of smaller support structures. The Center also features an outdoor theater with bench seating and a shallow stage structure.

The construction of most, if not all of the Center's structures dates back twenty years or more. Confirmed by feedback from DCR and YMCA leaders and staff, all structures suffer from deferred maintenance and are in need of modernization to bring them into compliance with 21st-century code/life safety and accessibility regulations. Introducing energy-efficient green building systems and technologies where possible is also a priority, especially given the potential for such installations to enhance the camper experience by offering teaching opportunities around critical issues such as climate change and stewardship of the environment.

Modernization of structures and systems approaching their end of service life raises the important question about the efficiency and cost effectiveness of renovation versus new construction. Maintaining the Center's rustic "feel" - another key goal for the stakeholders - will likely be a factor in determining a best approach as a future detailed assessment of each building is carried out.

Figure 2-81. The YMCA Ponkapoag Outdoor Center's Lodge at the heart of the site.

The YMCA Ponkapoag Outdoor Center Lodge

The Center's main lodge was constructed in 1996 on the footprint of a previous building. The single-story, 3,700 SF structure is wood framed on a concrete slab-on-grade base. The tee-shaped building consists of two principal parts. The building's front half houses the Lodge's entry hall, administrative offices, restrooms and storage spaces, including a former stand-alone apartment that is currently serving as office space. The back half houses a large, 1,500 SF multi-purpose room with clear-span laminated timber columns and beams.

The Lodge's most significant maintenance issue is roof replacement, which was recently funded and will likely be carried out in 2022. Primary issues going forward include lack of air conditioning (the building is very stuffy even with fans) and current use and layout. Storage rooms are overflowing with supplies and equipment, offices are being used for additional storage and food service operations are impacting the functionality of the multi-purpose room (see Figure 2-82). Future study is required to see how best to re-purpose the former apartment to better accommodate current storage needs and food service functions.

Figure 2-83. Commercial refrigerators and storage cabinets serves as the Center's summer camp food/lunch storage station. This ad hoc station currently occupies a fairly sizable corner of the Lodge's multi-purpose room (see location in plan below).

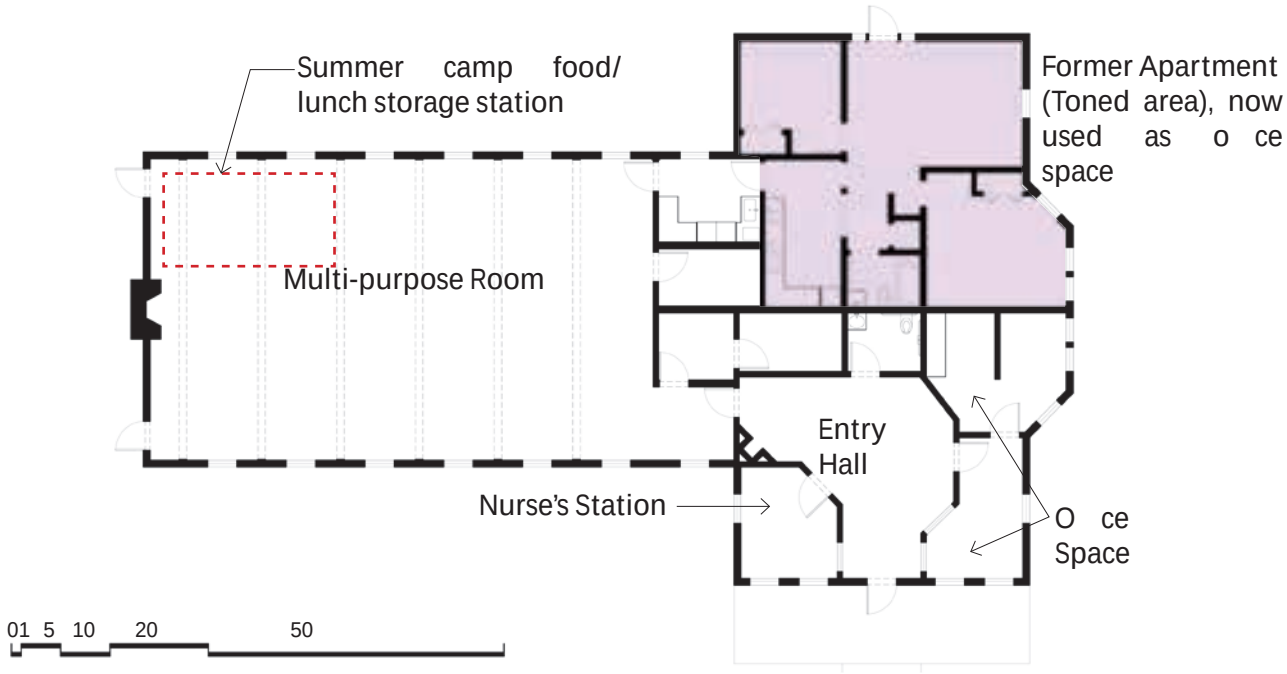

Figure 2-82. Lodge Existing Conditions Floor Plan

Figure 2-84. The existing stepped ramp and drinking fountain station both show existing accessibility deficiencies.

Restroom Facilities

The YMCA Ponkapoag Outdoor Center is currently served by a 570 SF, multi-fixture girls and boys restroom facility in the center of the site. The single-story wood-framed restroom structure is supplemented by several temporary portable restroom units interspersed throughout the site. Additional toilet and lavatory fixtures are found in the pool bath house, although these are specific to pool use.

The restroom building is currently uninsulated and is therefore for seasonal use only. The girls and boys facilities do not currently meet accessibility standards and show signs of unsanitary conditions and disrepair. Moreover, a single, interior model, fixed-height drinking fountain station is found outside the building and does not meet accessibility standards. Early analysis suggests that an accessibility retrofit of the existing building might be possible, however future study will be required to determine whether a new or renovated building is the most cost-effective approach to bring the facilities up to current code/life safety and accessibility standards.

Figure 2-85. The Center's primary restroom facility housing multi-fixture girls and boys bathrooms

Figure 2-86. The interior conditions of the restroom facility show signs of disrepair, including failing toilet stall doors.

Figure 2-87. The interior conditions of the restroom facility show signs of deferred maintenance and lack of upkeep.

Figure 2-88. Portable inaccessible restroom facilities serving more remote activities. This suggests the potential need for several smaller accessible restroom facilities interspersed throughout the site, as opposed to a more centrally-located single facility.

Figure 2-89. The existing Arts and Crafts Cabin. Boarded windows suggest recent inactivity.

Arts and Crafts Cabin

The Arts and Crafts Cabin is a currently underutilized structure located close to the center of the site. The single-story, 725 SF, wood-framed structure appears to be a post-war era construction, with painted shiplap, tongue and groove, and scalloped board siding. The structure includes a covered entry porch as well as a wrap-around, open-air deck, both of which are served by non-code-compliant stairs. Given the stairs, the building is currently inaccessible to disabled patrons.

The Cabin currently shows signs of deferred maintenance and lack of use. Windows are boarded up, paint is peeling and board siding is showing signs of rot and insect infestation (see Figure 2-91). Newer wood railings and decking at the open-air porch suggests either a recent deck expansion, or replacement of deteriorating materials. In order to accommodate 13-15 campers at a time, the Cabin will need to be renovated to include accessibility upgrades treatment and/or replacement of materials to address moisture damage and insect infestation, new lighting, and new painting.

Figure 2-90. The back deck showing a more recent expansion or replacement of deteriorated materials

Figure 2-91. Signs of insect damage area evident at the back wall of the building.

Science Cabin

Similar to the Arts and Crafts Cabin, the Center's Science Cabin is a currently underutilized facility. The single-story, wood-framing structure is approximately 210 SF in size and is currently being used as a storage building. Given its small size, the Cabin can only accommodate small groups of campers at a time, but its location near several open lawn areas and garden plots makes this area a potential hub to promote education about gardening and food production as well as protection and conservation of natural resources.

Given several steps up to its finished floor, the Cabin is currently inaccessible to disabled patrons. The Cabin is also exhibiting signs of material and structural degradation, especially around the entry door as well as at the concrete footing bearing points. A metal and plexiglass bay window on the south side of the building appears to be poorly constructed and in need of replacement. The Cabin's existing crawl space below the floor framing is also open around the building perimeter. Without a barrier, this covered space beneath the building is an inviting home for insects and rodents.

Figure 2-93. The Science Cabin's entry door.

Figure 2-92. The Science Cabin's interior condition showing exposed wood stud framing and wood board sheathing

Figure 2-95. The pavilion's clear-span laminated timber structure

Pavilions

The Center currently has three outdoor covered pavilions that offer versatile, multi-purpose activity/classroom space for campers. All three pavilion structures are all identical and were clearly built at the same time. Each 1,500 SF pavilion houses two, 635 SF open-ended, outdoor covered rooms that accommodate picnic tables and benches. In the middle of the building, separating the two activity areas, is a 230 SF storage area clad in wooden boards. YMCA staff have confirmed the need for more activity space and suggested adding a fourth pavilion to address this.

The pavilions are seasonal structures with no electricity or running water. They are in excellent condition, but are missing critical space and infrastructure to support the programs offered there. Secure, fully-enclosed storage spaces are needed to accommodate and protect supplies such as whiteboards and crafts. Moreover, added wall space (perhaps as sliding wall panels) would provide display surfaces while simultaneously offering protection from the elements. Lastly, adding lighting would enhance use of the pavilions in low light, cloudy conditions.

Figure 2-94. Pavilion elevation showing two covered activity areas separated by a wood-clad storage area in the middle

Figure 2-96. End elevation of a pavilion, showing a typical covered activity area with picnic tables. A lack of electric lighting creates dim conditions in cloudy/low light conditions.

Figure 2-97. Nature Center interior

The Storage Shed

Adjacent to the Arts and Crafts Cabin is a single-story, wood-framed storage structure. Characterized by YMCA staff as a "dead shed", the storage building and the immediate area around it appears to be inactive, with boarded-up windows and doors, overgrown vegetation and stockpiles of tools and materials generally strewn about. This unkempt condition is in full view from the outdoor theater and could greatly benefit from some selective landscape clearing, shed maintenance, and screening of material and tool stockpiles. The shed and its immediate site could also serve as part of an expanded Arts and Crafts area, with storage of materials relocated to a less central area.

The structure has several materials in need of replacement or repair. For example, what appears to be a former entry porch has exposed metal flashing that is damaged and frayed, with sharp edges sticking out in an unsafe manner. The roof is also covered with forest debris and needs upkeep in addition to new edge trim and flashing.

Figure 2-98. The Camp's Nature Center

Existing Theater Stage and Seating

The Center's outdoor theater is located just north of the Lodge and is the primary meeting and performance space for all-camper gatherings. The boundaries of the theater area the defined by a loosely-edged, flat mulch floor area, movable benches for seating, a shallow ≈ 20' x 20' platform stage and a flagpole. A single, throne-like chair occupies the middle of the stage.

The existing stage platform is constructed with pressure-treated 2"x12" framing members with composite decking. The stage is currently inaccessible to disabled patrons and really too small to accommodate performances. YMCA staff have requested a larger elevated stage that can accommodate both accessibility and a wider range of performances.

Figure 2-99. Theater stage and seating

Figure 2-100. Theater stage and seating

Figure 2-101. Restroom entry with a short, code-compliant ramp.

Pool Bath House

The YMCA Ponkapoag Outdoor Center features an in-ground pool, a pool deck, and bath house for water recreation during the hot summer months. This pool setting in the middle of the forest is a unique and integral part of the Center's camper experience.

The 1,425 square foot, seasonal bath house is a single-story, load-bearing masonry structure housing girls and boys restrooms and space for pool equipment and storage. The concrete masonry unit walls support wood roof rafters and provide durable and easily cleanable finished interior and exterior surfaces. Signs of the building's age, which could be forty or fifty years old, include significant out-of-plane settlement between CMU blocks. More importantly, restrooms, including their underlit communal changing and showers areas, are dingy, do not provide privacy, and do not meet current accessibility standards. Outdoor changing stalls were recently added to address some of these shortcomings, but these have also proven problematic. In general, conditions suggest full facility replacement or modernization.

Figure 2-102. The YMCA Ponkapoag Outdoor Center's pool complex showing the in-ground pool, pool deck and bathhouse.

Figure 2-103. The restroom with wood toilet partitions.

Figure 2-104. Image showing conflict between the restroom's toilet partition door swing and sinks.

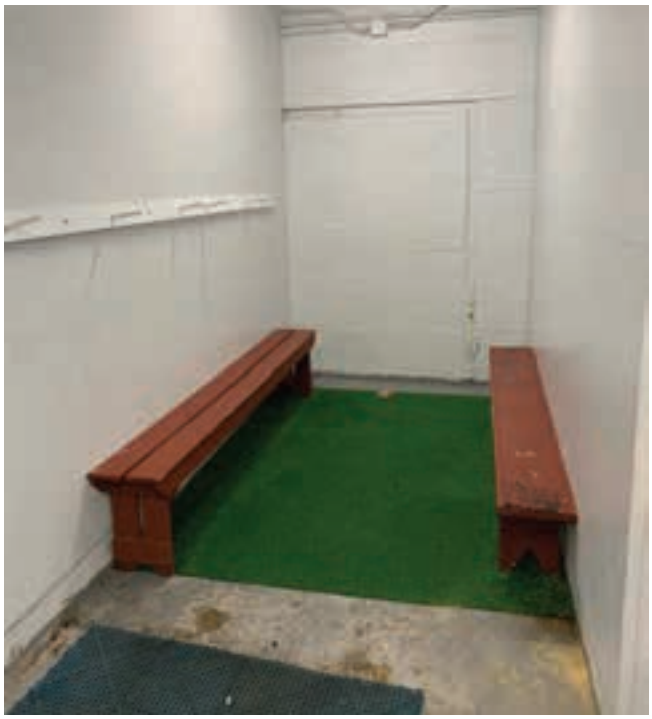

Figure 2-105. The communal shower area.

Figure 2-106. The communal shower area.

2.6 | SIGNAGE AND WAYFINDING

INTRODUCTION

What is Wayfinding

Wayfinding is a system of signage that orients and directs users, allowing visitors to navigate defined areas more easily. These systems include informational, directional, identification and interpretive signage, and are meant to be intuitive, unified, and easy-to-understand – helping people of all ages and abilities experience a place more easily. Wayfinding systems take into consideration the needs of the audience, and also help define and enhance the character of a community.

Signage that is both well-designed and well-placed creates a sense of visual harmony and it:

- Enables visitors to find their way
- Links areas, amenities, possible uses, and various spaces clearly
- Encourages a pedestrian-friendly ethos
- Enhances the identity of a community

General Assessment

Currently, the signage at Ponkapoag Pond and Bog does not help visitors experience its beauty. Since there are multiple stakeholders that have developed their own sign types within the park, there are inconsistent signage systems – leading to various visual treatments, and therefore, a confusing experience. Moreover, Ponkapoag Pond is part of the DCR system, but the existing signage does not follow the DCR Graphic Standards Manual.

The entranceways are not properly marked, and can be easily missed unless you know what you are looking for.

Once in the park, the welcome orientation signage includes content, particularly the Blue Hills Reservation map, which is faded and illegible. The posted map is the printed trail map of the entire Blue Hills. There exists no version of the map that is focused solely on Ponkapoag Pond and Houghton's Pond, resulting in visitors not easily understanding the area around the pond.

As one heads into the pond, beyond the point of arrival, trail head and other directional signage is fabricated from temporary materials, inconsistent and often weather-worn, which too easily leads to visitors becoming lost and going down the wrong path. Trail heads are not clearly labeled, and one can easily go down the wrong way.

The story of Ponkapoag Section is not currently being told through interpretive signage. This was a place favored by Native peoples for some 10,000 years or more as part of their homeland, an area that they regularly camped within and intimately knew for its animal, plant, water, and mineral resources, seasonal characteristics, and landscape features. Right now, the visitor has no way of appreciating this ancient landscape, still full of life and conveying its natural beauty and value to us today.

Although visitors can experience the incredible beauty of the place through walking the trails or visiting the pond, they have no way of understanding some of the reasons why it is that way. Ponkapoag Pond is an Area of Critical Environmental Concern (ACEC). These are places in Massachusetts that receive special recognition because of the quality, uniqueness, and significance of their natural and cultural resources. Through interpretive signage, visitors could learn more about the pond's geology and hydrology, glaciation, the pond's flora and fauna, and what makes it unique and part of the larger ACEC system.

The signage at the YMCA Ponkapoag Outdoor Center is made up almost entirely of ad hoc signage. The facility signage does not currently fit the DCR Graphic Standards Manual. Once inside the center, there is no directional signage that leads new visitors easily around. Buildings are inconsistently identified. Bathrooms are not clearly marked. Rules and Regulations signage is most urgently in need of care. Specifically, the rules and regulation signage at the pool is often covered in vegetation, not maintained, and therefore not easily visible. Elsewhere, some rules signage is printed on paper and tacked up to trees.

The signage at the AMC Camp follows the "Purposefully Rustic" theme. In some cases this can be charming, but in other cases, some of this signage should be updated. Particularly, Rules and Regulations signage is often hand written, and does not include any kind of iconography that more clearly conveys the rules to all. This signage is not as easily accessed by all. Other signage is hand-written and could be formalized. There is little directional signage, and therefore navigating around the camp is not easy.

In contrast to the Rules and Regulations signage at the YMCA Ponkapoag Outdoor Center and the AMC Camp, the DCR Rules and Regulations signage generally speaking is updated. There are some examples of signage that have graffiti, or are otherwise weather-worn, but overall, these signs are in relatively good shape. That being said, Rules and Regulations at the entrances are not clearly marked; one can not easily understand what is and isn't allowed at the park upon one's arrival.

Overall, there is an opportunity to improve the visitor's experience through creating a cohesive signage system considering the needs of visitors and creating a consistent visual language connecting the various areas around the pond.

Signage and Wayfinding System Goals

1. Approaching and Announcing: Clearly mark all entrances to Ponkapoag Pond utilizing proper DCR signage requirements.

2. Orienting and Directing: Help visitors find their way around the pond and throughout the trail system, identifying trail heads clearly. Create clear guide markers to navigate the pond and understand its amenities.

3. Inspiring: Tell the story of Ponkapoag Pond through interpretive signage. Reinforcing Ponkapoag Pond's identity through an interpretive panel system that details the relevance of the pond, including the stories of the Indigenous Peoples of Ponkapoag, and the many environmental highlights.

4. Discovering: Help visitors discover all that the park has to offer. Detail the amenities at the pond, as well as give a sense of the full landscape of the pond.

Additional Considerations

- Align signage requirements to DCR Graphic Standards Manual.
- Improve access to the park, particularly in terms of navigating the trail system.
- Complement Ponkapoag Pond's unique and beautiful character, as well as the history of the Massachusetts Tribe at Ponkapoag.
- Increase awareness of, and access to, park amenities.
- Develop a system reflecting an organized, visual clarity.
- Celebrate Ponkapoag Pond as an ACEC.
- Consider instances where signage could be bilingual.
- Comply with ADA standards. In the absence of DCR-developed accessible standards, DCR Universal Accessibility (UA) requests the use of current best practices reflected in the Smithsonian Guidelines for Accessible Exhibition Design

Figure 2-113. Southern entrance/Fisherman's Cove entrance includes no signage identifying main entranceway – existing conditions

Figure 2-114. Northern entrance/I-93 signage is only easily visible after entering parking area – existing conditions

Figure 2-115. YMCA Ponkapoag Outdoor Center Entrance Identification – existing conditions

IDENTIFICATION SIGNAGE

There are opportunities throughout your experience visiting Ponkapoag Pond which could be improved through better signage.

DCR Road Marker Signage

Even before one arrives at the pond, as one drives along I-93, there are no DCR Road Marker/Lead-in (Brown) signs off I-93 and on Washington Street that identify Ponkapoag Pond as a destination. Adding this type of signage would give greater visibility to the pond.

Main Entrance Identification Signage

Currently, entrances into Ponkapoag Pond are either not clearly marked or not marked at all. Visitors have no sense of arrival. At Fisherman's Cove, Ponkapoag Pond's southern entrance, there is no signage identifying the main entranceway. On the northern side, closest to I-93, signage is only easily visible after entering the parking area. There is also an opportunity to have visitors enter at the Ponkapoag Golf Course, but this is currently not marked as an entrance. Each of these experiences could be improved through signage.

DCR Site/Facility Signage

Currently, neither the YMCA Ponkapoag Outdoor Center or the AMC Camp follow the DCR Graphics Manual for facility signage. The signs that do exist are easy to miss. The YMCA signage is not well maintained. By identifying these locations and co-branding them so the relationship is clearer, these locations will be more clearly defined.

DIRECTIONAL SIGNAGE

Internal Directional Trail Signage

Currently Ponkapoag Pond utilizes a hand-made directional signage system which does not follow the DCR "Trails Guidelines and Best Practices Manual." The signs are hand-lettered or use a vinyl lettering system and will not hold up well in an outdoor setting. The directional signs are not consistently placed at all trail intersections, the system is not consistent with DCR standards, and overall, does not encourage an experience for the visitor that is easy to understand.

Figure 2-116. Internal Directional signage – existing conditions

Rules Trail Signage

There are specific trails where biking and horseback riding are not allowed. Currently, signage identifying these specific trails is inconsistently communicated, and not clearly marked. Hierarchically, this information is hard to distinguish in the signage, and sometimes does not include iconography. With that, it is easily missed.

Figure 2-117. "Rules" signage on trails – existing conditions

Figure 2-118. Intersection Numbers signage – existing conditions

Figure 2-119. Green Dot Loop trail Reassurance Markers – existing conditions

DIRECTIONAL SIGNAGE

Intersection Numbers Trail Signage

A four-digit numbering system—created by the Friends of the Blue Hills—is a numbering system that helps hikers find their location in the Blue Hills System. The first number indicates what area of the Blue Hills you are in. This system exists not only around Ponkapoag Pond, but around the entirety of the Blue Hills system. In some cases, these numbers are missing from specific intersections at Ponkapoag Pond. It can be a difficult system to use for everyday use. That said, there are many users who do use this system. In emergency situations, these numbers can help locate individuals at specific locations.

Green Loop Trail Reassurance Markers

Loop trails throughout the Blue Hills Reservation are currently marked with dots. These trails begin and end at the same point, at designated parking areas as marked on the map. With that said, there are multiple green, yellow, and red loop trails throughout the Blue Hills system.

The Green Dot Loop trail is the one loop trail around Ponkapoag Pond that is marked in some areas of the park well, but in other areas of the park, the marks are weather-worn.

Generally speaking DCR recommends using rectangular blazes, but in instances where locations have specific colors and/or shapes associated with their identity such as the Blue Hills Reservation, the DCR Manual does not recommend changing these.

WELCOME WAYSIDE/ORIENTATION SIGNAGE

Welcome Orientation "Bulletin Signage"

Currently, Welcome Orientation "Bulletin Signage" is installed at the northern and southern entrances; these signs allow for additional postings. Additionally, there are posted Blue Hills Reservation maps located in several other locations. These structures are inconsistent, not well maintained, and have no clear hierarchy of information.

Currently, all maps include the warning "Due to effects of sunlight, colors on this map may fade causing green to appear blue. Please note the shape of the symbol rather than the color." Accessibility is an issue for those with color-blindness, or other visual limitations.

Figure 2-120. Southernentrance/Fisherman's Cove Welcome Bulletin

Figure 2-121. Northern entrance/I-93 Welcome Bulletin (Front)

Figure 2-122. Northern entrance/I-93 Welcome Bulletin (Back)

Figure 2-123. Ponkapoag Golf Course entrance Map Bulletin

Figure 2-124. AMC Camp Welcome Bulletin at Main Lodge Map Bulletin

Figure 2-125. YMCA Ponkapoag Outdoor Center Map Bulletin near Parking Lot

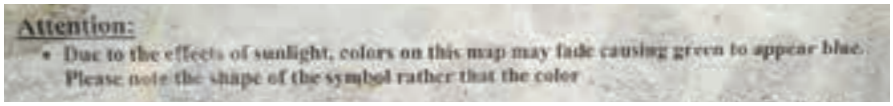

Figure 2-126. Warning of readability Issues noted next to all Blue Hills Reservation Trail Maps

RULES AND REGULATIONS SIGNAGE

DCR Rules and Regulations Signage

Overall, DCR Rules and Regulations signage is generally well maintained and follows the DCR guidelines. In some cases, the signage should be updated due to fading or graffiti. The "Trash Cans are not available/Carry in/Carry out" signs are not printed on standard DCR Rules and Regulations material. These signs are posted at locations throughout Ponkapoag Pond.

Figure 2-127. Rules and Regulation signage – existing conditions

Figure 2-128. "Yield to" signage along road to YMCA Center with Graffiti markings

Figure 2-129. Signage printed a material not consistent with DCR Guidelines

RULES & REGULATION SIGNAGE

AMC Camp Rules & Regulations Signage

Currently Rules & Regulations signage at the AMC Camp does not follow the DCR Graphics Manual. Much of the signage is hand-written, printed on impermanent materials, and often does not include any iconography which would help to clearly communicate what the rules are to all visitors.

Figure 2-130. Ad hoc Rules and Regulation signage – existing conditions

YMCA Ponkapoag Outdoor Center Rules and Regulations Signage

The Rules and Regulations signage at the YMCA Ponkapoag Outdoor Center should be maintained better, added to, and updated.

Particularly at the pool facilities, the signage is poorly maintained to the point that it is a hazard. The signage is covered by vegetation which needs to be cleared away.

In other instances around the camp, the signage is printed on paper or other impermanent materials. In these cases, the signage should follow YMCA requirements as well as the DCR signage guide.

Figure 2-131. YMCA Pool signage – existing conditions

Figure 2-132. Additional Rules and Regulations signage – existing conditions

AMC PONKAPOAG CAMP SIGNAGE

AMC Camp Cabin Signage

Currently, the AMC Camp cabin signage follows the "Purposefully Rustic" ethos, and is generally speaking, hand-made. As this facility is run by AMC, the individual building signage will continue to follow the "Purposefully Rustic" theme. Additionally, there is an opportunity to incorporate DCR directional signage that would clearly lead visitors to the cabins.

Figure 2-133. "Purposefully Rustic" cabin signage

Additional Facility Signage at AMC Camp

Generally speaking, facility signage throughout the AMC Camp is ad hoc, does not follow any signage system, and is not maintained.

In some cases, such as the "Manager's Office" signage, the sign is handwritten. In instances where the signage is poorly made, the signage could be updated to follow a more intentionally "Purposefully Rustic" theme.

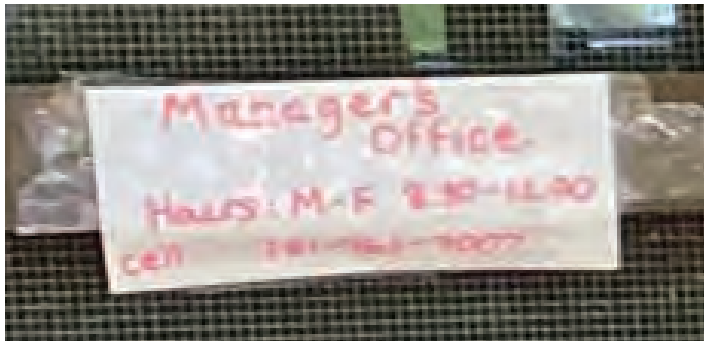

Figure 2-134. Manager's Offices signage - hand-written lettering 'bleeding' into paper

YMCA PONKAPOAG OUTDOOR CENTER SIGNAGE

YMCA Ponkapoag Outdoor Center Facility Signage

Currently, most of the facilities throughout the YMCA Ponkapoag Outdoor Center are not clearly marked, and the signage in the Main Building including for the Infirmary and the Main Office are poorly marked and require more permanent signage. Bathrooms are not clearly marked. Signage should be consistent, clear, well-made, and easy to understand.

Figure 2-135. YMCA Ponkapoag Outdoor Center signage – existing conditions

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PART THREE
RECOMMENDATIONS AND OPPORTUNITIES

DCR's overarching goal for the Ponkapoag master plan is to view and evaluate the present and the future as a balance of protecting its natural and cultural resources against opportunities to provide enhancements to the visitor experience.

Part One of the Master Plan report is the introduction of the study area and the Master Plan, Part Two assesses the existing site and building conditions and associated opportunities and constraints. Part Three of the Master Plan is focused on recommendations through the lens of the Master Plan goals to ensure that recommendations do not adversely impact the site's sensitive cultural and natural resources, given the landscape context of the various visitor amenities. All proposed improvements will need to comply with the applicable laws and regulations for historic and environmental preservation during all phases of planning, design, and construction.

STEWARDSHIP OF CULTURAL RESOURCES, REGULATORY COMPLIANCE, AND PROJECT RECOMMENDATIONS

As noted in the Blue Hills Complex Resource Management Plan (2017: Appendix G), the Department of Conservation and Recreation (DCR) shall provide for the stewardship of all known and potential cultural resources on DCR property through sensitive resource management and planning and compliance with local, state, and federal historic preservation regulations. DCR actions and activities shall promote and foster the preservation, protection, and appreciation of these resources.

Cultural and Historic Regulatory Compliance

During the project planning process DCR shall comply with historic preservation laws at the local, state, and federal levels. DCR's Office of Cultural Resources (OCR) will serve as the Department's liaison with local historic district commissions and the Massachusetts Historical Commission (MHC) pertaining to project notifications and requests requiring assistance from and consultation with these commissions. All inquiries from MHC shall be directed to OCR.

DCR must notify MHC, through filing of a Project Notification Form (PNF) or Environmental Notification Form (ENF), of any projects undertaken, funded, permitted, or licensed in whole or in part by the agency in order that MHC can make a Determination of Effect of the project on historic and archaeological resources listed in the State Register. DCR shall send copies of PNFs or ENFs to the local historical commissions in those communities that have received Certified Local Government status from MHC. It is the responsibility of the MHC to determine whether State Register properties exist within the project's area of potential impact. When MHC determines a proposed project will have an adverse effect on historic properties, DCR must consult with MHC and any interested parties to explore feasible and prudent alternatives that would eliminate, minimize, or mitigate the adverse effects and, following consultation, adopt such alternatives.

Some DCR projects may require filing an ENF with MEPA in addition to the State Register Review. MHC reviews all ENFs and comments on those in which there are concerns that the project has the potential to affect significant historic or archaeological properties. MEPA regulations state that an ENF must be filed if a project involves: 1) demolition of all or any exterior part of any Historic Structure listed in or located in any Historic District listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth; or 2) destruction of all or any part of any Archaeological Site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth unless the project is subject to a Determination of No Adverse Effect by MHC or is consistent with a Memorandum of Agreement with MHC that has been the subject of public notice and comment.

DCR is required to comply with Section 106 of the National Historic Preservation Act when undertaking projects that require a permit, funding, license, or

approval from a federal agency. The federal agency (or, in many cases, the recipient of federal assistance or permits) is required to notify MHC of such projects and take into account the effects of the project on historic properties that are listed or eligible for listing in the National Register of Historic Places. When the federal agency, in consultation with the MHC as the Office of the State Historic Preservation Officer, determines that a project will result in an adverse effect to those properties, the federal agency must take prudent and feasible measures to avoid, minimize, or mitigate those effects. Other interested parties such as local historical commissions or Indian Tribes are also consulted as part of the process.

When a conflict between a project location and its impact on cultural resources is identified, cultural resource management strategies shall be brought into consideration to determine if the impact to the resource can be avoided, adverse impacts mitigated, or whether additional site investigation is necessary. OCR shall initiate and manage those activities that will minimize or mitigate adverse impacts to cultural resources. When necessary, OCR shall conduct a coordinated program of basic and applied research to support planning for and management of cultural resources on DCR property. Repairs, rehabilitation, and other preservation activities shall follow the guidelines in the Secretary of the Interior's Standards for the Treatment of Historic Properties. Adequate research to support planning and compliance with MHC Review will precede any final decisions about the treatment of cultural resources or operational activities which may impact cultural resources.

Project Notification Process

For each DCR project, a Project Notification Form (PNF), including a project description, a site plan, and photographs, shall be provided to DCR's OCR. The OCR shall forward the PNF to the MHC and, where required, local historic district commissions. If outside consultants are preparing the PNF, then OCR staff shall be given an opportunity to review the draft PNF before it is submitted. The submission of an Environmental Notification Form (ENF) under the Massachusetts Environmental Policy Act (MEPA) satisfies MHC notification, and no PNF is needed for project undergoing MEPA review. Copies of ENFs shall be provided to OCR. MHC has a maximum of 30 days to make a Determination of Effect on historic resources or request supplemental information in order to make a Determination of Effect. In the event that the MHC makes a determination of "no effect" or "no adverse effect" on historic resources, the project may proceed. If MHC determines that the proposed project will have an "adverse effect" on historic resources, DCR shall consult with MHC to explore options to avoid, minimize, or mitigate the adverse effect. If, after consultation, no feasible or prudent alternative exists that would avoid the adverse effect, a Memorandum of Agreement between DCR, MHC and any other interested parties is required to resolve the adverse effect and complete the consultation process.

Recommendations

Following review of the PNF or ENF, MHC may request supplemental information in order to make a Determination of Effect, which for archaeologically sensitive areas may include an intensive (locational) archeological survey. Ponkapoag Pond is generally sensitive for archaeological resources. This includes Fisherman's Cover, the AMC Ponkapoag Camp, and the YMCA Ponkapoag Outdoor Center. The graded and filled roadways of the Park Circulation and the Green Dot Trail are considered to be Low Sensitivity for intact Cultural Resources within the filled or graded bed of the roadways. Any proposed ground disturbance for park improvements should be reviewed by the OCR and cultural resource consultants for the project to assess whether any archaeologically sensitive areas may be affected. In some cases, such as for new trails, avoidance of ground disturbance by adding fill on top of geotextile fabric over the natural ground surface is an appropriate method to protect potential or known buried archaeological resources. Where areas of proposed ground disturbance are considered necessary as alternatives are not reasonably feasible, an intensive

(locational) archeological survey under a permit issued by the State Archaeologist at the MHC (950 CMR 70-71), should be conducted by a qualified cultural resource consultant. For the Fisherman's Cove improvements, an intensive (locational) archeological survey is planned, following submittal of the PNF to MHC.

As a Great Pond, Ponkapoag Pond is also within the jurisdiction of the Massachusetts Board of Underwater Archaeological Resources (BUAR)(312 CMR 2) and archaeological activities on or under the water will require a Special Use Permit from the BUAR.

For repairs, rehabilitation, and other preservation activities at the National Register listed AMC Camp, any Historic Structures listed in or located in the AMC Camp historic area, listed in the State Register of Historic Places and the Inventory of Historic and Archaeological Assets of the Commonwealth, should meet the guidelines in the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR 67). The PNF, detailing the proposed repairs, rehabilitation, and other preservation activities, should be submitted to the MHC, and a qualified architectural historian (per 36 CFR 61) is recommended to assist the OCR in development of the scope of rehabilitation work.

The Ponkapoag Camp of the Appalachian Mountain Club is listed on the National Register as part of the Prehistoric and Historic Resources of the Blue Hills and Neponset River Reservations and Selected Adjacent Areas Multiple Resource Area. This designation includes the three remaining original log cabins; other buildings or features are not specifically identified in the nomination that was prepared in 1980. Over forty years later, it is likely that many buildings and landscape elements in the camp would be considered as "contributing" to the significance of the National Register-listed camp. OCR should conduct further research on the history of the camp to determine which features would meet this criteria and consult with the Massachusetts Historical Commission. Once MHC has determined which camp elements should now be considered as "contributing features," those features should be treated in accordance with the above-referenced Standards. In the meantime, any alterations proposed for camp structures older than 50 years should be designed to maintain their architectural character to the extent feasible.

STEWARDSHIP OF NATURAL RESOURCES, REGULATORY COMPLIANCE AND PROJECT RECOMMENDATIONS

Environmental Regulatory Compliance

The master plan study area contains a variety of unique habitats, rare species, and regulated wetland resource areas. Given the mosaic of sensitive environmental receptors in this area, various recommendations within the master plan may require coordination, review, and permitting with local, state, and/or federal environmental agencies to authorize certain activities depending on their location. A description of potentially applicable regulatory programs and considerations follows.

Massachusetts Environmental Policy Act (MEPA)

The Massachusetts Environmental Policy Act (MEPA) is administered by the Massachusetts Executive Office of Energy & Environmental Affairs (EEA). MEPA establishes jurisdiction over projects undertaken by an Agency, those that require a state Agency Action (i.e. permit, financial assistance, or land transfer), or projects involving Financial Assistance and that meet a threshold at 301 CMR 11.03. As the project site is owned and operated by DCR, which meets the definition of "Agency" and given the site is located within an Area of Critical Environmental Concern ("ACEC"; threshold per 301 CMR 11.03(11)), it is presumed that an Environmental Notification Form (ENF) will be required for the implementation of the master plan and landscape management plan recommendations. Depending on the nature of each master plan element, it is possible certain elements may be considered as a "Replacement Project" and would not warrant MEPA filing. Pre-application consultation and Requests for Advisory Opinions from MEPA are encouraged as DCR seeks to implement various phases or elements of the master plan. Additionally, areas

of the project site are located within or adjacent to Environmental Justice areas, which warrant additional consideration under MEPA with unique filing and coordination requirements. This component of the MEPA process should be considered as DCR seeks to implement the master plan recommendations.

Wetlands Protection Act (WPA), Canton Wetlands Bylaw, And Randolph Wetlands Regulations and Bylaws

Any project element undertaken directly within a wetland resource area, the 100-foot Buffer Zone to a wetland resource area (e.g., Bordering Vegetated Wetland, Inland Bank), the 200-foot Riverfront Area to a perennial stream, or within the 100-year flood zone is likely to require authorization under the Wetlands Protection Act, the Canton Wetlands Bylaw, and/or the Randolph Wetlands Regulations and Bylaws. Project elements that consist of basic maintenance or a project solely located in the 100-foot Buffer Zone or Riverfront Area are reviewable under 310 CMR 10.02(2)(b) as Buffer Zone Minor Activity and may possibly proceed as exempt in accordance with the Wetlands Protection Act, but still may require review by the local Conservation Commission depending on the nature of the activity relative to local regulations. Any other projects located within jurisdiction not reviewable as maintenance or as a Buffer Zone Minor Activity are presumed to require review by the Canton and/or Randolph Conservation Commissions through an application for Request for Determination of Applicability or Notice of Intent for authorization pursuant to the WPA and local bylaws. A Determination of Applicability or Order of Conditions (respectively) will need to be issued by the Conservation Commission to authorize the work.

Section 404 Clean Water Act / Massachusetts General Permits

Ponkapoag Pond, vegetated wetlands, vernal pools, and perennial and intermittent watercourses found throughout the project site are considered to be Wetlands and Waters of the United States and are regulated under Section 404 of the Clean Water Act. The Corps' General Permits (GP) for Massachusetts cover specific activities within the limits of Corps' jurisdiction as stated in each of the activity General Permits. The total temporary and permanent impact area is used to determine if a project is eligible for Self-Verification, Pre-Construction Notification, or Individual Permit coverage. Should a master plan recommendation involve work directly within a Wetland or Water of the United States, then application under Section 404 and the GP will be required. The nature and extent of the impacts associated with the project recommendation will dictate which level of filing is required.

In addition to environmental factors, the MA General Permit requires notification of the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officers (THPOs), and the Massachusetts Board of Underwater Archaeological Resources (BUAR) per Section 106 of the National Historic Preservation Act, which could take place as part of the MHC PNF submittal discussed previously.

Section 401 Water Quality Certification

A Section 401 Water Quality Certification (WQC) may be required for a master plan element if it results in a loss of 5,000 square feet cumulatively of Bordering or Isolated Vegetated Wetlands and Land Under Water, the amount of any proposed dredging is greater than 100 cubic yards, or if any of the other thresholds listed in 314 CMR 9.04 are met.

Chapter 91 Waterways Regulations

Ponkapoag Pond is presumed to be a Great Pond, as it exceeds 10 acres in size. Great Ponds are jurisdictional waterbodies under the Chapter 91 Public Waterfront Act and implementing regulations. If any master plan recommendation involves work below the ordinary high water line to the pond, it is possible that the project could require a Chapter 91 License or Permit.

Massachusetts Endangered Species Act (MESA) Review

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) Atlas (15th edition; August 2021) and MassGIS online (August 2021) were consulted during the master plan process. According to these sources, the entire project area falls within Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife. Depending on the master plan recommendation or proposed maintenance activity, implementation may require review under MESA if it is not otherwise exempt in accordance with 321 CMR 10.14. MESA review can be completed jointly through the WPA Notice of Intent Process, or it can be completed as a standalone process through the filing of a Project Checklist. Depending upon the species within the vicinity of the project, NHESP may require additional surveys/delineations for the species as part of the project consultation process. Should NHESP issue a decision that a master plan or landscape management plan recommendation results in a "Take" of a state-listed species, a Conservation Management Plan (CMP) will be required to mitigate for the Take and to provide compensatory protection for that species long-term to offset any potential project impacts. Additionally, species specific protection plans may need to be developed as part of a MESA review to implement during construction to provide protection to species of concern within the vicinity of the master plan project recommendation.

Land Stewardship Zoning Guidelines

Each of the three Land Stewardship Zones have general management guidelines established in the Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines. These guidelines are intended to provide additional protection for natural and cultural resources and to ensure consistency among resource stewardship, recreation and sustainable forestry. In addition, specific management recommendations derived during the preparation of each individual RMP are designed to ensure that management practices are tailored to the resources within the facility, factor in and assess existing uses, and address site specific management challenges and opportunities. Any activities proposed as part of this master plan, landscape management plan, or otherwise must comply with these guidelines for each of the three landscape zones.

ACCESSIBILITY COMPLIANCE

The trail system within the Blue Hills Reservation and Ponkapoag Pond are for use by people with varying physical abilities. It is not practical nor feasible for all trails to achieve accessible compliance given existing site and topographic conditions, however, new trail construction and major reconstruction is legally required to be designed to meet accessibility codes and guidelines. DCR has adopted the following guidelines to inform the design of trails and pathways on its properties.

The **Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG)** and **Forest Service Trail Accessibility Guidelines (FSTAG)** became the official direction for the USDA Forest Service on National Forest System lands, May 2006 edition. To help field practitioners understand the FSORAG and FSTAG, the Forest Service produced the **Accessibility Guidebook for Outdoor Recreation and Trails** (Zeller et al., 2006).

3.2 | OVERALL PARK CIRCULATION IMPROVEMENTS

Recommendations for Ponkapoag Pond as part of the Blue Hills Reservation for circulation include:

- Enhance visitors' arrival experience by installing identification signs and welcome orientation waysides at each entrance.
- Provide accessible compliant surfaces within parking lots and trails connecting to the parking lots.
- Strengthen existing trail connections with adjacent neighborhoods.
- Enhance safety by providing separation and identification signage between varying outdoor recreation user groups and their activities.

Entrance, Parking, and Connections

The recommendations are summarized in Figure 3-3.

1. North entrance and parking lot: The north entrance lacks an identifiable and welcoming arrival experience, with minimal spaces for parking resulting in overflow parking extending down the highway exit ramp which is an issue for user safety. Therefore recommendations for enhancements include:

- Install identification signage close to the highway exit ramp where visible when visitors exit I-93.
- Relocate existing parking to be located beyond where users encounter the park identification signage and provide 90-degree parking at the level area south of the existing guardrail. The parking spaces would be increased from 11 to 16.
- Relocate the vehicular gate and welcome orientation waysides signage at the end of the parking lot (See Figure 3-2). See Section 3.9 for signage recommendations.

2. South entrance and parking lot: The south entrance lacks identification signage, and the entrance needs to be widened for improved circulation and better visibility for improved safety along Randolph Street. Lack of stormwater management and steep slopes within the parking lot result in potholes and erosion gullies, adversely affecting the accessibility of the parking lot and walkways, and degrading adjacent natural areas and ponds through transport and deposit of sediments. Overall, the current parking layout and vehicular circulation require improvements to both vehicular travel and turning movements and parking accommodations.

To improve the overall accessibility, maintenance, safety, and sustainability of the parking lot, recommendations include:

Figure 3-1. Existing north entrance off I-93 ramp

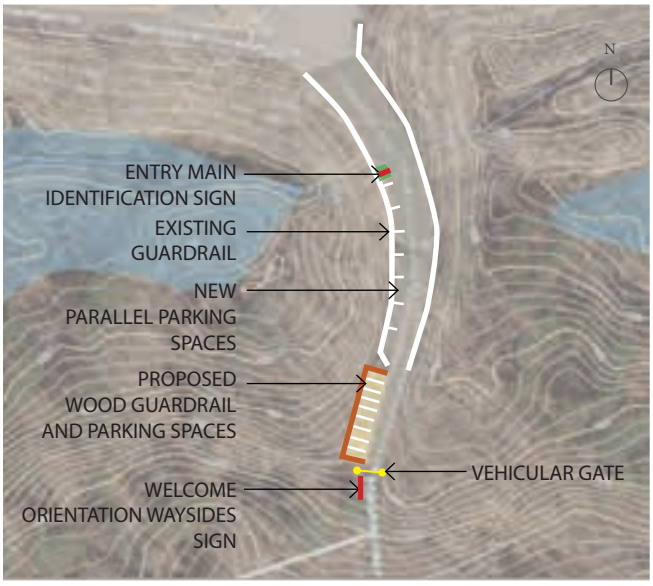

Figure 3-2. Proposed north entrance signage and parking concept

- Widen the south vehicular entry at Randolph Street to accommodate two-way circulation and provide DCR identification signage at the entry.
- Regrade the parking lot to install best management practices for stormwater management that slopes and captures runoff in rain gardens adjacent to the parking areas.
- Propose improvements to minimize ground disturbance and avoid lowering the existing grade to protect potential or known buried archaeological resources
- Provide and identify accessible parking spaces near the trailhead.
- Provide a sufficient vehicular turnaround area and boat loading/unloading area adjacent to trailhead and proximate with Green Dot trail.
- Provide select bituminous concrete paved areas in the upper parking lot adjacent to Randolph Street and at the vehicular turnaround area adjacent to the Green Dot trail to be more durable for vehicular use and resilient against turning movements and to make winter maintenance and snow clearing viable.
- Provide compacted dense graded crushed stone surfacing in the driving areas and parking spaces between the upper parking lot and the vehicular turnaround area.
- Provide an increased quantity of parking spaces to enhance capacity and to address overflow parking which extends out onto the shoulder of Randolph Street.

Figure 3-3. Park circulation recommendations

- Remove and mitigate invasive species, and re-plant areas of disturbance including the prior trail footprint and areas adjacent to the new trail alignment and parking lot layout with native plants per the **Landscape Management Plan (LMP)**.

3. Entrances and trail connections at adjacent neighborhoods: Install DCR identification and welcome waysides signage to inform and orient visitors entering DCR property and to convey DCR park rules and regulations. Strengthen the trail connections between neighborhood entrances and the Green Dot Loop trail by improving the surfacing, accessibility, and drainage.

4. Donovan school parking lot: DCR will work with the Town of Randolph to allow Ponkapoag Pond visitors to park in the Donovan School parking lot during weekends only and school vacations and from which residents and visitors can access the Ponkapoag Pond site and Blue Hills Reservation via the trail system. Strengthen connection by installing DCR identification and welcome waysides signage and improving trail surfacing, accessibility and drainage.

5. Other pedestrian entrances: Install identification and welcome waysides signage at each entrance. See Section 3.9 for detailed signage recommendations.

Figure 3-4. Proposed south entrance and parking lot improvements

6. Additional connection and overflow parking: Provide improvements to create safe and inviting pedestrian and bicycle connection between Houghton's Pond Site 5 West Parking Lot and the north entrance to Ponkapoag Pond up to and over Rt 128 overpass.

Figure 3-5. Existing and proposed south entrance improvements

3.3 | GREEN DOT LOOP TRAIL IMPROVEMENTS

The Green Dot Loop trail alignment winds its way through various natural resource areas that are popular and well used by the public. This is particularly relevant to the section of the Green Dot Loop trail between AMC Camp in the east and counterclockwise around to YMCA Outdoor Center in the northwest. This section of trail encounters the majority of the park's recreational facilities and amenities, such as AMC and YMCA camps, Fisherman's Cove, Dam, Ponkapoag Bog Boardwalk, and parking. The trail here is relatively level with compacted dense graded crushed stone surfacing which is stable and low maintenance. However, there are trail segments adversely affected by poor drainage resulting in wet and muddy trail conditions that diminish accessibility and usability. Poor drainage also encourages stray foot and bike traffic over areas adjacent to the trail resulting in disturbance and degradation to the natural environments. Invasive species have been identified and documented along this section of trail.

Evidence of soil erosion is present on and adjacent to the Green Loop trail caused by stormwater from within the site and from off-site adjacent uses and development, which has increased stormwater runoff within the Ponkapoag Pond watershed. These changing conditions including increased impermeable surfacing which exacerbates stormwater runoff, result in degraded pond water quality and adversely affectthe health of adjacent wetlands. In addition, nitrification from pollutants and fertilizer carried by stormwater and irrigation runoff from surrounding development and the Ponkapoag

Figure 3-6. Green Dot Loop trail improvement recommendations

golf course threatens the sensitive wetlands and bog ecosystems.

Although the trail is in relatively close proximity to the pond shoreline, the water sheet is not typically visible due to the presence of densely wooded areas. The only areas that allow for full view of the water sheet with Blue Hill in the background are adjacent to the dam and at Fisherman's Cove. Limited visual and physical access to the pond results in users creating their own connections via unofficial trails, adversely impacting the understory and ecology of the woodland and destabilizing the pond edge.

Figure 3-7. Vegetated swale along Green Dot Loop trail with a culvert at the low point to convey runoff to the other side of the trail.

Figure 3-8. Trail is lower than the adjacent woodland causing runoff ponding on the trail and making it impassable.

Below are the recommendations for sustainable trail improvements that minimize the impact of the surrounding natural resources as well as enhance the visitor experience. The Green Dot Loop trail recommendations are illustrated in Figure 3-6.

1. Improve Trail Accessibility

Follow **Forest Service Trail Accessibility Guidelines (FSTAG)** and the **Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG)** to achieve accessible trails by meeting the guideline in terms of trail slope, width, surfacing improvements, etc.

2. Apply Best Management Practices (BMP) for Stormwater Management

Use Best Management Practices to improve poor drainage at multiple segments to ensure trail accessibility and avoid users traversing off the trail which results in loss of vegetation, habitat alteration, and soil compaction.

For significant ponding or trail erosion, design and install vegetated swales or rain gardens along the upslope side of the trail that will help capture and treat stormwater. A culvert could be installed at the lower point to convey the runoff to the wooded area on the other side of the trail to dissipate runoff and naturally infiltrate. It is important to note that any ground disturbance, particularly digging, should be coordinated with an archeological exploration to verify there are no artifacts or sensitivity concerns.

For typical trail maintenance practices, refer to the latest edition of the Trail Maintenance section of the **DCR Trail Guidelines and Best Practices Manual**.

3. Add Site Furniture Along the Trail

Provide supplemental site furniture at the trailhead, along the trail at selected locations to provide respites, or at scenic features or natural resources to provide educational opportunities Site furniture to include wood and metal benches and picnic tables with rustic character in keeping with the site.

4. Provide Accessible Portable Restrooms at Fisherman's Cove Trailhead

Although AMC and YMCA camps have restroom facilities, these are only available for use by AMC and YMCA permit users and are not open and available to the public. Considering the size of the site and the length of the 3.9-mile loop trail, it is recommended that at least one accessible portable restroom facility be provided adjacent to the Fisherman's Cove parking lot, which is convenient with easy access for both the public and for DCR maintenance. Considering the majority of the study area is within the ACEC, a new permanent restroom structure could be perceived to have a negative impact on the surrounding sensitive ecology. A portable restroom facility is an alternative solution with less adverse site impacts.

5. Adjust Alignment of Trail and Golf Course

The westerly section of the Green Loop trail alignment is located at the east edge of the Ponkapaog Golf Course and crosses the middle of the fairway at hole #3. This condition and limited site lines result in unsafe, conflicting uses between golfers and trail users. It is recommended that DCR to evaluate alternatives for reducing or eliminating conflicts. The golf course is a significant and historic landscape designed by Donald Ross. Therefore alternatives which propose modifications to the golf course layout or the trail alignment to separate walkers/hikers from golfers need to consider impacts to this resource. These alternatives will also need to evaluate the pros and cons and priorities as improvements may have environmental implications given their proximity to the pond and bog.

6. Reduce Erosion on the Steep Trail

A few segments of trails north of the Green Dot Loop trail are "fall-line" trails, which are in poor condition and have become persistent maintenance problems. Design and construction techniques should be considered to reduce watershed and outslope the trail (slope it away from the bank) along a fall-line (in the direction of the trail) to facilitate natural drainage across the trail, and provide appropriately spaced waterbars and drainage dips. See **DCR Trail Guidelines and Best Practices Manual** for additional information.

7. Close Off/Block "Unofficial" Trails

There are a few unofficial trails connecting Green Dot Loop trail to the pond's edge between Fisherman's Cove and Dam within the sensitive resource areas. Other unofficial trails exist in the northeast corner of the study area spanning from the 1-93 access trail east towards Route 24 and encircling the Duck Pond area. When park users stray off of official trails and trample natural areas to create new trails, this contributes to the degradation of the natural environment, resulting in vegetation loss, soil compaction, erosion, muddiness, degraded water quality, and disruption of wildlife.

Use of these unofficial trails should be discouraged and closed off. Tools, such as plantings or strategically placed boulders or logs, may help to block or discourage use of informal trails and will also add habitat value in accordance with DCR Trail Guidelines and Best Practices Manual. DCR may also wish to consider replanting native species within areas that have been cleared for informal trails to restore habitat in these areas.

8. Improve Safety along Shared-Use Trail:

There are two shared-use sections of Green Dot Loop trail that allow permitted vehicular to access AMC and YMCA sites. It is an ongoing problem with speeding cars going well above the posted limit of 10mph, especially between north entrance and YMCA camp. Install signage of speed limit and "Share the Road" to reinforce driver to slow down and respect other trail users.

9. Institute DCR's Encroachment Policy

Institute DCR's Encroachment Policy on adjacent landowners whose practices are adversely affecting the site and its sensitive ecologies. Given the varied land uses surrounding Ponkapoag Pond and the ongoing changes that are being implemented that affect the watershed, it is recommended that DCR perform a property and title search and property line survey to confirm what uses are adversely affecting and encroaching on DCR

Figure 3-9. Precedent images for Green Dot Loop trail improvements

property. Then, DCR should act on their encroachment policy to educate and communicate with abutting landowners about the site and its environmental and cultural sensitivity, to prevent or reverse encroachment practices, and to restore site and ecological conditions.

10. Trail Operation and Maintenance

Any new trail construction and trail maintenance should be implemented to avoid sensitive resources such as wetlands, waterways, rare species habitats, and sensitive cultural sites.

In addition to following the **DCR Trails Guidelines and Best Practices Manuals**, it is recommended that DCR prepare a comprehensive maintenance plan for trails in the Master Plan project area, approved by the applicable regulatory programs.

3.4 | BOARDWALK IMPROVEMENTS AT PONKAPOAG BOG

The existing Ponkapoag Bog boardwalk was constructed by connecting floating wood planks with metal chains. The boardwalk is seasonally submerged below the water surface and is not passable without water gear. The narrow wood plank composition makes the boardwalk unstable and difficult for two people to pass by each other. It's common for visitors to frequently misstep onto adjacent vegetation having a profound impact on the sensitive ecosystem. This type of construction is also not compliant to the accessible code.

Reconstruct an Elevated Accessible Boardwalk

Ponkapoag Bog is made up of several distinct natural communities that are rare in eastern Massachusetts. An accessible boardwalk allows the public to access the hidden world of these sensitive ecological areas while being an integral part of educating the public about the value of protecting them.

Following the principles of ecologically sustainable trails, it is recommended that the new accessible boardwalk be developed at the disturbed footprint of the existing boardwalk and that it be shortened to minimize the disturbance and influence of human activities and avoid impacting adjacent undisturbed areas. An elevated boardwalk would allow for additional protection of this ecosystem, as it maintains direct access to specific points of interest, while the elevated nature of the path would provide more controlled access. The current board systems allow visitors to meander on and off the trail as it is at ground level. An elevated surface would limit off-trail traffic, helping preserve this delicate ecosystem. Various trail forms or lookout platforms can also be incorporated into the elevated boardwalk, allowing for more focused observation at key points along the trail circuit. An open grid structure is also recommended to promote light penetration. This approach provides reasonable access while limiting the potential for continued environmental impact that occurs under existing conditions and could be developed in conjunction with an environmental education program (DCR, 2019).

Boardwalk Design and Construction Recommendations

1. The new elevated boardwalk could be accessed through the improved Green Dot Loop trail that is accessible from the parking lots at the Ponkapoag Golf Course or Ponkapoag Pond south entrance.

2. An accessible route or ramps are needed between the Green Dot Loop trail and the boardwalk trailhead.

3. Boardwalk Layout: The new accessible boardwalk is to be constructed on the current boardwalk footprint since the vegetation has been disturbed. However, the designer should investigate locations that provide interpretive/educational value and avoid locations that are close to rare or endangered species.

4. Construct the boardwalk with a minimum of 48" in width to allow the comfortable passage of two adults.

5. Add observation platforms (see Figure 3-12) with benches for viewing the bog, resting, or facilitating other nature watching.

Figure 3-10. Existing unstable and submerged boardwalk at Ponkapoag Bog

6. The boardwalk should be constructed with railing to prevent visitors from accessing the sensitive ecological resources, and to keep children or adults from falling off the boardwalk into the wetland. A more substantial guardrail is needed if the boardwalk crosses deep water or attains considerable height. At a minimum, a four-inch rim along the edge of the decking is desirable if the boardwalk is to be used by wheelchairs.

7. Use Helical piles, which are an excellent alternative to friction piles, to create the foundation for the elevated boardwalk. Helical piles weigh less, are easier to install with portable equipment and result in less ground disturbance. The overall cost may be less than friction piles.

Helical piles are usually made of hot-dipped galvanized steel. The diameter and number of helices depend on the loads to be carried and the soil conditions at the site. In poor soils, longer helical piles are sometimes used to achieve the needed load-bearing capacity. To reach that capacity, the pile is augered into the ground until a predetermined torque is reached. Extensions can be bolted onto the lead section and augered into the ground until the correct torque is reached (USDA, 2007).

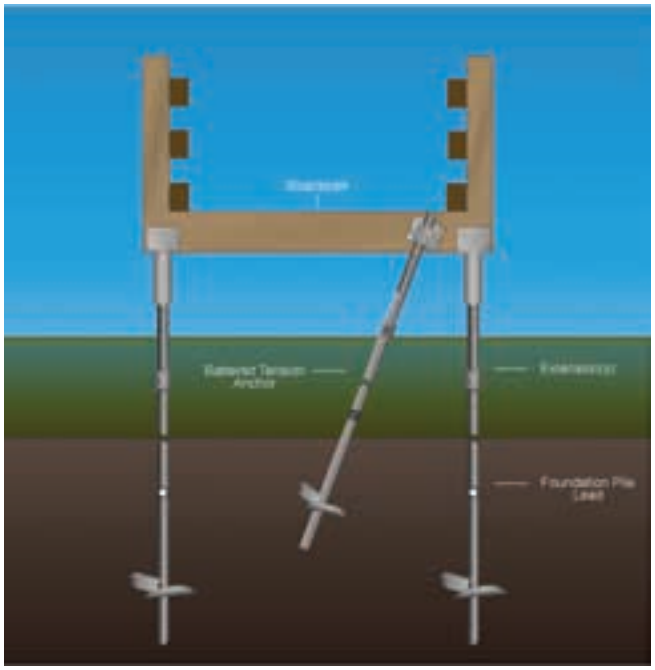

Figure 3-11. Diagram of boardwalk with helical pile foundation

8. A signage system for marking the trail and points of interest including educational interpretive signs, which can help educate the public concerning wetland beauty and functions and help build support for the protection and restoration of wetlands and related resources.

Special Site Considerations

1. A boardwalk in an Atlantic White Cedar Bog requires adapting wetland construction techniques to the site. The piles will have to be adjusted in the field to avoid roots. Although the upper layer of soil is organic, the underlying soil may not be. Test holes should be added along the proposed route to determine whether end-bearing piles, friction piles, or a combination of both is the best technique (USDA, 2007).

2. Check the depth and consolidation of organic soil. Deep, unconsolidated soils pose problems for boardwalk construction except for floating structures.

3. It is recommended that the boardwalk be elevated enough to handle yearly flooding while having the option to rebuild or repair should any damage occur during a major flood. This may be a cost-effective strategy since major floods are infrequent.

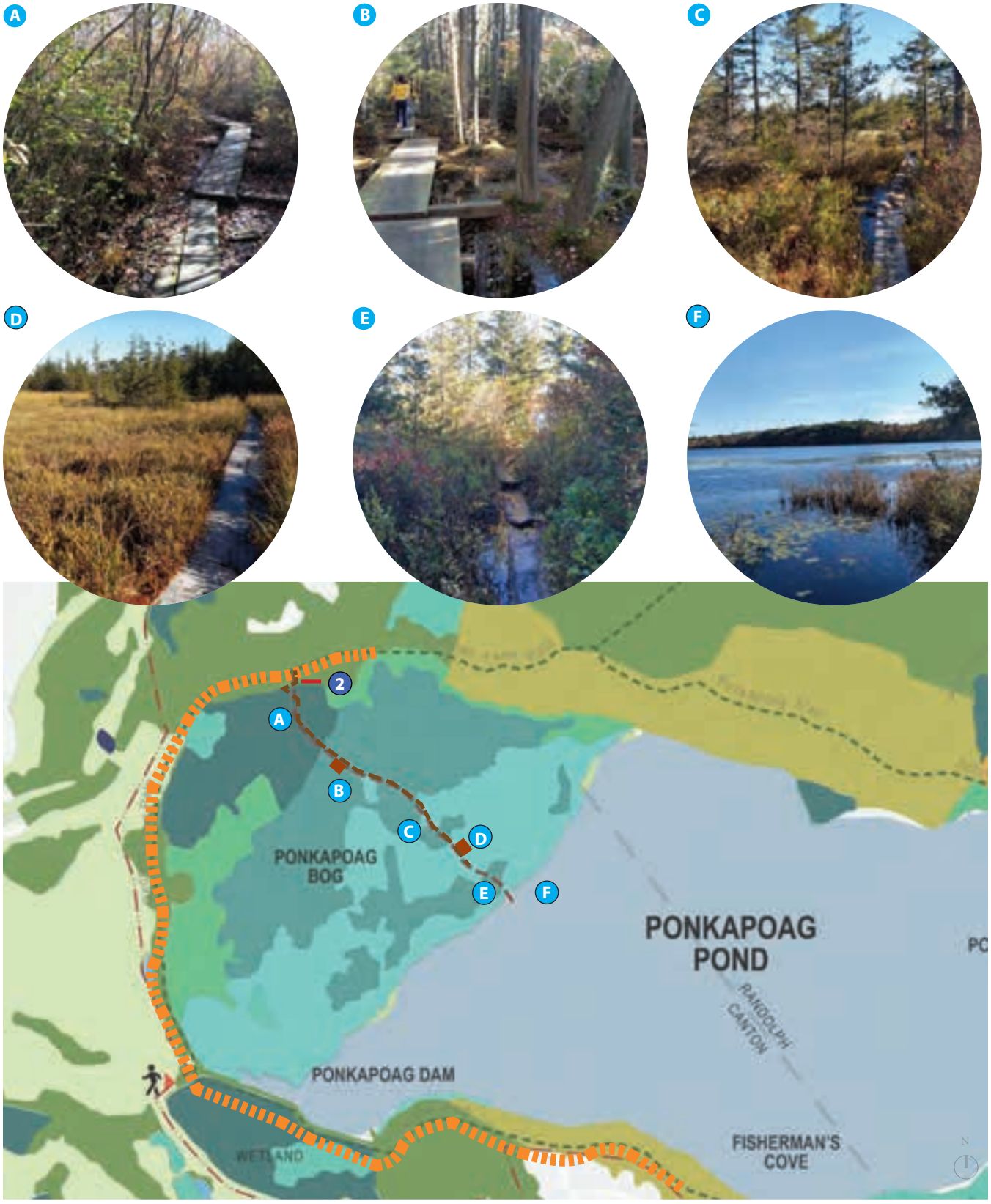

Figure 3-12. Proposed accessible boardwalk with observation platforms. Images shown views of each plant community in the Ponkapoag Bog.

Figure 3-13. Precedent images of accessible boardwalk and observation platforms.

3.5 | FISHERMAN'S COVE IMPROVEMENTS

Fisherman's Cove is located along the southern shore of Ponkapoag Pond. A gravel path connects the pond to a parking area located between the pond and Randolph Street. The Fisherman's Cove site consists of a small sand/gravel area at the pond's edge, which is a popular spot for launching non-motorized boats and picnicking. There is no designated boat launch or ramp at the shoreline and vehicular access to the pond is restricted inland of the Green Dot Loop trail with a vehicular gate which is typically locked. The path between the south parking lot to Fisherman's Cove and the pond is not accessibly compliant due to the steep sloping natural topography and poor drainage along the path, which contributes to erosion from the gravel path entering into the pond, and degrades adjacent natural areas

The recommendations for the south entrance and parking area improvements are described in Section 3.2. The recommendations for Fisherman's Cove are as follows and include improvements from the Green Dot Loop trail to the pond's edge (PT-1 to PT-2 in Figure 3-18). The goal is to provide a sustainable and accessibly compliant waterfront area with site facilities/amenities for visitors to enjoy Ponkapoag Pond while protecting sensitive natural resources.

1. Reconfigure and regrade the walking path to be accessibly compliant and to align with the proposed walking path at the turnaround area across the Green Dot Loop trail. Slope and landing requirements to follow **Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG)**.

2. Regrade the trail and provide stormwater controls in the form of vegetated swales to alleviate concentrated flows toward the pond and to capture and treat stormwater along the slope.

3. Install dense-graded, crushed, stone, multi-use surfacing for both parking area and trail system surfacing.

4. Provide the Welcome Wayside Orientation sign and Directional Information sign. See Section 3.9 for Park Signage Improvement Recommendations.

Figure 3-14. Fisherman's Cove is a popular spot for boating, wading and picnic.

Figure 3-15. Precedent image of picnic areas in the wood

Figure 3-16. Precedent image of picnic area near water

5. Provide picnic tables and seating at the Fisherman's Cove intersection with the Green Dot Loop trail.

6. Provide supplemental site furniture at the trailhead, along the trail at selected locations to provide respites, or at scenic features or natural resources to provide educational opportunities. Site furniture to include wood and metal benches and picnic tables with rustic character in keeping with the site.

7. Add a level area with picnic tables near Pond's edge

8. Provide a combination of supplemental native plantings and boulders to protect the existing wetland at the west of the trail.

9. Provide a non-motorized boat launch area which is located above mean high water level.

10. Provide a boardwalk between the trail to the pond and the grass area to the west over the existing wetland to provide access between the two without adversely affecting the wetland.

11. Remove and mitigate invasive species within the area of disturbance for proposed improvements. Re-plant areas of disturbance including the prior trail footprint and areas adjacent to the new trail alignment and parking lot layout with native plants per **Ponkapoag Pond and Bog Landscape Management Plan (LMP)**.

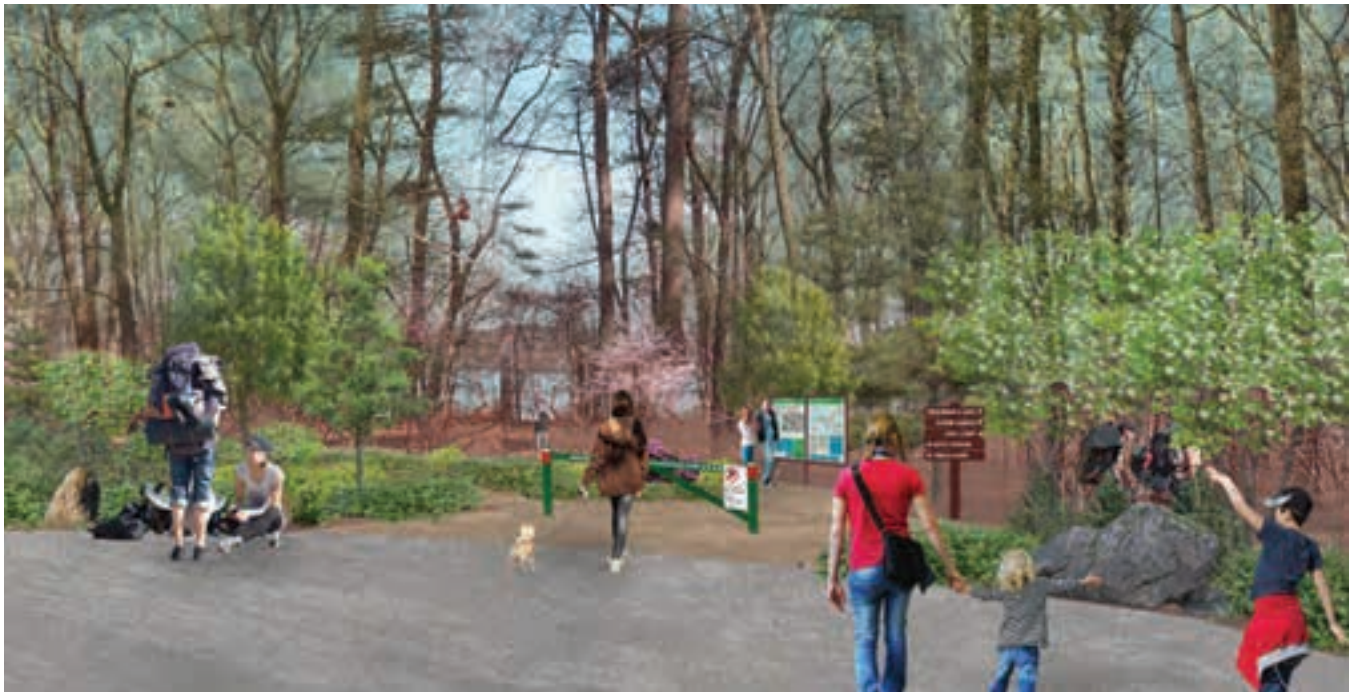

Figure 3-17. Proposed turnaround area and trail

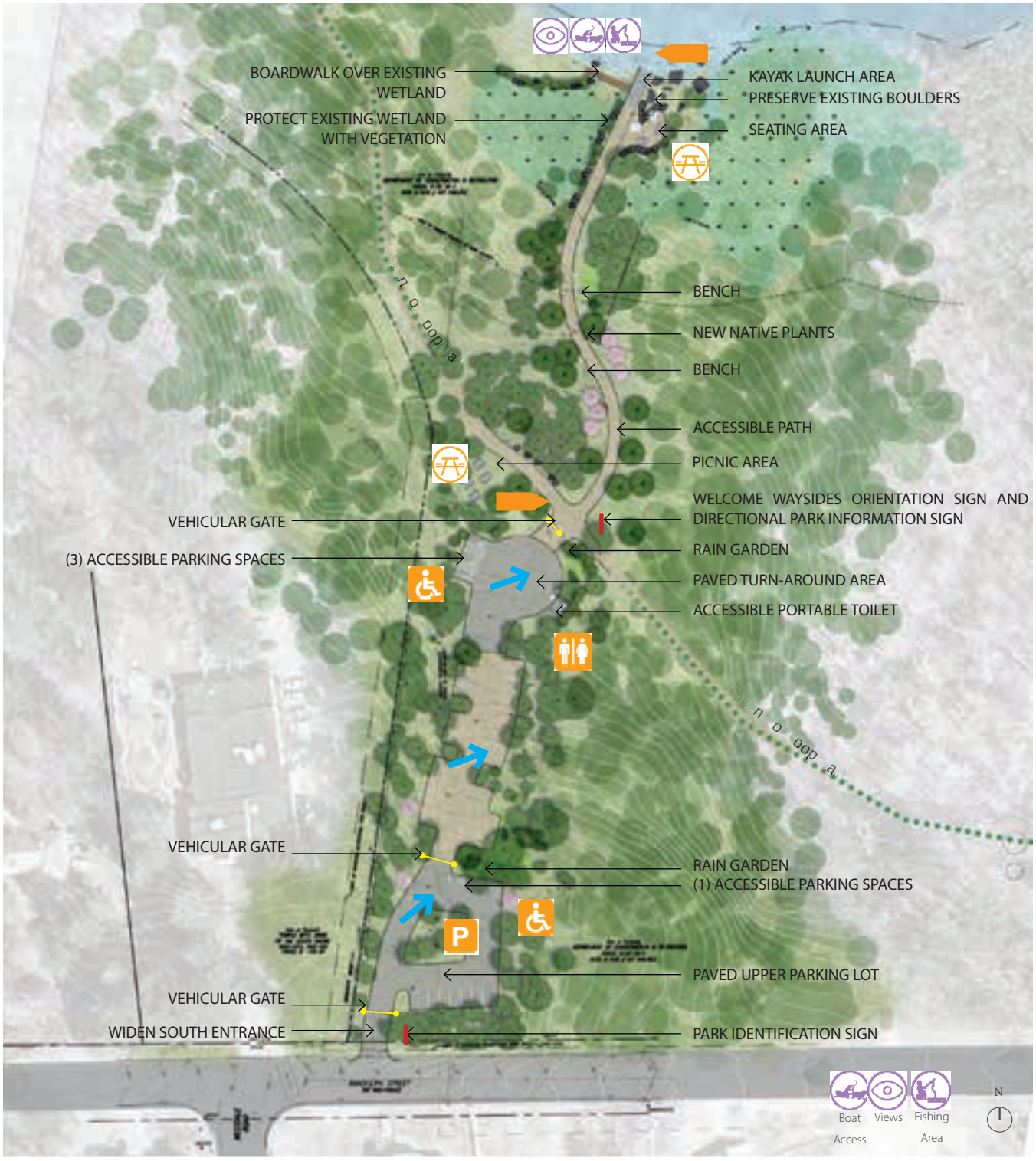

Figure 3-18. Fisherman's Cove improvement recommendations.

3.6 | HABITAT RESTORATION AND PROTECTION

Habitat restoration and protection are integral components of this master plan to preserve the unique array of natural resources found at Ponkapoag Pond. Habitat restoration and protection efforts will focus on several key elements including, but not limited to: invasive species management, habitat restoration, water management, and outreach and education.

Invasive species have been identified and documented within key areas of the site, and management of these plant populations is a DCR priority to foster the long-term preservation of native habitat at this site. (See Appendix C for Invasive Species Site Survey). In order to support this goal, The **Ponkapoag Pond and Bog Landscape Management Plan (**Appendix A**)** has been developed to complement this Master Plan and to serve as a guide for long-term native vegetation maintenance and invasive species control, specifically along the Green Dot Loop trail. The LMP establishes guidelines for invasive species early detection and rapid response, outlines prioritization strategies, and presents a variety of management techniques that can be implemented by DCR or their partners. Ongoing monitoring, early detection, and rapid response for invasive plant species will be integral to the effective management of a number of invasive species identified along the Green Dot Loop trail and within other heavily trafficked areas of the site. Edge communities along trails and gathering areas are prime locations for invasive plant establishment given the inadvertent disturbance to native vegetation by day-use visitors and should be monitored closely and managed regularly throughout the growing season. DCR should seek to continue to monitor these areas as part of routine operations and to also leverage volunteer and student groups to assist with monitoring efforts to track the location or potential spread of these plants beyond existing conditions. More detailed invasive plant management recommendations are outlined in the LMP.

As the preservation of native vegetation communities is a priority, the LMP offers appropriate planting recommendations to augment or restore native vegetation for each plant community type found within the project site. Over planting invasive management areas or areas that have been otherwise disturbed with native vegetation is also encouraged to assist with native species grow-in to discourage invasive establishment. Native plants of a local genotype are recommended for restorative plantings.

Another tool that may be used to facilitate habitat preservation is the creation of clearly defined trails and areas for visitors and discouraging creation of informal trails to help reduce disturbance to native vegetation and assist with the preservation of native habitats throughout the site. Tools, such as plantings or strategically placed boulders or logs, may help to block or discourage use of informal trails and will also add habitat value. DCR may also wish to consider replanting native species within areas that have been cleared for informal trails to restore habitat in these areas.

Preservation of the quality of the wetland habitats surrounding the pond and the pond itself relies heavily on maintaining the pond hydrology. As the water levels and hydrologic regime of the pond are directly influenced by the Ponkapoag Dam, it is recommended that DCR work with the golf course to develop a schedule for adjustments to the dam outlet structure golf or any other water withdrawals from the pond for course irrigation in consultation with DCR Ecologists. This will help preserve the hydrology of the pond and will allow DCR to potentially avoid water level changes that may adversely affect the ecosystems within and around the pond.

Active habitat management is another mechanism that can be leveraged to promote habitat preservation for sensitive species. A total of nine state-listed species are known to occur within the area, and include rare plants, butterflies, moths, dragonflies, damselflies, mussels, and amphibians. DCR may wish to discourage activities or projects in habitats identified to contain rare species or that have potential to support rare species. DCR may consider completing surveys for and delineations

of rare plants and also sensitive host plants that are critical to various life-stages of state-listed species to form a baseline plan of critically-sensitive areas within Ponkapoag to further guide habitat protection and rare species preservation strategies. Additionally, surveys for host plants for these species may also serve to support habitat preservation efforts through documenting individual plant species known to be integral to a species' life cycle. Active habitat management at this site can also include planting of additional host plants to increase available habitat for state-listed species. Active habitat management should be completed in consultation with NHESP.

Education and outreach is another tool that can be used to promote habitat preservation and protection. DCR may wish to engage their partners to host educational hikes, organize public clean up days, conduct outreach and educational events to increase awareness surrounding invasive species, and utilize opportunities for signage to inform the public about the importance of these rare and sensitive habitats and how their activities on-site can influence the functions of these habitats.

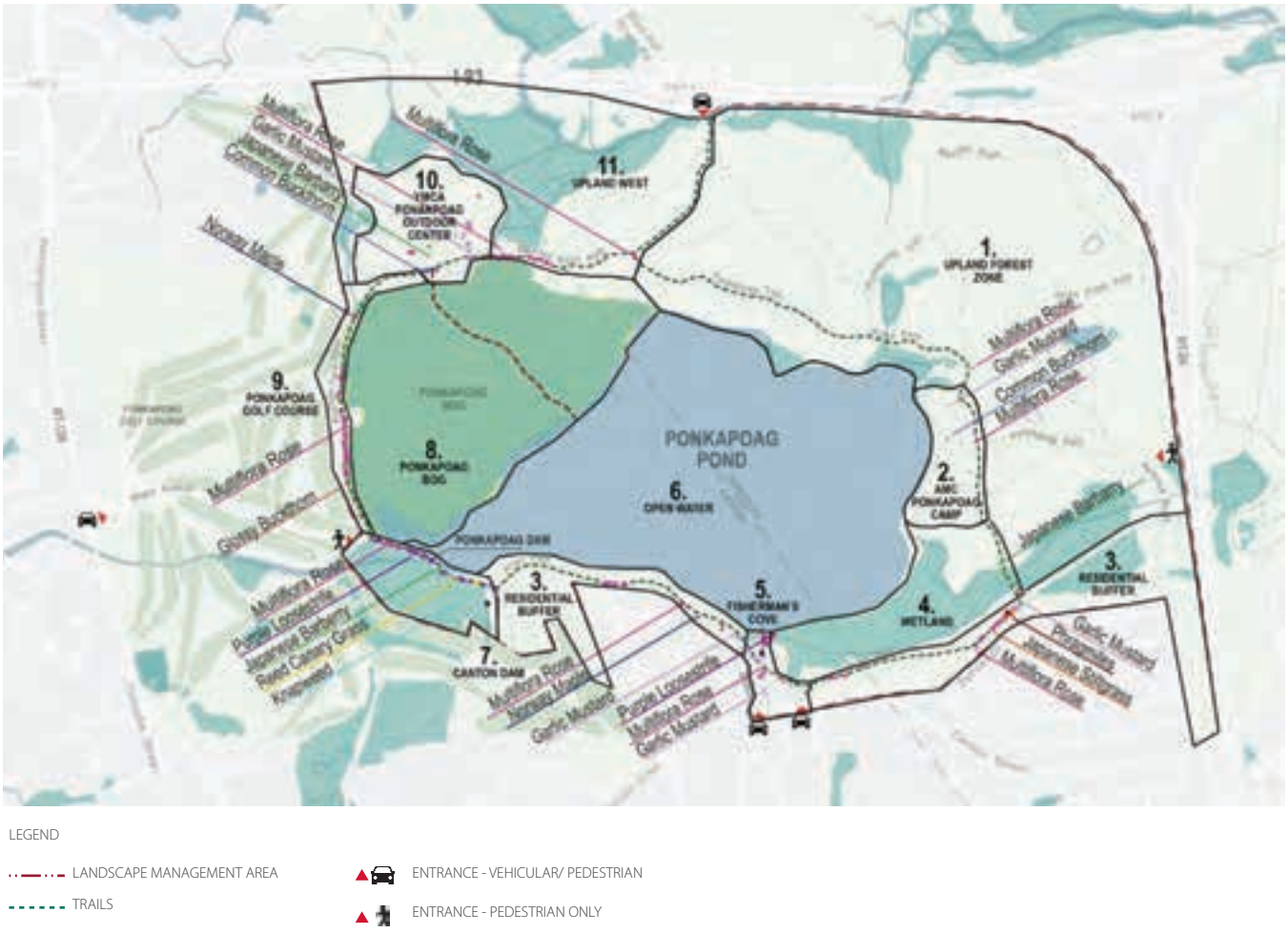

Figure 3-19. Invasive species distribution in each landscape management area

3.7 | AMC PONKAPOAG CAMP

SITE IMPROVEMENT RECOMMENDATIONS

To protect the sensitive natural resources around the AMC campsite, and respect the "purposefully rustic" operational theme, when considering site improvements and maintenance practices, DCR and AMC should consider and comply with Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) when it is appropriate with the intent of preserving the unique natural environment of the site. In addition, the following recommendations should be evaluated and prioritized for implementation. The recommendations are illustrated on Figure 3-21.

1. Provide improved accessible paths between camp facilities, including the lodge, restroom, parking lot, picnic area, and accessible cabins by minor regrading, improving trail surfaces, and/ or adding elevated slope walkways/ ramps. Slopes and landings along the trail are to follow the requirements of Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG).

2. Provide designated accessible parking spaces at the existing parking lot in front of the lodge, and provide accessibly compliant routes of travel between the lodge, picnic area, and restrooms.

3. Given the challenge to provide an accessible path between main facilities, accessible cabins, and the swimming area at the pond without significant regrading that would adversely affect the natural beauty of the site. It is recommended that DCR and AMC designate an accessible parking space adjacent to the Stose cabin and from this cabin provide an accessibly compliant sloped walkway/ elevated ramp to the boat dock and swimming area. This would reduce the extent and area of site disturbance and make the pond edge accessible.

4. Provide a new day-use parking lot on a relatively close site near the caretaker's lodge and visually buffer from the public along the Green Dot Loop trail. This would replace the existing day-use parking lot, which is currently in an inappropriate location on a relatively steep slope and in a location which interrupts the Green Dot Loop trail. The existing day use parking lot should be regraded and replanted while maintaining access for the Green Dot Loop trail and restricted periodic access to AMC Camp utilities. Replant areas of disturbance including the prior day-use parking lot and areas adjacent to the trail alignment with native plants per Landscape Management Plan (Appendix A).

5. Regrade targeted sections of trail within the camp area to improve eroded conditions and areas with evidence of standing water. These conditions are caused by steep orientations downhill towards the Pond, naturally occurring low points, and compaction from repeated vehicular travel where use is shared with pedestrians. Apply Best Management Practices (BMP) for regrading to enhance drainage, promote stormwater runoff, and improve trail surfacing. Other grading improvements will include crowning trail surfaces, installing appropriately spaced waterbars, and creating drainage dips to direct stormwater across the trail while slowing runoff to reduce erosion. See DCR Trail Guidelines and Best Practices Manual for additional information. (DCR, 2019)

6. Consider expanding permitting and use of Missionary Point area including the pavilion, boat storage, and tent sites beyond its current use which is limited to the summer months. This is a missed opportunity for being able to take advantage of the amenities year-round. AMC camp can consider including and improving the Missionary Point facilities as part of the AMC Ponkapoag Camp and generate revenue from rentals which can be invested in the AMC Camp. The improvements include:

- Provide additional new tent sites (for a total of five including existing tent sites) and include an accessible parking spot at Missionary Point adjacent to the site facilities.
- Provide a new parking lot at the intersection of Green Dot Loop trail for the tent sites at Missionary Point if additional parking is needed. Use plantings to screen the parking lot from Green Dot Loop trail.

- Provide an elevated accessible sloped walkway/ elevated ramp to the boat dock on the pond in a location which minimizes visibility from the water.

7. Proposed improvements to minimize ground disturbance and avoid lowering the existing grade to protect potential or known buried archaeological resources

8. Provide supplemental native plantings to serve as barriers and help stabilize the slopes along the trails running parallel to the contours adjacent to steep slopes per Ponkapoag Pond and Bog Landscape Management Plan (Appendix A).

9. Implement Best Management Practices while constructing the accessible trails. Best Management Practices to be implemented in the design and construction of trail improvements shall consider opportunities to capture, convey, and treat stormwater. Refer to the DCR Trails Guidelines and Best Practices Manual for additional information.

10. DCR should work with AMC to finalize a lease boundary for the AMC Camp and incorporate into any current and future lease agreements for the site as shown in Figure 3-21.

Figure 3-20. Precedent of accessible sloped walkway/ramp

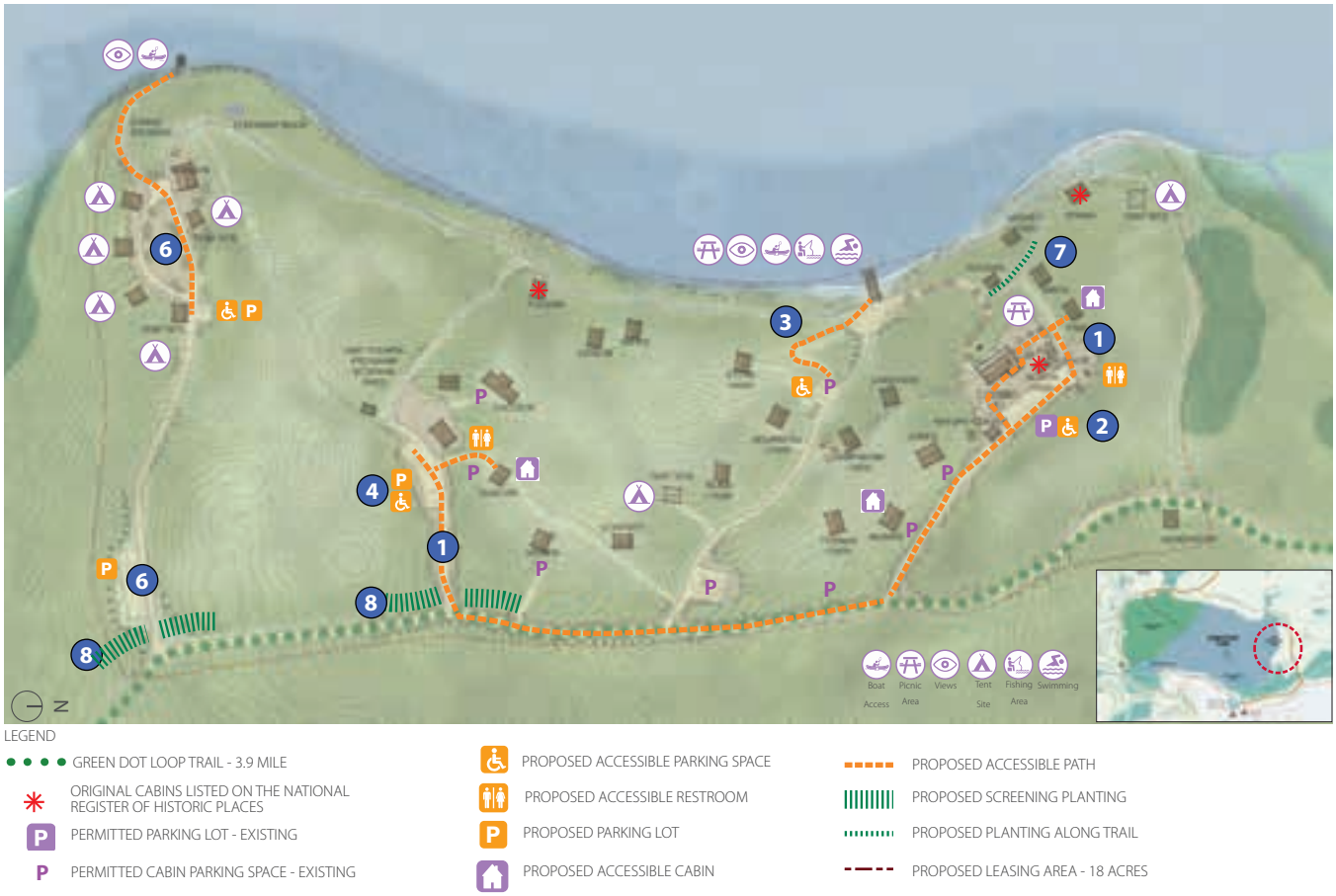

Figure 3-21. AMC Ponkapoag Camp site recommendations

BUILDING IMPROVEMENT RECOMMENDATIONS

Recommended improvements to AMC Ponkapoag Camp facilities are outlined below, however three projects stand out above all others as the Camp's priority needs. First is providing accessibility to the main lodge, cabin, and restroom facilities for guests with disabilities. Second is renovation of both the main lodge and Sheldon Cabin to address deferred maintenance and significant utilities deficiencies. Third is the stabilization and preservation of the three remaining historic cabins (North, Spang, and Folsom), which are currently at risk of permanent loss of character-defining features and materials. All three of these priority projects will require further professional study to establish a full scope of work.

All recommended improvements to AMC Ponkapoag Camp facilities will first need to be considered in the context of potential eligibility for listing on the National Register of Historic Places and the Secretary of the Interior's Standards for the Treatment of Historic Property. In addition to the historic cabins, it is likely that many of the Camp's existing structures are more than fifty years old and therefore eligible for listing. In order to establish a framework for the work ahead, an historical analysis of all the camp structures should be commissioned to determine which qualify as "contributing features" to the National Register-listed camp prior to moving forward with recommendations outlined herein.

The proposed improvements will also need to be coordinated with site and infrastructural improvements outlined elsewhere in this Master Plan. For example, accessibility improvements to cabins and restroom facilities are only meaningful in combination with accessibility improvements to parking and site pathways. Similarly, renovations to the Lodge and Sheldon Cabin will need to be coordinated with utilities upgrades, such as on-site solar energy production and placement of a new potable water well (or wells).

Regulatory Compliance

The AMC Ponkapoag Camp is a "family type" campground as defined in the State Sanitary Code, Chapter VI. Since the AMC Camp pre-dates current code, it is effectively a compliant facility as it stands, however any substantial change to the camp would need to consider, to the extent feasible, bringing facilities into compliance with current regulations outlined in the State Sanitary Code's Chapter VI, subsection 105 Code of Massachusetts Regulations (CMR) 440, "Minimum Standards for Developed Family Type Campgrounds." This is especially important for the camp's common facilities such as the lodge and restrooms.

Specific 105 CMR 440 regulations that are currently not compliant, but addressed in the AMC Ponkapoag Camp master plan recommendations include providing a safe potable water supply (105 CMR 440.07), an adequate number of toilet facilities that meet proper distance requirements (105 CMR 440.08), as well as an adequate number of lavatories and a shower facility (105 CMR 440.09).

Any new facilities and/or substantial alterations to existing facilities at the AMC Ponkapoag Camp will need to comply with the 780 CMR Massachusetts State Building Code (Ninth Edition as of July 2022), as well as the 521 CMR Massachusetts Architectural Access Board regulations.

AMC Ponkapoag Lodge Renovations

- Accessibility improvements, including door opening and threshold modifications.
- Replace existing T-11 siding with new stained or painted cedar clapboard siding.
- Replace existing asphalt roof with new asphalt or cedar shingle roof.
- Replace existing awning window units with new awning window units.
- Replace existing skylights with new operable and screened skylights to improve ventilation.
- Kitchen renovation to include potable water source and hot and cold water sink, electric cooking and refrigeration.
- Replace all existing plumbing, electrical and fire alarm systems, including implementation of new LED lighting.
- Remove existing west-facing porch; replace with a new screened porch.

Accessible Restroom Facilities

- Demolish two (2) existing toilet facilities; replace with a new, ≈150 SF accessible restroom facility that can accommodate two (2) unisex restrooms, both with composting toilets, hot and cold water sinks and new LED lighting.
- Construct a second accessible restroom facility accommodating two (2) unisex restrooms; locate near the southern parking area/Duncan Cabin.

Sheldon Cabin and Storage Shed

- Replace existing exterior cladding at both cabin and shed; replace with new stained or painted cedar clapboard siding.
- Replace existing asphalt roof at both cabin and shed; replace with new asphalt or cedar shingle roof.
- Replace existing gutters and downspouts with new gutters and downspouts.
- Renovate cabin interior to include new kitchen, laundry, and bathroom with composting toilet and shower.
- Utilities upgrades including new plumbing to accommodate domestic hot and cold water, new electrical wiring, and new all-electric heating system.
- Install new leach field or gray water tank tied to new kitchen, laundry, and bathroom.

Historic Cabin Stabilization and Preservation

- Guided by the Secretary of the Interior's Standards, develop a stabilization and preservation plan in collaboration with the Massachusetts Historical Commission
- Repair and/or replace damaged structural log elements with in-kind material.
- Where appropriate, remove non-historic elements on the interior and exterior to enhance legibility of the historic cabin.

- Where possible, refurbish historic materials, including original window and door units, screen panels, trim elements, non-structural half-log exterior wall cladding, flooring and chinking (i.e., the mortar-like seal between logs).

Cabin Improvements

- Accessibility retrofit of Marian, Duncan and Pine cabins.
- Continued ongoing annual maintenance of all cabins to address minor repairs and material replacements.

Additional Improvements

- Repair and/or replace damaged wall cladding, trim elements and doors with in kind materials at oldest storage building adjacent to North Cabin.
- Replace roofing material at oldest storage building adjacent to North Cabin.
- Remove generator shed and related equipment and piping. Cap wellhead. Replace with new potable water well(s) serving the Lodge, Sheldon Cabin and the new accessible restroom facilities.
- Explore ground and/or building-mounted on-site renewable energy opportunities to support the Lodge, the new accessible restroom facilities and Sheldon Cabin, where an all-electric heating system could replace the existing, fossil fuel-based approach for manager accommodations throughout the year.

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3.8 | YMCA PONKAPOAG OUTDOOR CENTER

SITE IMPROVEMENT RECOMMENDATIONS

The YMCA Ponkapoag Outdoor Center is located just north of Ponkapoag Pond on a generally flat site area raised above the pond to the south and surrounded by wetlands to the north and east, the bog to the south, and the golf course to the south and west. The site provides a unique natural setting for an outdoor camp and it is DCR's priority to provide opportunities for this site and its amenities to serve and provide outdoor experiences for underserved youth from the metropolitan area of Boston.

To protect the sensitive natural and cultural resources around the YMCA campsite while enhancing the camper's and public's experience, approaches to site and building improvements should minimize ground disturbance and where practical and feasible construct over not below existing grade. When considering site improvements and maintenance practices, DCR and YMCA should also comply with Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG). With the above in mind, the following recommendations should be evaluated and prioritized for implementation. The recommendations are illustrated on Figure 3-22.

1. Provide regrading and improved trail surfacing for multi-use areas such as the portion of the Green Loop trail which also serves as the vehicular access route between the north entrance and YMCA camp and incorporate rain gardens and BMPs to provide stormwater improvements to prevent stormwater runoff and erosion.

2. Provide regrading and resurfacing of the YMCA bus parking lot and incorporate rain gardens or other BMPs to provide opportunities for stormwater improvements prior to stormwater runoff entering the bog.

3. Provide designated and signed accessible parking spaces within or adjacent to the parking lot to provide accessibly compliant routes of travel between the lodge and bus parking lot.

4. Provide accessibly compliant paths between camp facilities, such as lodges, restrooms, parking lots, picnic areas, pavilions, recreational areas, etc. by minor regrading, and where feasible by building up improved trail surfaces over existing grade, or adding elevated slope walkway/ramp. Slopes and landings along the trail should comply with the requirements of Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG).

5. Provide an enlarged stage area and seating layout to accommodate additional camper capacity and additional and varied recreational programming.

6. Replace the non-functioning shallow pool with a splash pad.

7. Provide regraded and new basketball court surfacing and basketball hoops while incorporating a modest amount of seating for viewing games and accommodating players.

8. Proposed improvements should minimize ground disturbance and avoid lowering the existing grade to protect potential or known buried archaeological resources

9. Provide new site areas to accommodate additional recreational programming, such as mini-golf.

10. Provide one new pavilion structure and an additional outdoor classroom space to accommodate additional educational and recreational programming.

11. Provide an expanded vegetable garden in a raised bed.

12. Remove and mitigate invasive and poisonous plants and restore and replant with native plants. Refer to the Landscape Management Plan (Appendix A) for recommended planting species.

13. Provide an accessibly compliant drinking fountain.

14. DCR should work with the YMCA to finalize a lease boundary for the YMCA Camp and incorporate into any current and future lease agreements for the site as shown in Figure 3-22.

Figure 3-22. YMCA Ponkapoag Outdoor Center - site recommendations

Figure 3-23. Precedent images of stage and seating

Figure 3-24. Precedent images of ropes course

Figure 3-25. Precedent images of outdoor classroom

BUILDING IMPROVEMENT RECOMMENDATIONS

The recommended improvements to YMCA Ponkapoag Outdoor Center facilities are outlined below and prioritize increased functionality, accessibility and building performance/energy efficiency. Recommendations range from the demolition and full replacement of existing facilities that are past their service life to minor renovations and repairs to existing facilities that enhance existing functionality or reactivate an underutilized resource. In all cases, improvements to facilities are interrelated to the Outdoor Center's recommended site improvements, especially in the context of increased universal accessibility. Accessible routes between facilities are only successful if the facilities themselves are brought to a comparable level of compliance, and vice versa.

To enhance a sense of place at the Outdoor Center, a unifying architectural character is recommended for the design of any new facilities, including the stage, restroom facility, and bathhouse. A rustic character that incorporates natural wood elements will compliment both the Outdoor Center's woodland context and existing wood structures to remain such as the covered pavilions, the Arts and Crafts cabin, and the Lodge.

Regulatory Compliance

The YMCA Ponkapoag Outdoor Center meets the definition of a "recreational camp for children" defined in the State Sanitary Code, Chapter IV. Any substantial change to the Outdoor Center would need to consider, to the extent feasible bringing facilities into compliance with specific facilities-related regulations, such as subsections 430.300: Potable Water Required, 430.301: Installation and Maintenance of Plumbing, 430.320: Food Service,

430.370(B): Number of Toilet Facilities Required, and 430.373: Handwashing Facilities. Most significant among these regulations is subsection 430.370(B), which dictates the number of toilet fixtures required relative to the number of campers present at the Outdoor Center on a given day. As reported to the design team during the August 16, 2021 site walkthrough, the pre-Covid population of YMCA Ponkapoag Outdoor Center campers totaled 300-350, ages 7-13. Using the higher end of that range for future planning of any new restroom facilities, a total of six toilet fixtures per gender would be required as defined in subsection 430.370(B).

Code compliance for the YMCA Ponkapoag Outdoor Center's pool facility is also governed by State Sanitary Code, Chapter V, 105 CMR 435.00 Minimum Standards for Swimming Pools. A new or remodeled existing bathhouse facility will need to meet regulations for construction including 435.02: Plan Approval and 435.03: Bathhouse and Sanitary Facilities. During the master plan process, the design team concluded that the existing bathhouse meets many of the current State Sanitary Code regulations, however more investigation is needed to determine whether or not deficiencies exist with bathhouse ventilation and lighting.

Any new facilities and/or substantial alterations to existing facilities at the YMCA Ponkapoag Outdoor Center, including the aforementioned bathhouse and restroom facilities, will also need to comply with the Massachusetts State Building Code (Ninth Edition as of July 2022), as well as the Massachusetts Architectural Access Board regulations (521 CMR).

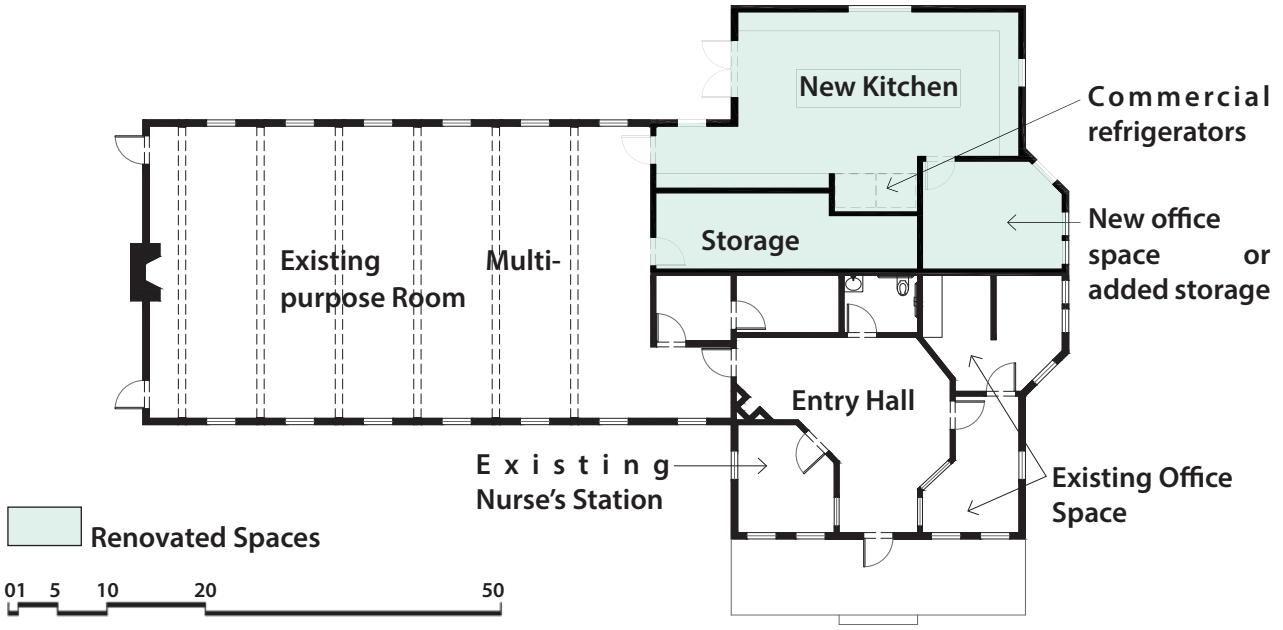


Figure 3-26. Lodge Proposed Renovations Floor Plan

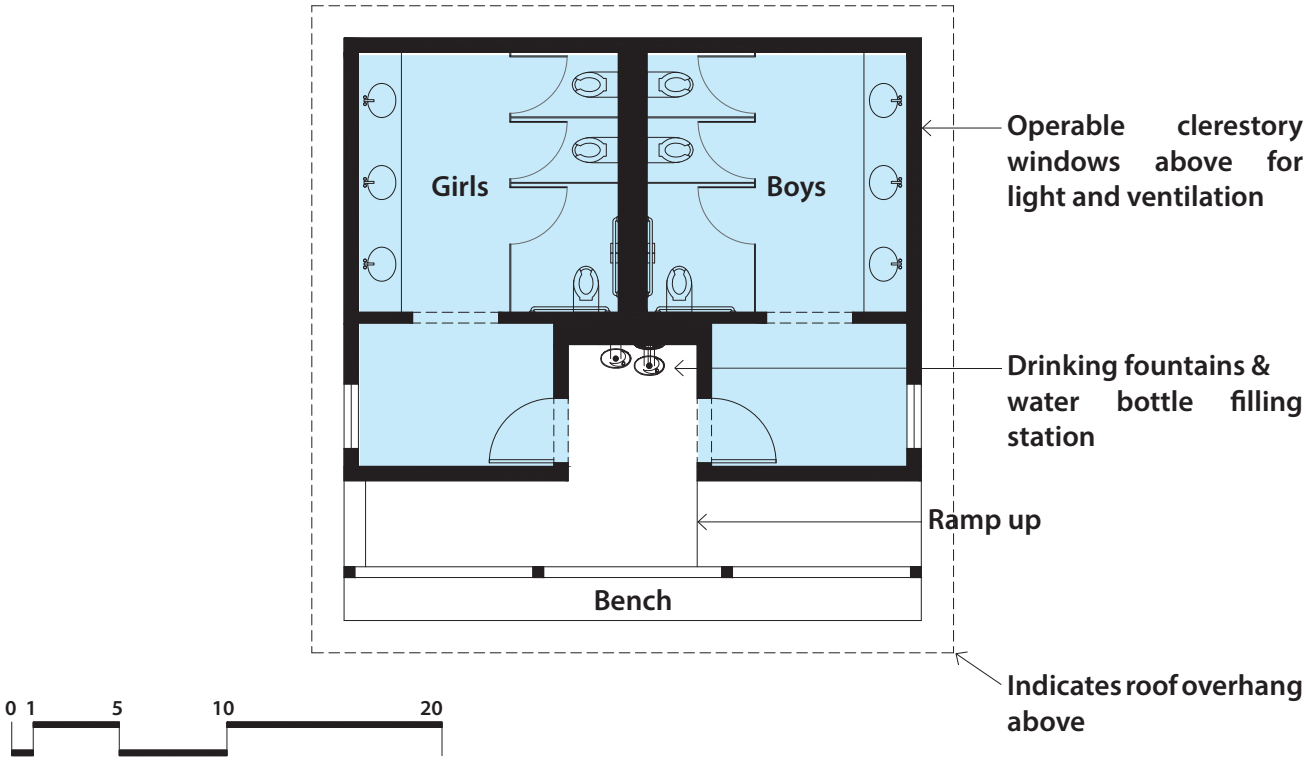


Figure 3-27. Diagram of Proposed New Restroom Facility (Option 1 - Preferred Approach)

YMCA Ponkapoag Outdoor Center Lodge

- Renovation of the Lodge's former apartment. Include a new storage space(s) and a new or expanded kitchen area with adequate space for the large commercial refrigerators, coolers, and storage cabinets that currently occupy a corner of the multi-purpose room.
- Provide increased ventilation throughout the lodge, including new screens for existing operable windows and/or replacement windows that are operable with screens.
- Provide wood screen enclosure around existing dumpsters. Locate enclosure to minimize impacts on view corridors and accessible walkways.

Accessible Restroom Facilities

- Option 1 (Preferred Approach): Replace existing single-story restroom building with a new restroom building that can accommodate accessible, multi-fixture spaces for girl and boy campers. Within the same building, consider an additional gender-neutral accessible restroom and a covered porch area with an accessible drinking fountain and water bottle-filling station. Use low-flow plumbing fixtures or composting toilets and LED lighting to improve energy performance.
- Option 2: Renovate the existing building to accommodate an accessible stall in both the girl's and boy's restrooms. Replace all plumbing fixtures with new low-flow fixtures. Replace lighting with more energy-efficient, LED lighting. Provide ventilation improvements. Remove the non-code compliant exterior drinking fountain. Replace with an accessible drinking fountain and water bottle filling station, ideally located under a covered porch.
- Option 3: Consider new construction of additional single fixture, gender-neutral accessible restroom facility(ies) to replace portable toilet facilities currently deployed throughout the site.

Arts and Crafts Cabin

- Provide accessibility to the building interior, including a new compliant ramp and entry door.
- Repair/replace rotted exterior materials. Consider new, rodent-proof base detail at building perimeter, raising wood materials off of the ground to reduce rot.
- Replace roofing material and edge flashing. Add gutters and downspouts to reduce run-off onto existing deck and new ramp.
- Upgrade existing electrical systems. Replace existing interior and exterior lighting with energy-efficient, LED lighting.

Science Cabin

- Provide accessibility to the building interior, including a new compliant ramp and entry door.
- Repair/replace rotted exterior materials. Consider new, rodent-proof base detail at building perimeter, raising wood materials off of the ground to reduce rot.
- Replace roofing material and edge flashing.
- Upgrade existing electrical systems. Replace existing interior and exterior lighting with energy-efficient, LED lighting.

Pavilions

- Add a fourth pavilion to match the design of the three existing pavilions.
- Add sliding wood panels to perimeter of pavilion seating areas that can offer weather protection and a wall surface for display/whiteboard installations
- Consider adding LED lighting to improve low light conditions on cloudy days.
- Modify center area of the pavilion to accommodate lockable storage space(s).

Storage Building

- Repair/replace rotted exterior materials. Consider new, rodent-proof base detail at building perimeter, raising wood materials off of the ground to reduce rot.
- Replace roofing material and edge flashing.
- Upgrade existing electrical systems. Replace existing interior and exterior lighting with energy-efficient, LED lighting.

Theater Stage

- Provide a new, expanded and raised stage with accessible ramp access.
- Consider construction of a wood backdrop structure with integral lighting and audio-visual capability (see precedent images, Figure 3-23).

Pool Bath House

- Option 1 (Preferred Approach): Replace existing single-story concrete block bath house with a new wood-framed bath house accommodating accessible, multi-fixture restroom, private shower and changing room spaces for girl and boy swimmers. Within the same building, consider an additional gender-neutral accessible restroom. Use low-flow plumbing fixtures, or composting toilets and LED lighting to improve energy performance.
- Option 2: Renovate the existing bath house to accommodate a new accessible stall in both the girl's and boy's restrooms. Add slip-resistant epoxy top-coat to existing concrete flooring in restroom, communal shower and changing room areas. Replace all plumbing fixtures with new low-flow fixtures. Replace lighting with more energy efficient, LED lighting. Provide ventilation improvements. Replace changing room benches with accessible fixed seating.

Additional Improvements

- Explore ground and/or building-mounted on-site renewable energy opportunities to support all YMCA facilities and site improvements.

3.9 | SIGNAGE AND WAYFINDING

RECOMMENDATIONS OVERVIEW

Updating and adding signage thoughtfully, and in a way that connects Ponkapoag Pond will improve the visitor experience. By incorporating informational, directional, identification, interpretive, and regulatory signage, visitors will be able to better navigate the area, understand more about the Pond, and understand what is and isn't allowed while there.

As a DCR park, this signage plan follows the DCR Graphic Standards Manual with noted exceptions. By following the standards, there is consistency throughout, which allows for clearer communication. The YMCA Camp and, even more so, the AMC Camp have a distinct visual language to follow for specific internal signage. The intention is that the two camps maintain DCR standards for identification, directional, and regulatory signage, but also follow their own guidelines as needed.

General Recommendations

Even before one arrives at the Pond, driving along I-93, there is no DCR Road Marker/Lead-in (Brown) signs off I-93 and on Washington Street that identify Ponkapoag Pond as a destination. Adding this type of signage would give greater visibility to Ponkapoag Pond and work to divert some traffic away from Houghton's Pond as prospective visitors become more aware of Ponkapoag Pond.

There are three primary entrances and several other secondary entrances leading into Ponkapoag. Adding signage appropriate to each location will more clearly identify Ponkapoag while responding to each entranceway.

Once in the park, the Welcome Orientation Waysides, which are 1 or 2-paneled signs that include maps and other important information for visitors, play several roles—incorporating informational, directional, regulatory, and interpretive content. Welcome Orientation Waysides should include the following:

- a map focused on Ponkapoag Pond,
- a map that reflects the larger Blue Hills Reservation,
- more informational and interpretive content about the Pond at the primary entranceways so that visitors can understand more about the cultural, historical and environmental aspects of the place,
- and finally, Rules and Regulations of the location, including iconography, which conveys what is and isn't allowed.

Directional signage is also an essential aspect of the signage system at entranceways, trailheads, and other trail intersections throughout Ponkapoag. None of the directional signage currently follows DCR guidelines. By improving directional signage, visitors will more easily navigate the area.

Through interpretive signage, visitors can begin to understand the story of Ponkapoag Pond. Ponkapoag was a place favored by Native peoples for some 10,000 years or more as part of their homeland—an area that they regularly camped within and intimately knew for their animal, plant, water, and mineral resources, seasonal characteristics, and landscape features. Interpretive signage can better speak to these rich stories, allowing visitors to more deeply understand the place.

Ponkapoag Pond is also an Area of Critical Environmental Concern (ACEC). These designated places in Massachusetts receive special recognition because of the quality, uniqueness, and significance of their natural and cultural resources. The addition of interpretive signage around Ponkapoag at key locations will allow visitors to learn more about the Pond's geology and hydrology, glaciation, the Pond's flora and fauna, and what makes it unique and part of the larger ACEC system.

Signage at the YMCA Ponkapoag Outdoor Center should be updated. Identification, directional, regulatory, and information signage, including the Welcome Orientation Waysides, should be updated following

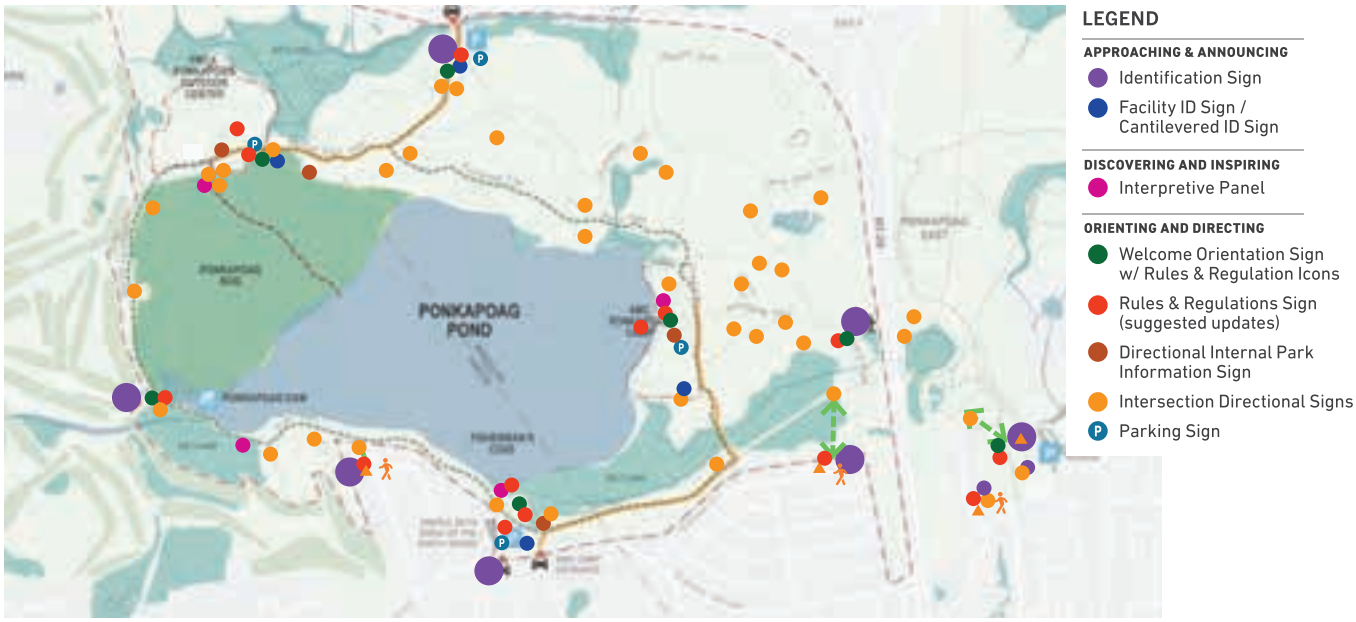


Figure 3-28. Site Plan: General Signage Recommendations

the DCR Graphic Standards Manual. YMCA branding and signage can be incorporated into the system as needed. Directional signage will lead new visitors easily to key areas around the camp. Facility signage should be updated throughout, including building and room identification, and bathroom signage. Rules and Regulations signage should follow DCR guidelines. The Rules and Regulations signage at the pool should be updated and maintained, as it is currently overgrown by vegetation. Throughout the camp, rules signage should be updated and printed on materials which follow DCR standards.

Signage at the AMC Camp, in some cases, will continue to reflect the 'purposefully rustic' theme, but DCR identification signage, directional signage, informational welcome waysides, and updated regulatory signage should be added to both solve the various issues with signage at the AMC Camp and also to become a part of the larger system at the park.

Generally speaking, Rules and Regulations signage should be updated as needed and follow DCR guidelines throughout the park. Creating a cohesive signage system considering visitors' needs and creating a consistent visual language connecting the various areas around the Pond will allow visitors to experience all that Ponkapoag has to offer.

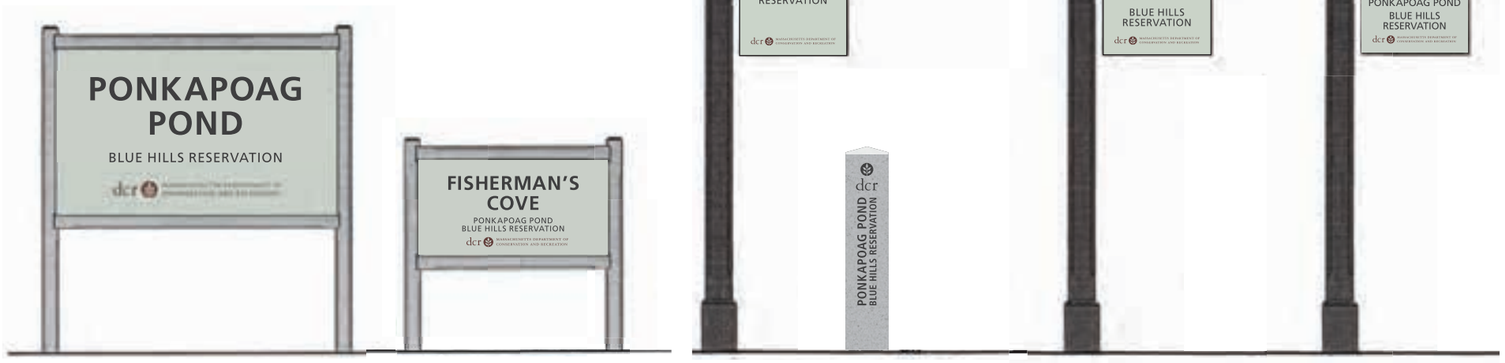
The main goals of this system include the following:

- Clearly mark all entrances to Ponkapoag Pond.
- Help visitors navigate around the Pond and throughout the trail system.
- Reinforce the park's identity through an interpretive panel system that details the relevance of the Pond, including stories of the Indigenous Peoples and the many environmental, historical, cultural, and recreational highlights.
- Help visitors discover all that the park has to offer.
- Clearly state what is and isn't allowed at the park.
- Follow the DCR Graphic Standards, aligning to the rest of the park signage system.

Proposed installation locations for signage will be reviewed for potential impacts to culturally sensitive areas by DCR's cultural resource personnel or cultural resource consultant in advance of sign installation. If culturally sensitive areas are present, an intensive (locational) archaeological survey, conducted under a permit issued by the State Archaeologist, will precede the installation of signage at potential culturally sensitive

SIGN TYPES AT PONKAPOAG POND

Identification Signage for various locations listed:



NORTH ENTRANCE
6'0 x 3'4" Main Identification signage

SOUTH ENTRANCE
4' x 2' Gateway: Main Identification Sign
PLEASE NOTE: Suggested sign structure similar to larger Main Identification Sign is a variation from the DCR Graphic Standards Manual.

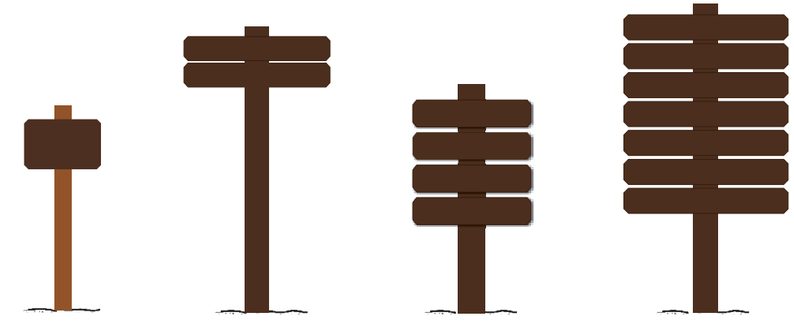
PONKAPOAG GOLF COURSE Cantilevered Identification Sign (Panel: 2'3"x 2'10)

ADDITIONAL ENTRANCES MARKED ON MAP Gateway Pillar

YMCA PONKAPOAG OUTDOOR CENTER Cantilevered Identification Sign (Panel: 2'3"x 2'10)

AMC CAMP Cantilevered Identification Sign (Panel: 2'3"x 2'10)

Directional Signage for various locations listed:



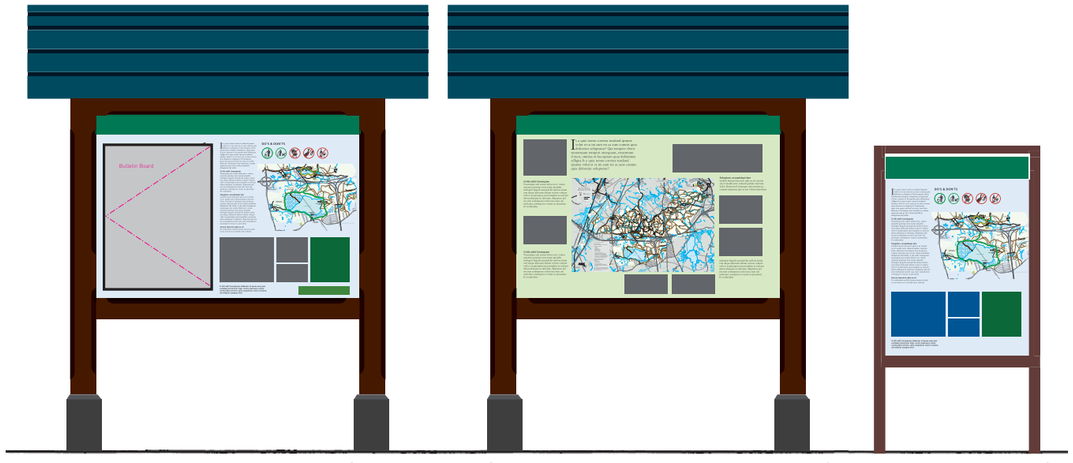
INTERSECTION DIRECTIONAL TRAIL SIGN (Sign: 18" x 11.75")

INTERNAL PARK INFORMATION SIGN / near AMC Camp entrance (Sign: 3'0" x 6'0")

INTERNAL PARK INFORMATION SIGN / at AMC Camp (Sign: 2'0" x 3'9")

INTERNAL PARK INFORMATION SIGN / at YMCA Camp (Sign: 3'0" x 6'0")

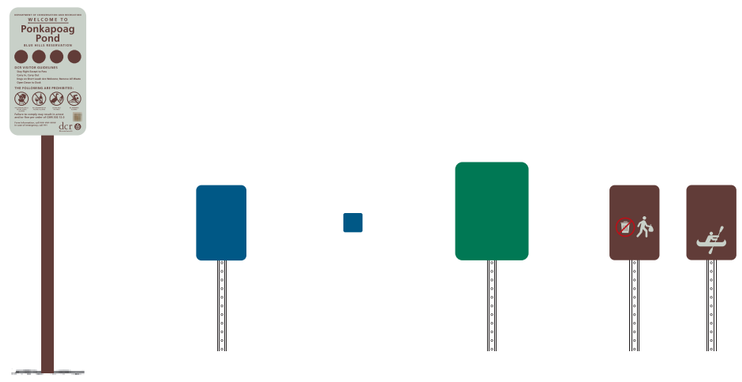
Welcome Orientation Waysides:



WELCOME WAYSIDE ORIENTATION SIGN / 2-panel design, based on DCR 'Bulletin Board' structure / High quality scratch-resistant bulletin panel allows for posted items in cabinet with magnetic closure attached to left-hand side of Ponkapoag Pond panel. (Panel: 5'9' x 4')

WELCOME WAYSIDE ORIENTATION SIGN / 1-Panel Layout (Panel: 3' x 3'6")

Examples of new Rules and Regulations Signage:



DCR SAFETY AND RULES SIGN (Panel: 1'6" x 2'6")

ACCESSIBLE PARKING DIRECTIONAL SIGN (Panel: 1' x 1'6")

PARKING SIGN (Panel: 4.5" x 4.5")

VARIOUS RULES SIGNs (Panel: 1'6" x 2')

(Panel: 1' x 1'6")

OVERALL SITE PLAN: SIGNAGE RECOMMENDATIONS

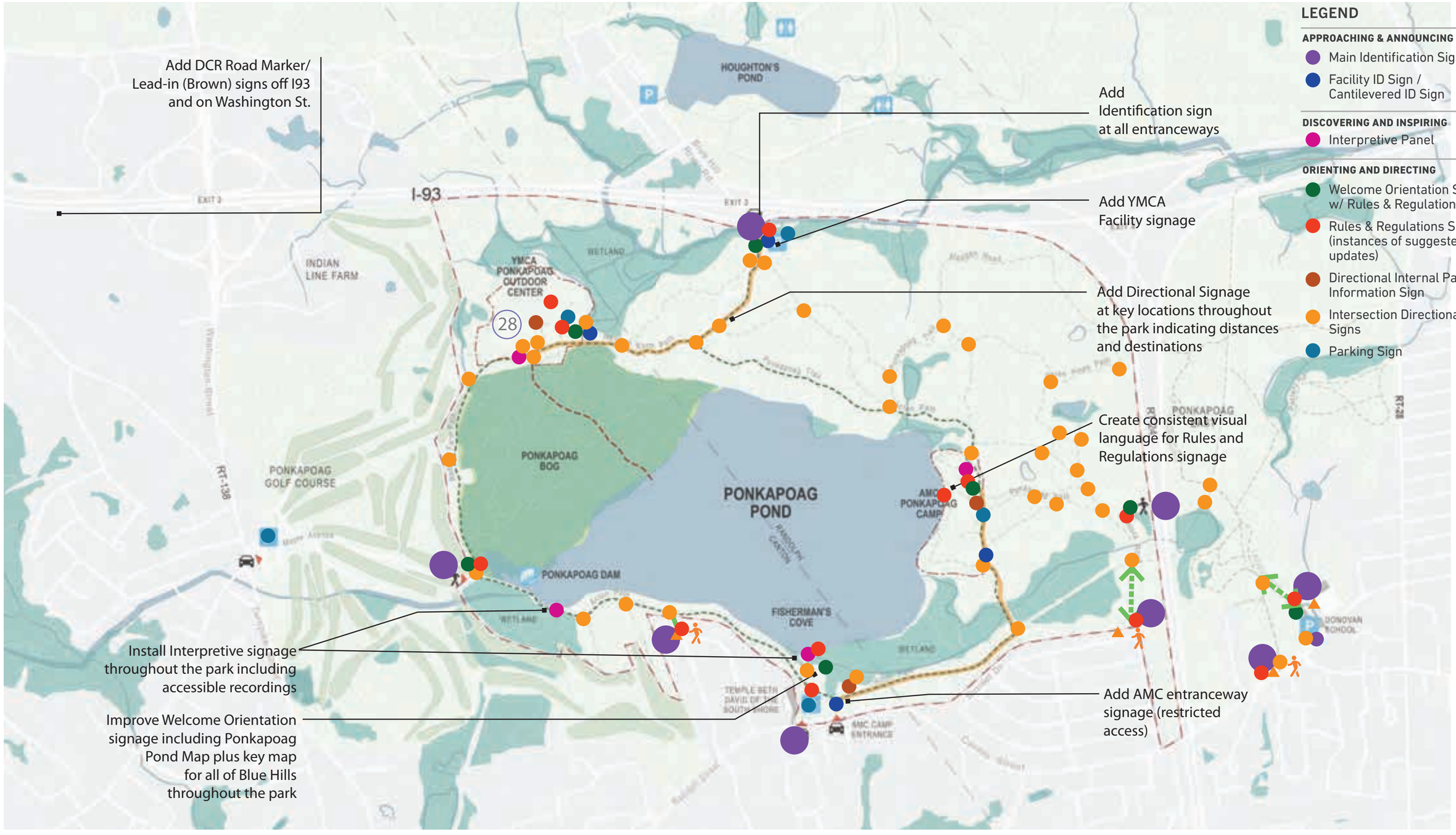


Figure 3-29. Overall Site Plan Signage Recommendations

SIGN TYPES AT PONKAPOAG POND

There are opportunities throughout your experience visiting Ponkapoag Pond which could be improved through better signage. The following sign types would respond to the various signage needs throughout the park:

DCR ROAD MARKER SIGNAGE

Observation

There is not adequate signage leading you to Ponkapoag Pond, particularly when coming from I-93-North.

Recommendation

Even before one arrives at the Pond, driving along I-93, there is no DCR Road Marker/Lead-in (Brown) signs off I-93 and on Washington Street that identify Ponkapoag Pond as a destination. Adding this type of signage would give greater visibility to the Ponkapoag Pond, and divert some traffic from Houghton's Pond.

IDENTIFICATION SIGNAGE

Observation

Entrances into Ponkapoag Pond are not clearly marked. Visitors have no sense of arrival.

Recommendation

Following the DCR Graphics Manual, clearly mark all main entrances into the park. Clear landscaping to allow for the identification signage to be visible as needed.

The northern and southern entrance ways are considered 'primary' entrances. Additionally, there are several secondary entranceways. No entrance leading into Ponkapoag Pond is properly marked. Based on whether it's a primary or secondary entrance, and area available for signage, specific sign structures are suggested for the various entrance ways.

1. North Entrance: Currently, there is a smaller cantilevered identification for Ponkapoag Trail set back from the street, but it is not visible unless you enter into the parking area. The 6'0 x 3'4" Main Identification signage would be placed at the northern entrance outside of the parking area so it is clearly visible.

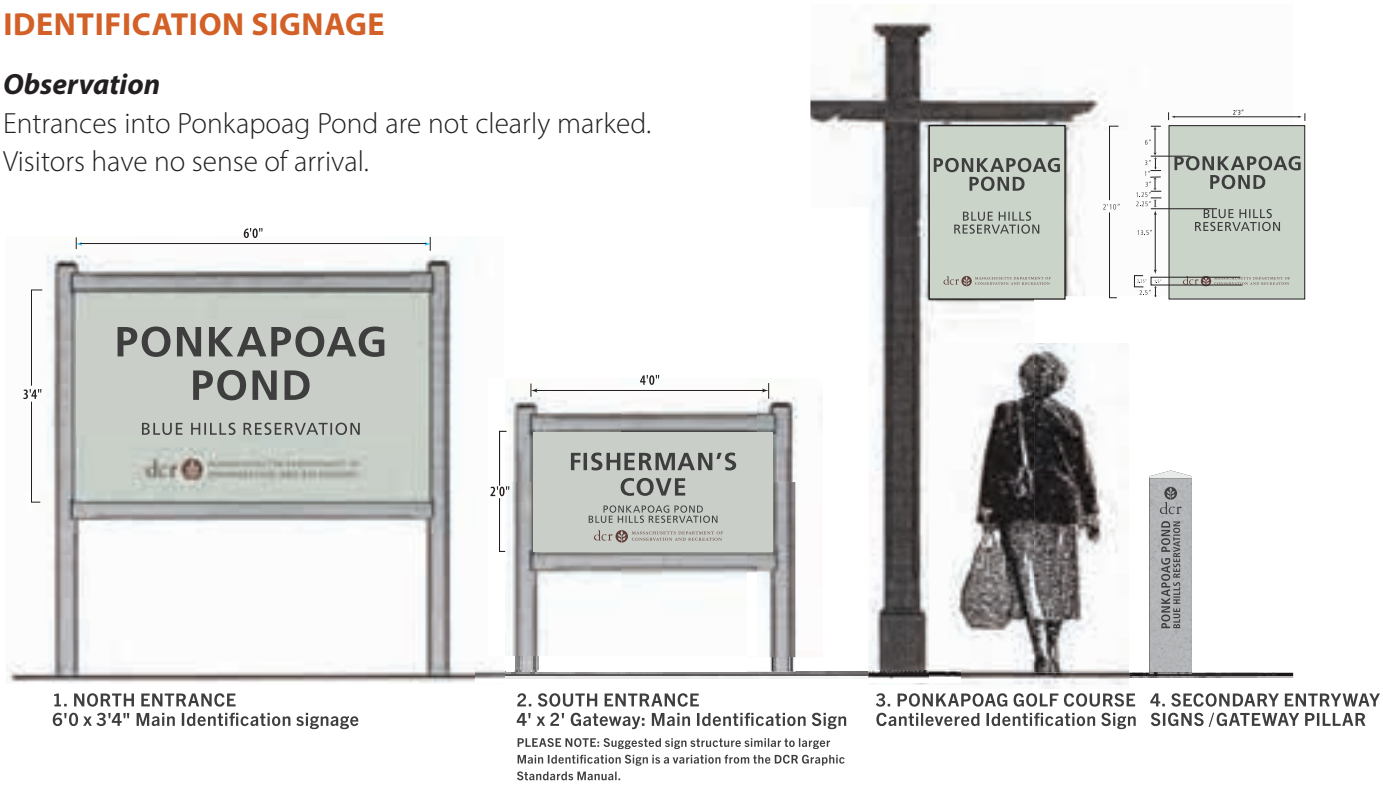


Figure 3-30. Proposed Identification Signage Sign Types

2. South Entrance: There is no signage currently identifying the southern entrance. A smaller 4' x 2' Gateway Main Identification sign is more appropriate for this location and would be placed perpendicular to Randolph Street.

3. Pedestrian Entrance at the east end of Maple Ave (Golf course): The Cantilevered Ponkapoag Pond sign would be placed at the Ponkapoag Golf Course.

There are several secondary entrances which should be marked clearly to create a better connection to the Pond. These entrances are primarily there for local residences, and therefore, the granite "Gateway Pillar" can be used to mark these entrances as they are smaller. These entrances include:

1. East Entrance over the walking bridge: This location currently has no markers or identification and needs greater visibility. Adding the Gateway Pillar signage, as well as a Welcome Wayside Orientation Sign is recommended.

2. Donovan School Parking Lot: Currently there is no signage leading visitors from Donovan School to the park. DCR should work with the school to allow park visitors to use the parking lot for park access during weekend and school vacation. Add a Gateway Pillar both at the street entrance and the parking lot entrance, and a Welcome Wayside Orientation sign at the street entrance to strengthen the connection between the school and Ponkapoag Pond.

3. At entrances 6 and 7 from Randolph neighborhoods, and entrance 8 from Canton neighborhood: There is an existing trail, but no formal signage at these locations. Adding a Gateway Pillar to indicate visitors are entering DCR property and a Safety and Rules Sign to clearly mark what is and isn't allowed at the park is recommended. Entrance 6 is on a busy street, and it is important to consider the impact of a sign at this location. It may make more sense to add a trail Intersection Directional signinstead of a Gateway Pillar which would direct residents, but not call attention to the entrance.

Figure 3-31. Site Plan: Entranceway Identification Signage

DCR SITE/FACILITY SIGNAGE

Observation

Currently the facility signage at AMC and YMCA Camps do not follow DCR Standards. Moreover, there is no identification signage currently marking the entrance off Randolph Street leading to AMC Camp, or from the Northern Entrance marking the YMCA Camp.

Recommendation

A DCR Cantilevered ID sign would be located at (1) the northern entrance for the YMCA Ponkapoag Outdoor Center as well as at (2) the YMCA Camp onsite sign, and the AMC Ponkapoag Camp sign would be placed at (3) the Randolph Street entrance for the AMC Ponkapoag Camp as well as (4) the AMC Camp entrance. The YMCA sign would be co-branded with the YMCA as well as the DCR logo, and the AMC Ponkapoag Camp signs would include the AMC as well as the DCR logo. The Blue Hills Reservation must be identified on the sign.

Figure 3-32. Site Plan: Facility Signage/Cantilevered ID Signage

YMCA PONKAPOAG OUTDOOR CENTER
Cantilevered Identification Sign

AMC CAMP
Cantilevered Identification Sign

Figure 3-33. Proposed Facility Signage Sign Type Examples

WELCOME WAYSIDE/ORIENTATION SIGNAGE

Observation

The Welcome "Bulletins" are not well maintained at the northern and southern entrances. They do not include informational or interpretive content, and the current signage does not clearly communicate the Rules and Regulations at Ponkapoag Pond. Additionally, the smaller Map/Orientation signs found throughout Ponkapoag Pond are not well maintained and need updating. The printed paper version of the entire Blue Hills Reservation is currently used as the sole map for all Orientation signs.

Recommendation

Update all instances of Welcome Wayside Orientation signage, adding new signage at primary and secondary entrances. Include a map that focuses on the Ponkapoag Pond area of the Blue Hills Reservation. Additionally, the updated Welcome Wayside Orientation signage will include clear iconography of the Do's and Don'ts at the park, orientation to the site, visitor guidelines, information on four seasons of access, and key resources and surroundings. Additionally, consider including bilingual translation. Consider a Land Acknowledgment. Welcome Wayside content and design is in process; to be completed by Summer of 2022.

At primary locations, the Welcome Wayside Orientation signage includes two panels. One panel will contain a location map of the area around Ponkapoag Pond and information about the park's natural, cultural, and historical features. It will also suggest the type of recreation use that is encouraged at the park and safety and regulatory information. The second panel will have a map of the Blue Hills Reservation and additional details on the entire reservation system.

The trail maps change over the years. When updates are made, an 'adhesive vinyl' version of the map will be printed and carefully placed on top of the original panel.

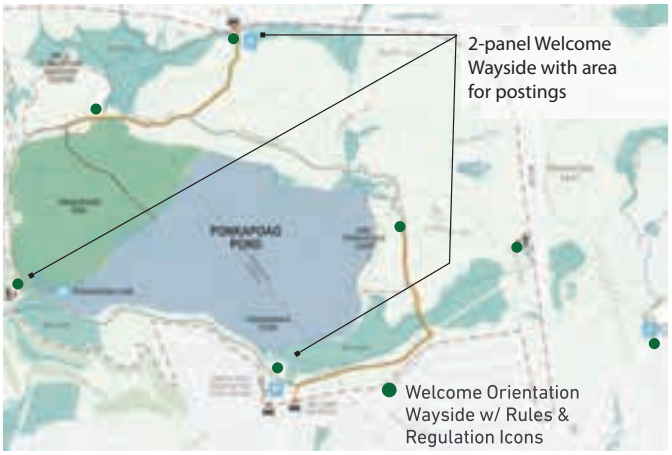


Figure 3-34. Site Plan: Welcome Orientation Wayside

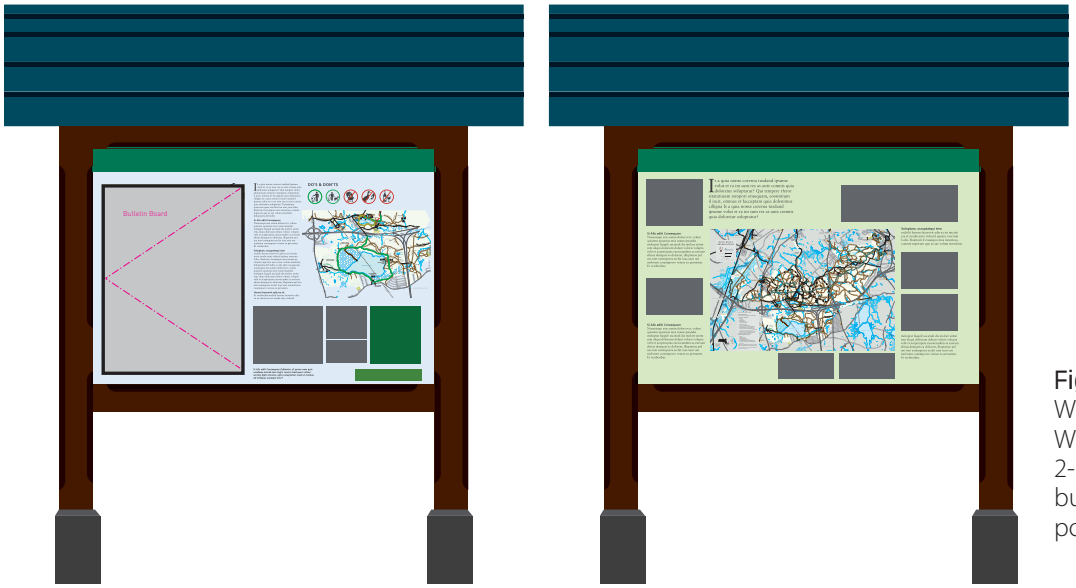


Figure 3-35. Proposed Welcome Orientation Wayside Sign Type—2-panel version with bulletin board for posted items.

DIRECTIONAL SIGNAGE

The DCR Graphics Manual includes two types of directional signage that are incorporated into this plan—Intersection Directional signs and Internal Park Information signage. Intersection Directional signs should be used throughout the trail system, while the DCR Internal Park Information signage should be used at entry points and main intersections to direct visitors to main locations.

Internal Directional Trail Signage

Observation

Currently, the park utilizes a hand-made directional signage system on a white substrate with black die-cut vinyl lettering, which does not follow the DCR requirements. Please note: this recommendation does not replace the numbered sign system established by the Friends of the Blue Hills, which is a separate sign system.

Recommendation

Replace existing hand-made directional signage with DCR standard Intersection Directional signs throughout the trail system following the DCR "Trails Guidelines and Best Practices Manual."

Intersection Directional signs are the most important source of information for users. They serve to enhance safety, avoid bad user experiences, and increase use of under-used sections of the trail. If someone knows that there is an attraction down the trail, they may be tempted to hike to it and thus become intrigued with the trail idea. Directional signs should be placed at key trail intersections, decision points, and spur junctions.

Again, this does not replace the numbered sign system established by the Friends of the Blue Hills. This replaces or adds to the directional signage. Intersection directional signs should be mounted on 4" x 4" wood posts. Post types should be consistent within the site. In areas with vandalism or other issues, intersection signs may be mounted high on trees.

Please note that iconography indicates what is and isn't allowed along the trail. Ideally, 'positive' Do's are placed on top and given priority, and 'negative' Don'ts are below. Mountain-biking and Horseback riding are common activities and should be clearly marked if or if not allowed. The numbered system established by the Friends of the Blue Hills has been added to the sign layout.

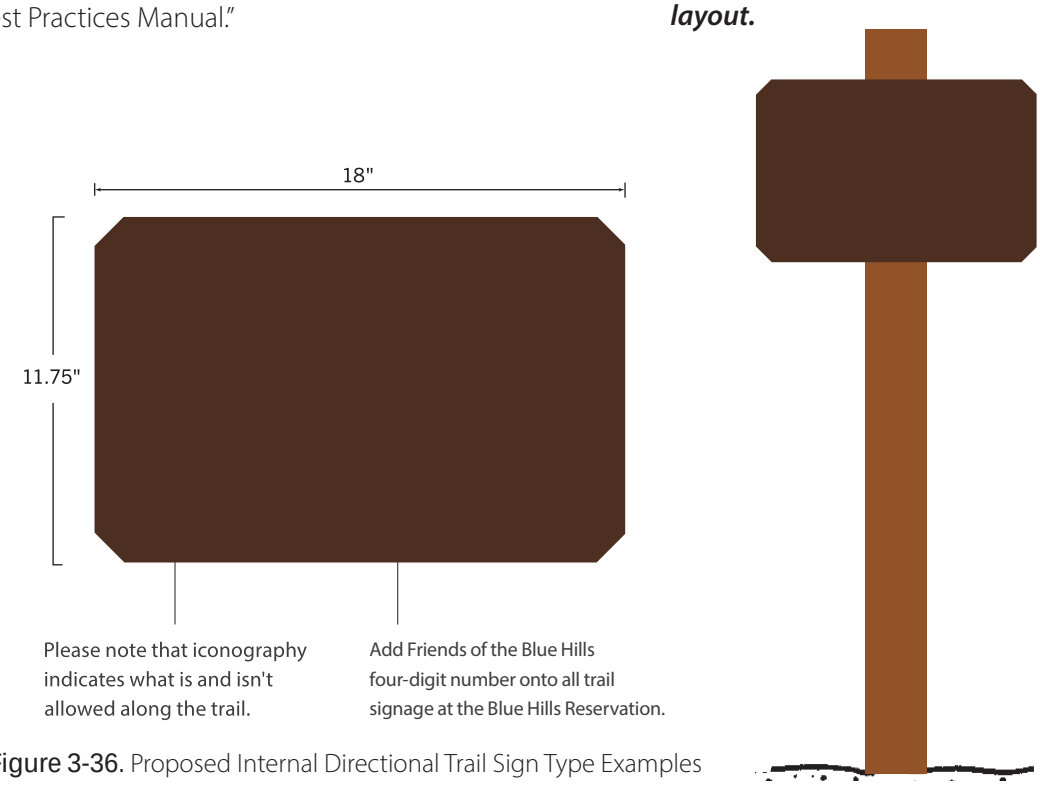


Figure 3-36. Proposed Internal Directional Trail Sign Type Examples

Directional Internal Park Signage

Recommendation

At entranceways or key intersections, add Internal Park Information signage to direct visitors to primary locations throughout the park.

Directional Internal Park signs identify key attractions at the park and are placed at entranceways and key intersections to give visitors a quick understanding of direction. In terms of design, information, direction, and place identification shall be presented on a horizontal panel system utilizing 2" x 6" nominal or standard dressed pine. There are four options for structure size: 2 feet, 3 feet, 4 feet, and 6 feet, and the size of the sign is dependent on the location and distance from which it will be viewed.

Figure 3-38. Site Plan: Directional Signage

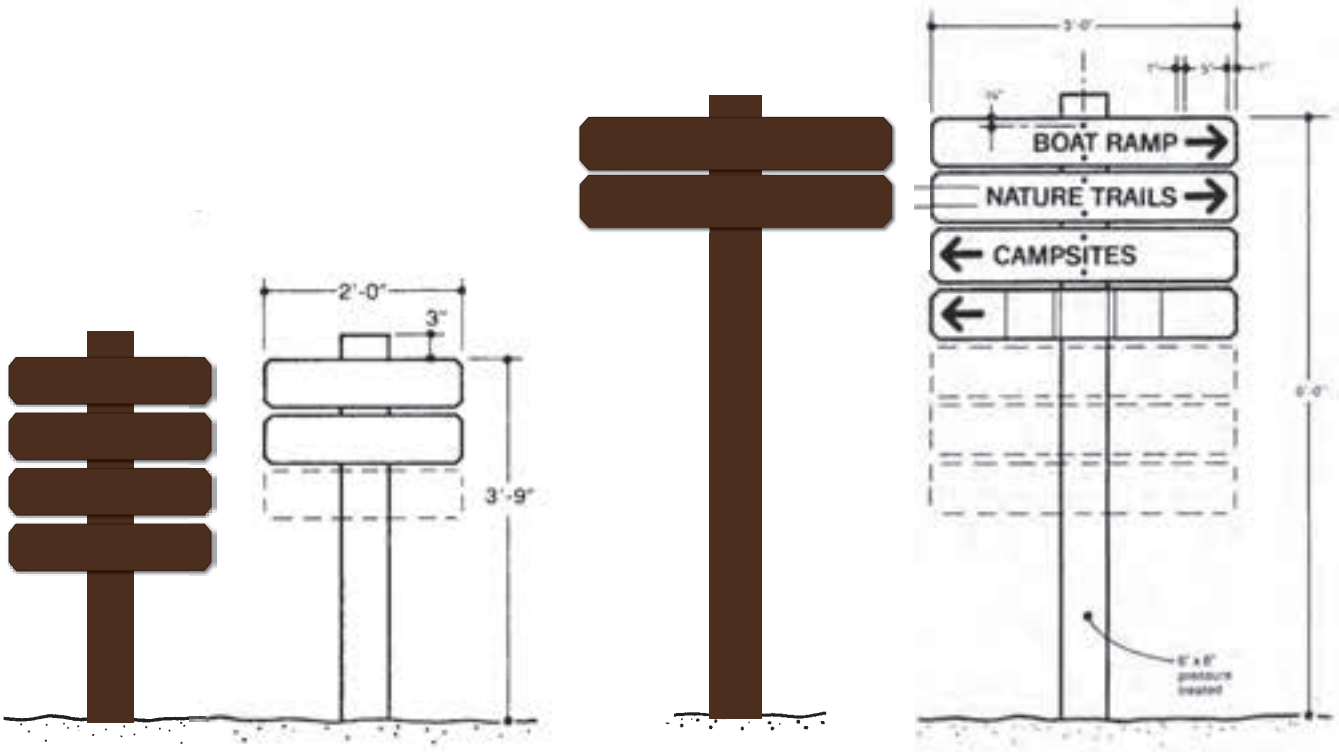


Figure 3-37. Proposed Directional Internal Park Sign Type Examples

RULES & REGULATIONS TRAIL SIGNAGE

Observation

There are specific trail intersections where biking and horseback riding is not allowed. Current signage is inadequate or, in some cases, is posted on trees which should be avoided. The DCR Graphics Manual currently does not have a solution for this type of signage.

Specific trails do not allow biking or horseback riding, which should be clearly marked along the trails. Although DCR "Intersection Directional signs" include iconography, the primary intent of these icons is to indicate what you 'can' do. What you can't do is easily missed, so additionally, on these trails, secondary signage should convey these rules when visitors are not allowed to do something on a specific trail.

Recommendation

In addition to the messaging on the Intersection Directional signs, additional sign markers could indicate restrictions through clear iconography. When necessary, these signs would complement Intersection Directional signs and similarly be mounted on 4" x 4" wood posts.

Figure 3-39. Proposed Rules & Regulations Trail Signage

SAFETY AND RULES SIGNAGE

Regulatory signs provide information concerning regulations on vehicle or pedestrian usage within a park. It is a clear indication of what visitors can and cannot do. This plan includes a variety of ways to communicate Rules and Regulations at the park, including adding iconography on the Welcome Wayside/Orientation signage, utilizing the DCR-specific Rules signage below, and updating and adding standard regulatory signs throughout the park.

General Observation

Both at the YMCA Camp and the AMC Camp, Rules and Regulations signage are often handwritten and do not include any iconography that more clearly conveys the rules to all. This signage is not as accessible because of the lack of iconography and clearly marked signage. Other signage is handwritten and could be formalized.

In contrast to the Rules and Regulations signage at the YMCA Ponkapoag Outdoor Center and the AMC Camp, the DCR Rules and Regulations signage, generally speaking, is updated. There are some examples of signage with graffiti or otherwise weather-worn, but overall, these signs are in relatively good shape. That being said, rules and regulations at the entrances are not adequately marked; one can not easily understand what is and isn't allowed at the park upon one's arrival.

Traffic Rules Signage: YMCA Camp

Traveling to the YMCA Camp, visitors are allowed to drive on the access road to drop off and pick up children at the camp. There is an ongoing problem with speeding cars going well above the posted limit of 10mph as they drive to the YMCA. When asked, the drivers of the speeding cars are often unaware they are traveling on a park road that hikers, bikers, and horses share with them. It is important to add "Share the Road" signage and "Slow Down/Speed Limit 10 mph" signage along this road to reinforce that visitors are in the park and sharing the road with hikers, bikers, and horses and that they must slow down and drive at a limit of 10 mph.

Safety and Rules Signage: YMCA Camp

Overall, the Rules & Regulations signage within the YMCA Camp should be better maintained, added to, and formalized throughout the camp. Particularly at the pool facilities, the signage is poorly maintained to the point that it is a hazard and should be updated as soon as possible. The signage is covered by vegetation which needs to be cleared away. In other instances around the camp, the signage is printed on paper or other impermanent materials. In these cases, the signage should follow YMCA requirements and the DCR signage guide.

Safety and Rules Signage: AMC Camp

The Rules and Regulations signage at the AMC Camp should be updated throughout. It should clearly communicate what is and isn't allowed per DCR guidelines. Much of the signage is handwritten, printed on impermanent materials, and does not include any iconography. It should be formalized, following the DCR style guide, and printed on materials following DCR Standards for Rules and Regulations signage.

Safety and Rules Signage: DCR

Existing DCR Rules and Regulatory signage is generally updated but, in some cases, is weather-worn, has graffiti, or is not consistent in style. Update worn signage. Regulatory sign types should be consistent throughout the park. New Rules signage should be added as needed.

In addition to updating and adding to standard regulatory signage, reinforce the Rules and Regulations at Ponkapoag Pond in additional ways including:

- Add consolidated DCR Safety and Rules signage.
- Add rules and iconography on Welcome Wayside Orientation signage.
- Update Rules & Regulations Trail signage throughout the trail system.
- Include bilingual translation when possible.

All signage should follow DCR Standards, including fabrication. Carry-in/Carry-out signage should be formalized throughout the park.

REGULATORY SIGNAGE

Per the DCR Signage Graphics Manual, "Regulatory Signs provide information concerning regulations on vehicle or pedestrian usage within a park. These signs are designed to complement Federal Highway (MUTCD) standards, and should be placed adjacent to roadways and parking areas, where they are clearly visible. There should be no more than two signs mounted on any post."

Ideally, each regulatory sign type should be of the same design throughout the park. Inconsistent styles should be replaced. Signage should also be updated if weather-worn or covered in graffiti. Please refer to the DCR Signage Graphics Manual for more details regarding DCR regulatory signage standards.

Figure 3-41. New Proposed Rules Signage at Ponkapoag Pond

Figure 3-40. Examples of Rules and Regulations signage per the *DCR Graphic Standards Manual*.

RULES AND REGULATIONS ICONOGRAPHY

An icon system can more clearly communicate the Dos and Dont's of the park system. In this case, it helps to consolidate the Safety & Rules signage. These icons will be added to the Welcome Wayside Orientation signage, the DCR Safety and Rules Sign, and other instances where clarity is most important.

Figure 3-42. Proposed Iconography System

CONSOLIDATED DCR SAFETY AND RULES SIGN

Consolidated DCR Safety and Rules Sign signs should be placed at all entrances, as well as at the AMC and the YMCA Camps. The sign should be presented using symbols and text: the top three or four recommended activities at the park and the most critical prohibited activities should be displayed using symbols, as in the illustration below.

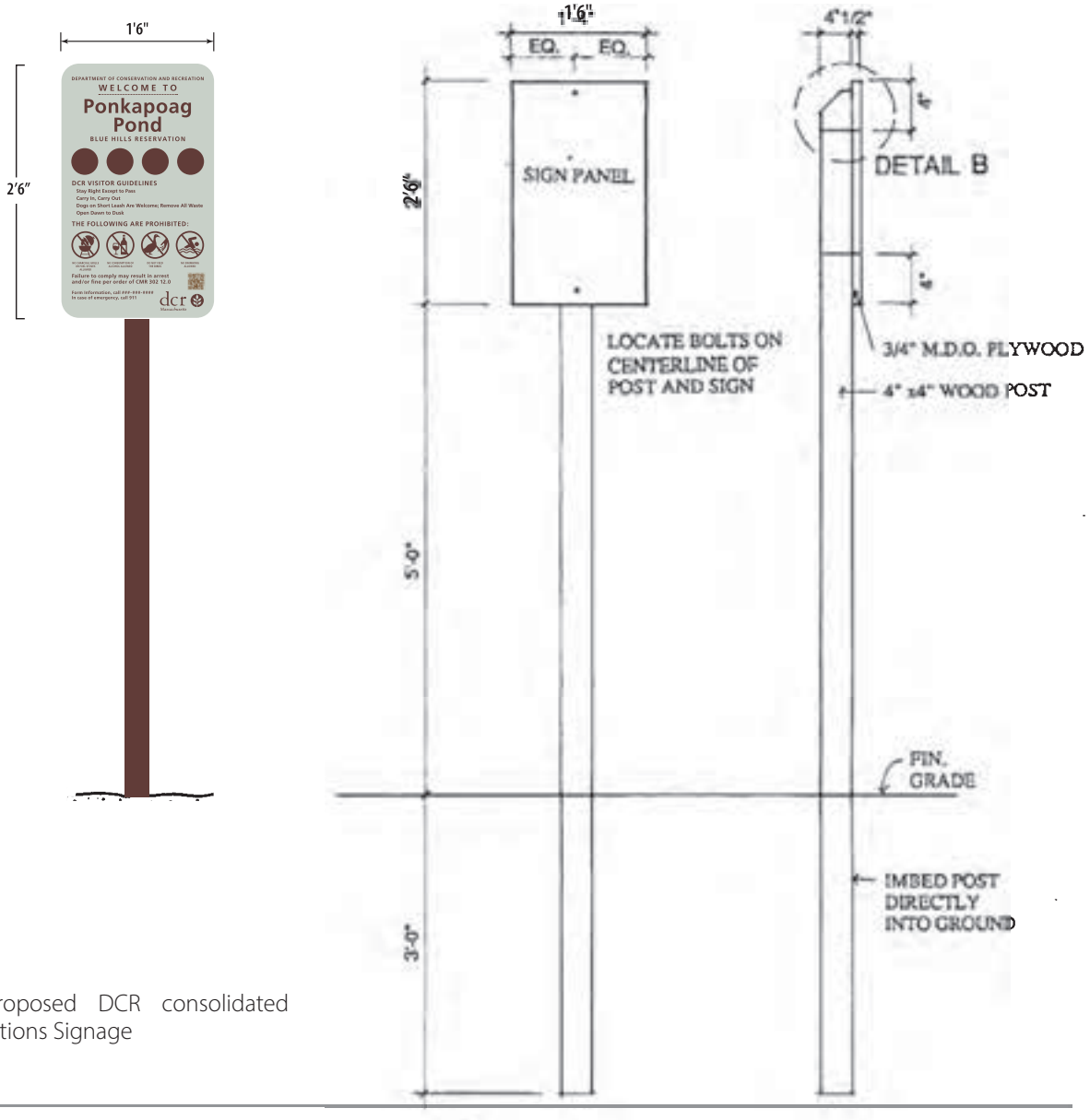


Figure 3-43. Proposed DCR consolidated Rules and Regulations Signage

ENTRANCE GATES SIGNAGE

Recommendation

Currently, no entrance gates follow the DCR Graphic Standards. Ideally, Steel Gates include the name of the location. The DCR logotype and the gate number (if applicable) should be applied to the post, and the name of the location should be clearly marked. If possible, the intention would be to replace the entrance gates at the northern and southern gates as well as at the AMC Camp entryway.

Figure 3-45. Proposed Entrance Gate at Fisherman's Cove

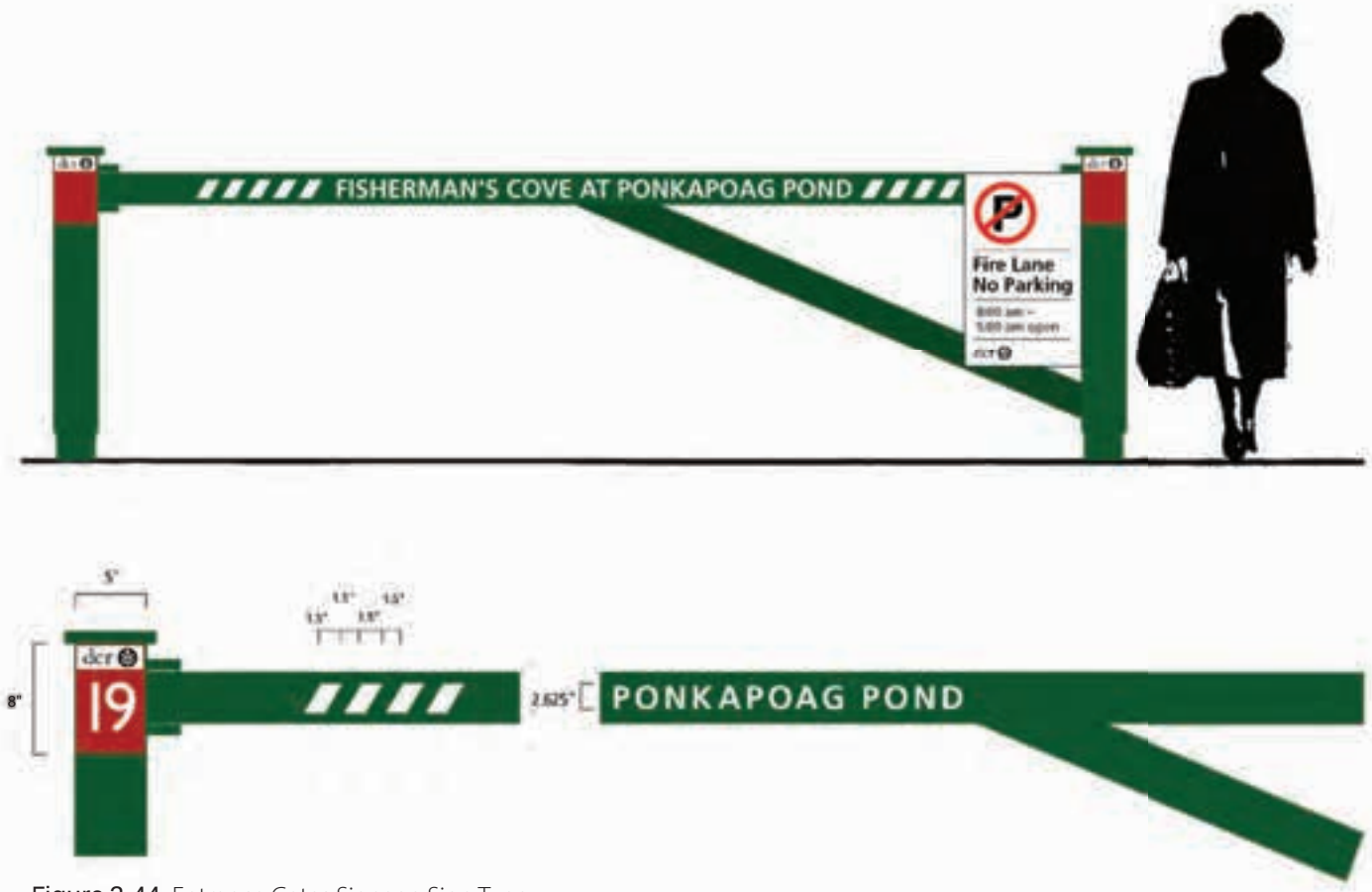


Figure 3-44. Entrance Gates Signage Sign Type

INTERPRETIVE WAYSIDES

Observation

Currently, there are no Interpretive Waysides at Ponkapoag Pond.

Recommendation

The story of Ponkapoag Pond has yet to be told at the park. The area was a place favored by Native peoples for some 10,000 years or more as part of their homeland, where they regularly camped within and intimately knew for their animal, plant, water, and mineral resources, seasonal characteristics, and landscape features. Right now, the visitor has no way of appreciating this ancient landscape, still full of life and conveying its natural beauty and value to us today.

Although visitors can experience the incredible beauty of the place by walking the trails or visiting the Pond, they have no way of understanding some of the reasons why it is that way. Ponkapoag Pond is an Area of Critical Environmental Concern (ACEC). These places in Massachusetts receive special recognition because of the quality, uniqueness, and significance of their natural and cultural resources. Through interpretive signage, visitors could learn more about the Pond's geology and hydrology, glaciation, flora and fauna, and what makes it unique and part of the larger ACEC system.

We recommend developing a well-thought-out interpretive plan complete with goals, objectives, thematic statements, and topics. Then, develop a series of signs revealing the story of Ponkapoag, including the rich story of the Indigenous Peoples and the various ecological aspects of the pond.

A fully developed interpretive plan defines goals, objectives, thematic statements, and topics. The plan should be based on an audience and site analysis, which will guide the selection of materials and interpretive approach.

Some suggested initial topics are listed below; these topics should be explored through a more comprehensive interpretive plan.

Potential Topics for Interpretive Panels include:

Environmental

- Ecological Importance of the Bog
- Birds of Ponkapoag Pond at Canton Dam
- Viewshed of Great Blue Hill from Fisherman's Cove
- Other topics might include Geology & hydrology, glaciation, shallow water and source, and ACEC – and what makes it unique and part of a larger system

Historical

- The Massachusetts Tribe at Ponkapoag Pond
- AMC Camp and Historic Cabins

Figure 3-46. Examples of existing DCR Interpretive Signage

GREEN LOOP DOT TRAIL

Observation

Loop trails are currently marked with dots. These trails begin and end at the same point, at designated parking areas as marked on the map. With that, there are multiple green, yellow, and red loop trails throughout the Blue Hills system.

There is only one loop trail at Ponkapoag Pond, the Green Dot Trail, which is marked in some areas of the park well, but in other areas of the park, the marks are weather-worn.

Recommendation

Generally speaking DCR recommends using rectangular blazes, but in instances where locations have specific colors and/or shapes associated with their identity such as the Blue Hills, the DCR Manual does not recommend changing these. With that the loop dot trail should remain.

Keep in mind these Blazing Don'ts when blazing trails:

- Don't Overblaze (you never want to see more than one blaze)
- Don't paint drippy, splotchy, uneven, or any other messy blaze
- Don't paint a blaze on rocks
- Don't paint a blaze on a dead or dying tree
- Don't leave old trail markers up
- Don't paint arrows

Figure 3-47. Example of updated marker on Green Dot Trail

AMC CAMP SIGNAGE

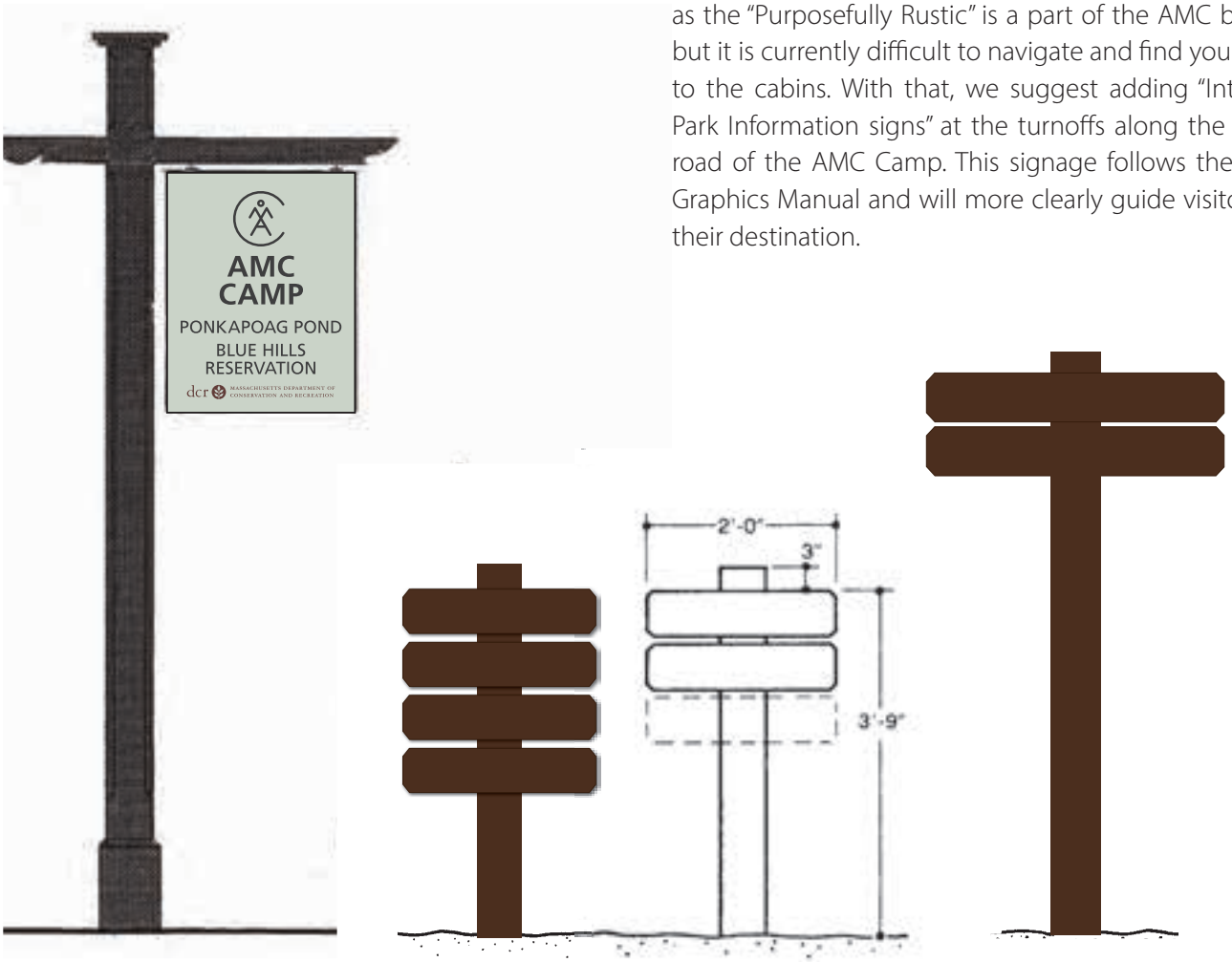
Observation

Currently, the design aesthetic at the AMC Camp is considered "Purposefully Rustic," and this approach carries into the existing signage. With that, the signage is most often handmade. DCR identification signage, directional signage, informational welcome waysides, and updated regulatory signage should be added to solve the various issues with signage at the AMC Camp and also so that it becomes a part of the larger system at the park.

Recommendation

Site Facility Signage: There is inadequate site facility signage identifying AMC Camp both at the Randolph entrance as well as at the threshold of the camp. Installing the DCR Cantilevered ID sign, including DCR and AMC logos, at both locations to clearly identify the entry point off the road and at the camp is recommended.

Directional Cabin Signage: The cabin signage can be charming, as it follows the AMC Camp "Purposefully Rustic" theme. In instances where the cabin signage is poorly made, it should be updated but still may follow the more intentionally "Purposefully Rustic" theme. The intention is not to change the existing cabin signage as the "Purposefully Rustic" is a part of the AMC brand, but it is currently difficult to navigate and find your way to the cabins. With that, we suggest adding "Internal Park Information signs" at the turnoffs along the main road of the AMC Camp. This signage follows the DCR Graphics Manual and will more clearly guide visitors to their destination.



SITE FACILITY SIGNAGE AT AMC CAMP

ADD "INTERNAL PARK INFORMATION SIGNS" WHICH CLEARLY MARK DIRECTIONS OF MAIN LODGE AND CABINS ON SIDE ROADS.

Figure 3-48. Proposed Sign Types at AMC Camp

Site Facility Signage: No signage marking the entrance into the AMC Camp gate or at the AMC Camp upon arrival. Add DCR Cantilevered sign identifying entranceway and at the entrance of the AMC Camp.

Rules and Regulations Signage: Throughout the camp, Rules and Regulations signage is poorly maintained, not permanent, and not formalized. It is essential to update all instances of handmade rules signage. All handmade signage should be replaced with permanent signage, including iconography, to communicate Rules and Regulations clearly. Signage should follow the DCR Graphic Standards Manual guidelines.

Welcome Wayside Orientation sign: The one example of map signage is poorly maintained and is an example of the Blue Hills Reservation trail map. Update signage following new guidelines.

Bathroom Signage: Bathrooms are not well-marked. Add signage clearly identifying bathrooms.

Parking Signage: Parking is not adequately marked. Clearly mark parking and accessible parking with updated signage.

Entrance Gates: The Entrance Gates signage at the southern entrance to the AMC Camp does not follow DCR standards. Add or update the steel gate to include the name of the location, the DCR logotype, and the gate number (if applicable), and the name of the site.

Additional Notes for AMC Entrance: The intersection where the road to the AMC Camp and the hiking trail cross is not clearly marked. Mark the intersection where the walking trail and the road intersect so hikers and drivers are aware of one another. The road to the AMC Camp could be more clearly marked as a road and a part of the green loop dot trail.

Figure 3-49. Proposed Directional Cabin Signage

AMC PONKAPOAG CAMP: SIGNAGE RECOMMENDATIONS

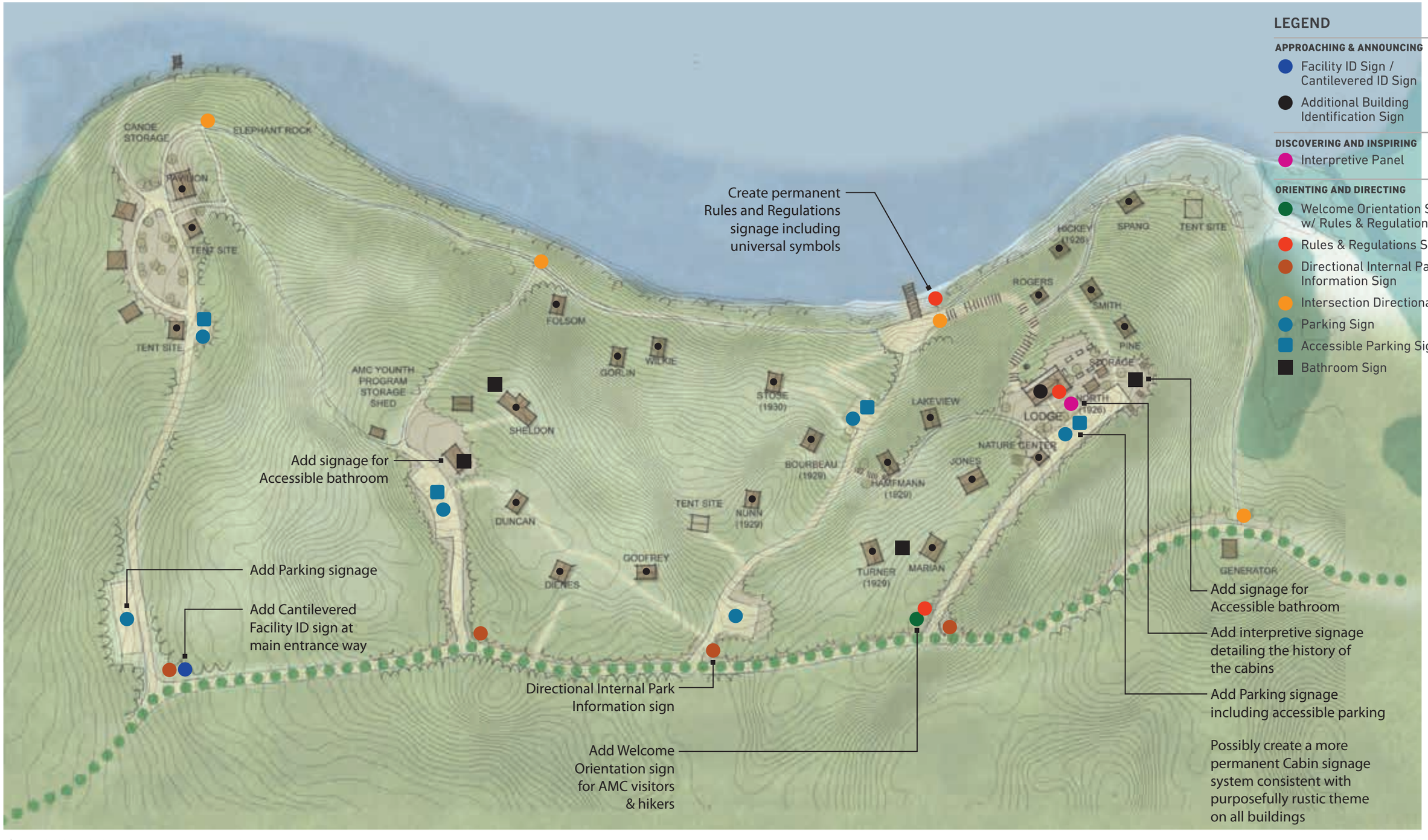


Figure 3-50. AMC Ponkapoag Camp Signage Recommendations

YMCA CAMP SIGNAGE: FACILITY SIGNAGE

Observation

Currently, most of the facilities throughout the YMCA Camp are not clearly marked. The signage in the Main Building, including the Infirmary and the Main Office, is poorly marked, not formalized, and requires more permanent signage. Bathrooms should be marked as well as the other buildings following YMCA requirements.

Recommendation

Site Facility Signage: The YMCA Camp Identification Signage is not DCR-standard and is in poor condition. Replace with DCR Cantilevered ID Sign including DCR and YMCA logos

Directional Signage: There is no internal directional signage directing visitors to key locations. Internal Park Information Signage should lead visitors to primary locations throughout the YMCA camp. By following the DCR Graphics Manual, the Internal Directional Signage will be consistent with the rest of Ponkapoag Pond directional signage.

Figure 3-51. Directional Signage at YMCA Camp

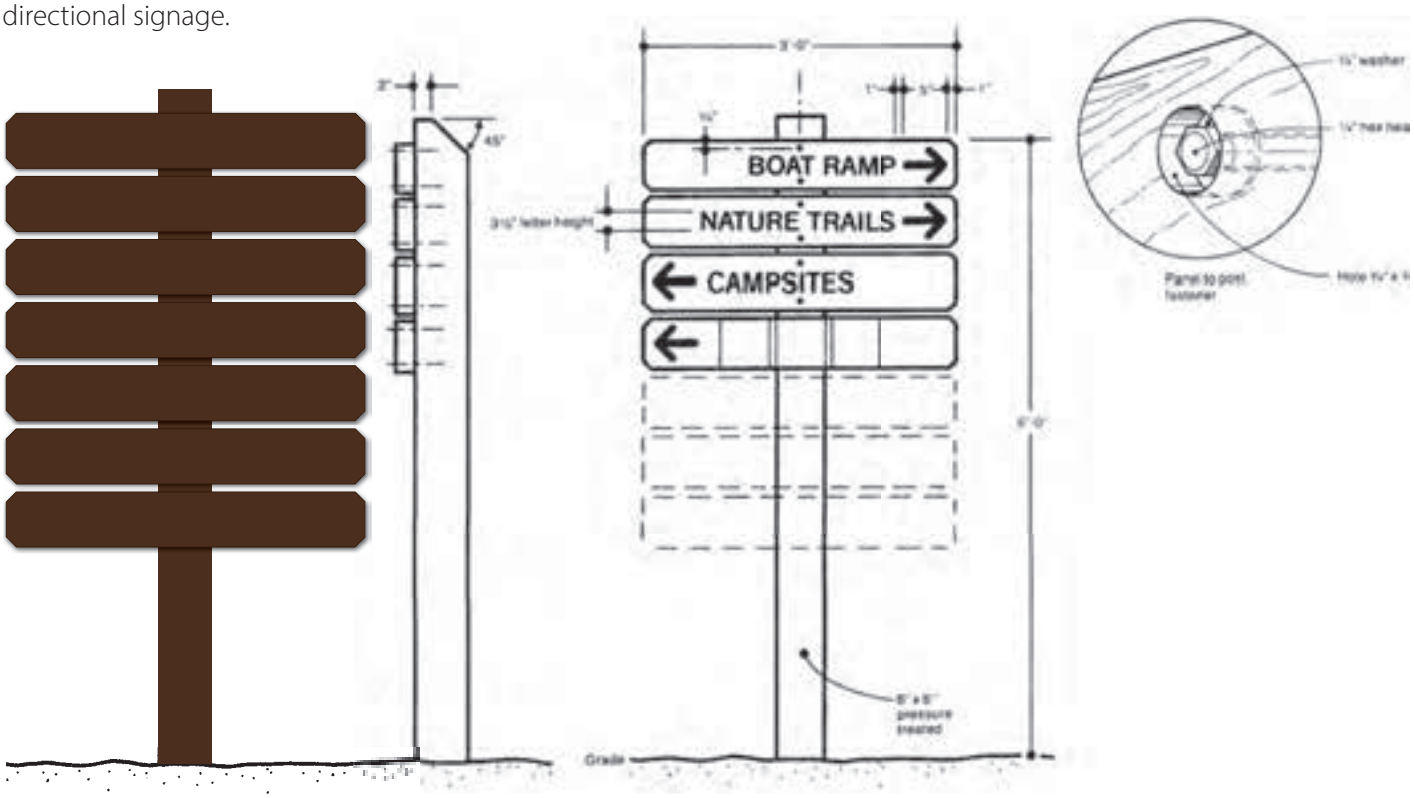


Figure 3-52. Proposed Sign Types at YMCA Camp: Directional Internal Park Information Sign

Rules and Regulations Signage: Rules and Regulations signage throughout the camp is poorly maintained or not permanent. Maintain the area around signage better, and update when signage is weather-worn. At the Pool facilities, the signage is poorly maintained, to the point that it is a hazard. The signage is covered by vegetation which needs to be cleared away. Clear away vegetation, and update signage in poor condition. Elsewhere at YMCA, the signage is printed on paper or other impermanent materials. Signage should be formalized, and follow YMCA requirements as well as the DCR Graphic Standards Manual.

Figure 3-53. Proposed Sign Types at YMCA Camp: Site Facility Signage at YMCA CAMP

Building Signage: Building Facilities throughout the YMCA Camp are not clearly marked, and the signage in the Main Building, including the Infirmary and the Main Office, is poorly marked and requires more permanent signage. Update and add facility signage.

Bathroom Signage: Bathrooms are not clearly marked. Add signage identifying bathrooms.

Entrance Gates: Entrance Gates Signage at the Northern entrance to YMCA Camp does not follow DCR standards. Add or update steel gate to include the name of the location. The DCR logotype and the gate number (if applicable) should be applied to the post, and the name of the location should be clearly marked.

Traffic Signage: Visitors are allowed to drive on the access road to drop off and pick up children at the camp. There is an ongoing problem with speeding cars going well above the posted limit of 10mph. When asked, drivers are often unaware they are traveling on a park road that hikers, bikers, and horses share with them. To reinforce the message to slow down, add "Share the Road" signage and "Slow Down / Speed Limit 10 mph" signage along this road to identify that visitors are in the park and sharing the road with hikers, bikers, and horses and to reinforce that they must slow down, and drive at a limit of 10 mph.

Figure 3-54. Proposed Traffic Rules Signs along road to YMCA Camp

YMCA PONKAPOAG OUTDOOR CENTER: SIGNAGE RECOMMENDATIONS

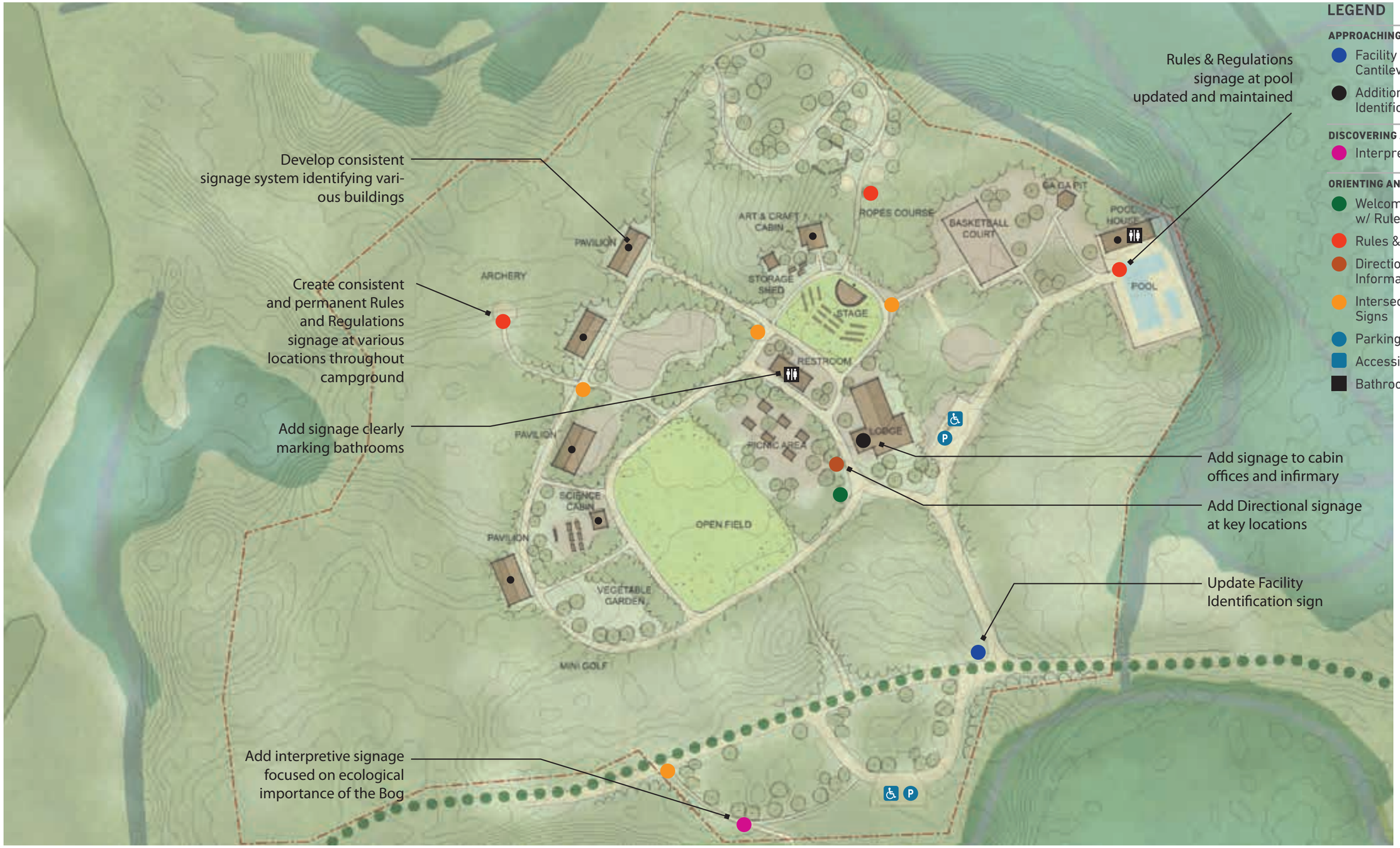


Figure 3-55. YMCA Ponkapoag Outdoor Center Signage Recommendations

FISHERMAN'S COVE

Fisherman's Cove is on the southern side of Ponkapoag Pond and reflects many of the issues reviewed within this plan. Signage is either weather-worn or non-existent. Adding and updating signage throughout will improve the visitor experience.

Recommendation

Identification Signage: Currently, there is no signage marking the entrance into Fisherman's Cove. Add 4'0 x 2'0 main identification sign at southern/Randolph St entrance. Clear landscaping to allow for the main identification signage to be visible.

Directional Signage: There is no directional signage indicating primary locations throughout the park. Add DCR Internal Park Information trail signage to direct visitors to primary locations throughout the Pond.

Consolidate Safety & Rules Sign: Rules signage is not clearly indicated. Add DCR Rules Signage (consolidated sign) in the parking lot and at Fisherman's Pond Beach.

Additional Rules Signage: Add Additional Rules signage as marked, including "Carry In, Carry Out" sign, "Wetland Area" sign, "Public Water Access" sign, a "Fish Advisory" sign indicating high mercury levels, and DCR standard "No Swimming" signage. Signage should follow the DCR Graphic Standards Manual guidelines.

Parking Signage: There is no signage indicating accessible parking spaces. Add new arrowed signage near the entrance way indicating a new accessible parking. Parking is not adequately marked. Mark Parking and Accessible Parking with signage.

Welcome Orientation Wayside Signage: Welcome Orientation "Bulletin signage" is not well maintained. Replace Bulletin signage with new Welcome Orientation Wayside following DCR Standard—specifically a 2-panel with space for postings.

Interpretive Signage: Currently, there is no Interpretive signage or content telling the story of Ponkapoag Pond. Based on the Interpretive Plan, add Interpretive signage to the area.

Entrance Gates Signage: Entrance Gates signage at the entrance to Fisherman's Cove do not reflect DCR standards. Add or update steel gate to include the location's name, DCR logotype, and the gate number per DCR Standards.

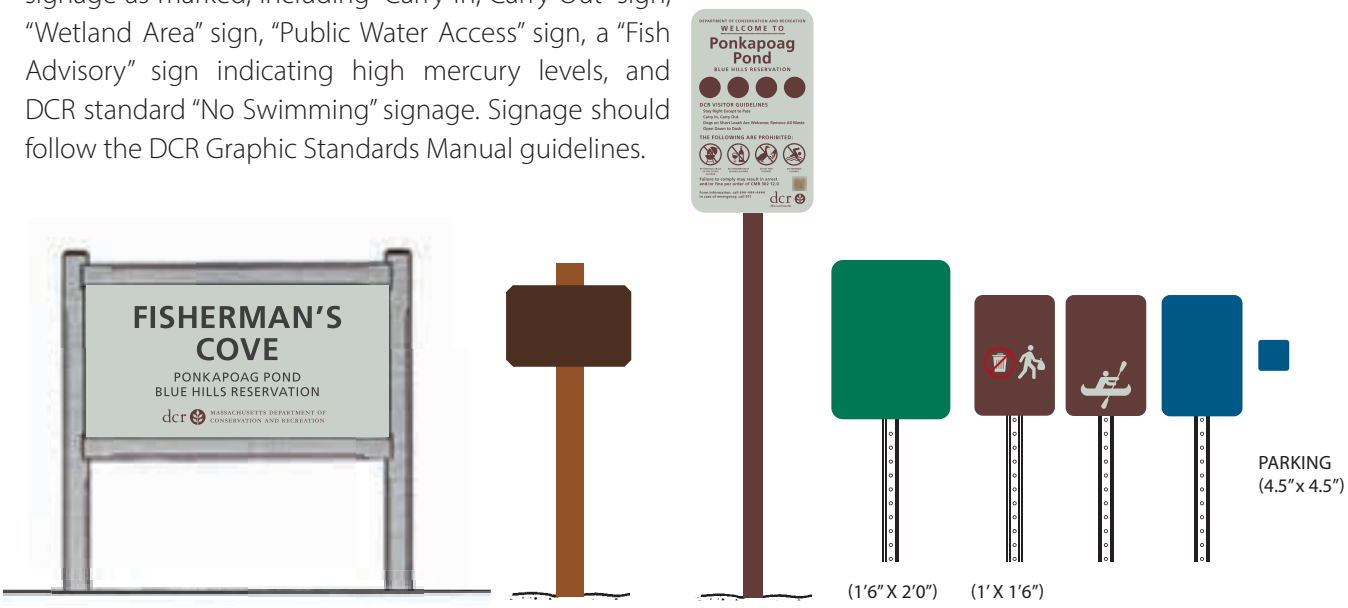


Figure 3-56. Proposed Sign Types at Fisherman's Cove

FISHERMAN'S COVE: SIGNAGE RECOMMENDATIONS

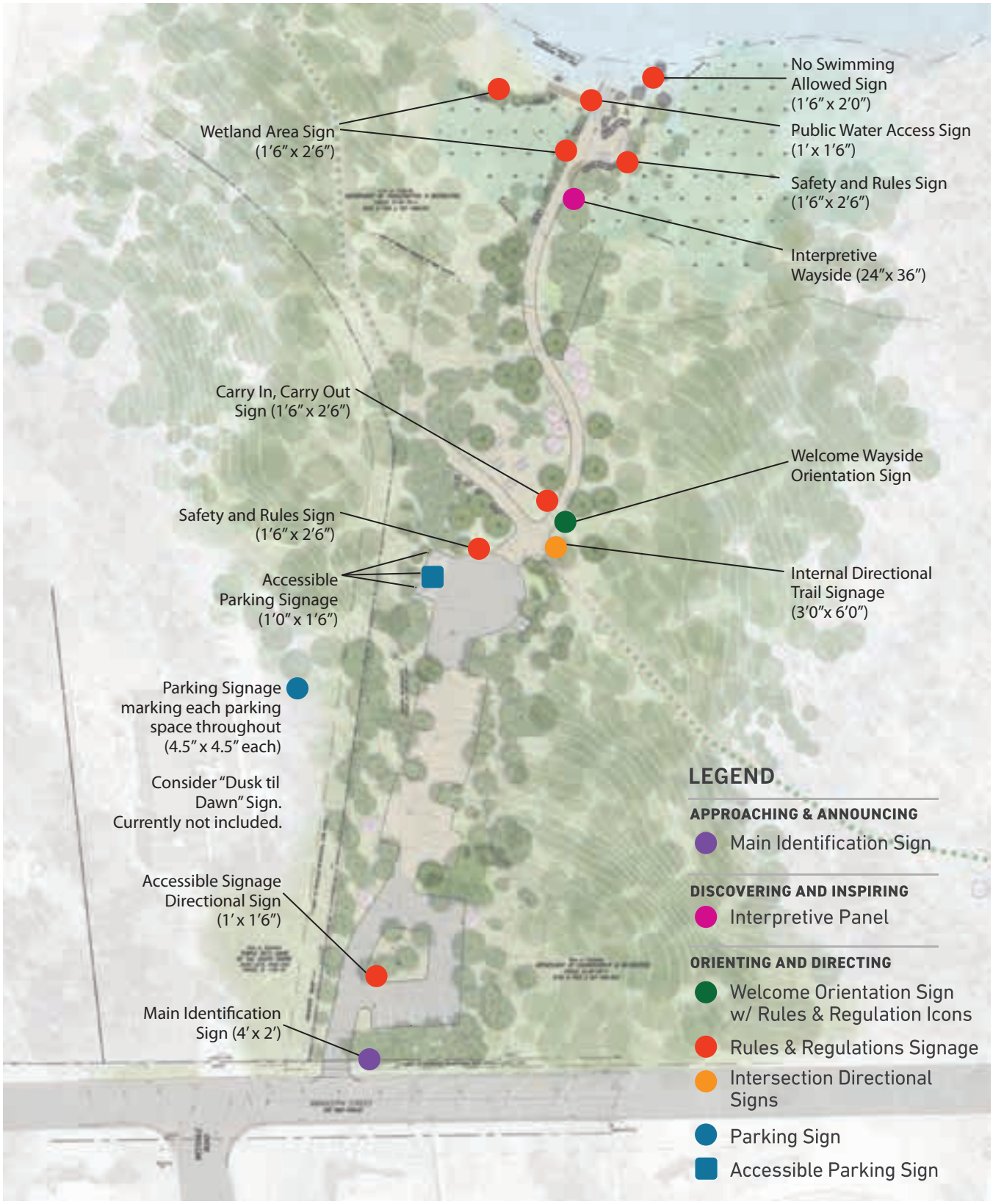


Figure 3-57. Fisherman's Cove Signage Recommendations

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Smithsonian

Guidelines for Accessible Exhibition Design

https://www.sifacilities.si.edu/sites/default/files/Files/Accessibility/accessible-exhibition-design1.pdf

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APPENDICES

Appendix A

LANDSCAPE MANAGEMENT PLAN

February, 2023

Ponkapoag Pond and Bog Landscape Management Plan

Canton & Randolph , MA

Prepared for the

Massachusetts Department of Conservation and Recreation

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PONKAPOAG POND AND BOG

Ponkapoag Pond and Bog is a unique landscape due to its cultural, natural and recreational resources located within DCR's 7,000 acre state park known as the Blue Hills Reservation located only 16.5 miles south of downtown Boston. From a cultural resource perspective, the site is rich with history and has been an important settlement area for Native peoples for over 10,000 years, up to the 1700s. From a natural resources perspective, the site is designated as an **Area of Critical Environmental Concern (ACEC)** due to its unique ecological resources and its wetlands, vernal pools, and upland forests that are home to nine state listed rare plants and wildlife. Its plant communities are composed of a range of plant communities including upland forests, wooded swamps, shrub swamps, golf course turf grass, and the Atlantic White Cedar bog. From a recreational resources perspective, the site offers a variety of recreation activities. The site's 22 miles of trails offer varying degrees of difficulty and the Green-Dot Trail is a 3.9-mile heavily used loop trail that travels around Ponkapoag Pond. Fisherman's Cove provides access to Ponkapoag Pond for fishing and boating with personal watercraft. Shore-based fishing is available at Ponkapoag Dam. In addition to the golf course, there is also YMCA Ponkapaog Outdoor Center and AMC Ponkapoag Camp with overnight cabins and tent sites.

LANDSCAPE MANAGEMENT PLAN (LMP)

DCR envisions increasing public access within Ponkapoag Pond and Bog area to enhance the visitor experience while being mindful to respect its cultural resources and protect it as a natural resource. Given the potential for wear and tear based on increased use of these lands in addition to pressures from climate change impacts and adverse impacts from surrounding development, planning for an appropriate level of landscape management is a critical need for the park's sustained day-to-day use and long term sustainability. This Landscape Management Plan (LMP) for Ponkapoag Pond and Bog Area will help the DCR allocate resources to achieve desired maintenance standards, which should be consistent with other DCR reservations and properties.

The LMP is intended to:

- Define the maintenance activities specific to the different sites and landscape types, as well as standards to be met.
- Provide an easily-followed schedule for implementation.
- Assign clear responsibilities for implementation - whether it's the DCR staff, contractors, or partner organizations.
- Work towards more sustainable and ecologically beneficial landscapes,with a less labor-intensive but sometimes more specialized maintenance regimen.

Responsibilities

There are four entities that share responsibilities for the LMP implementation: DCR Operations Staff, DCR Contractors, and long-term permit holders. Note that the Operation and Maintenance Plans (O&M Plans) for the park facilities are not part of the LMP.

- DCR Operations Sta has the responsibility for trail maintenance, lawn mowing, and tree pruning
- DCR Contractors are engaged to perform more specialized tasks, such as trail maintenance, tree pruning, invasive species removal, planting, hazard tree removal and pruning, green infrastructure maintenance, and bank stabilization.
- Partner Organizations such as the Friends of the Blue Hills provide volunteer assistance in manual and mechanical invasive management, planting, tree watering, tree management, litter removal and clean-ups.
- Permit Holders such as the Appalachian Mountain Club (AMC) and YMCA perform tasks within their permit area per the executed MOU.

LMP Components

- Plant community descriptions, which characterize each plant community within the landscape management areas.
- Landscape management areas, which define the limits of delineated landscape management subareas.
- Invasive plant descriptions, which characterize each invasive plant and their locations within the landscape management areas.
- Landscape maintenance recommendations, which outline the removal techniques for invasive species and recommendations for re-vegetation and restoration, among other actions.
- LMP **Maintenance** Schedule, which documents routine activities, calendar by season and month, and division of responsibilities.

LMP Diagrams with Landscape Management Areas

The Ponkapoag Pond and Bog area is divided into 11 management subareas : Upland Forest, AMC Ponkapoag Camp, Residential Buffer, Wetland, Fisherman's Cove, Open Water, Canton Dam, Ponkapoag Golf Course, Ponkapoag Bog, YMCA Ponkapoag Outdoor Center, and Upland West. For more details on the specific characteristics of the management areas see Section 3.

LMP Maintenance Schedule

The LMP Maintenance Schedule Chart is a companion to the Landscape Management Area Diagram. The intent of the chart and the diagrams are to provide a clear graphic reference for the persons implementing the maintenance in the field. The chart includes:

- List of maintenance activities relating to that area, with noted key requirements such as frequency of implementation and basic requirements (e.g. height of mowing, depth of mulch)
- Calendar of implementation by month and season
- Responsibilities chart, including DCR Operations staff, outside contractors, partner organizations, and permit holders.

2 | PLANT COMMUNITIES

The Ponkapoag Pond property contains a wide variety of plant communities, further illustrating that this area supports a great diversity of uplands and wetlands, which in turn, provide a large variety of habitat to support local and migrant species. The plant communities are depicted in Figure A-1. There is a mix of upland and wetland forest types, with the majority of upland forested areas being dominated by a mix of hardwood oaks ***(Quercus rubra, velutina, and alba)*** and White Pine ***(Pinus strobus)***. Forested wetland areas were dominated by Red Maple ***(Acer rubrum)*** with the exception of the forested portion of Ponkapoag Bog, which is dominated by Atlantic white cedar ***(Chamaecyparis thyoides)***. The non-forested portions of Ponkapoag Bog are dominated by species such as Peat Moss ***(Sphagnum spp.)***, Skunk Cabbage ***(Symplocarpus foetidus)***, Leatherleaf ***(Chamaedaphne calyculata)***, a variety of Sedges ***(Carex spp.)***, and Sheep Laurel ***(Kalmia angustifolia)***. Commonly observed shrub vegetation throughout the site included Lowbush Blueberry ***(Vaccinium angustifolium)***, Maple-leaf Viburnum ***(Viburnum acerifolium)***, Sweet Pepperbush ***(Clethra alnifolia)***, and raspberry ***(Rubus spp.)***. Commonly observed herbaceous vegetation across the site included Canada Mayflower ***(Maianthemum canadense)***, Wild sarsaparilla ***(Aralia nudicaulis)***, and starflower ***(Lysimachia borealis)***.

Approximately 12 dominant plant community types are present within the Ponkapoag LMP area, and their defining characteristics are summarized below. These native plant communities will serve as reference communities against which long-term management and planting activities may be guided. For instance, management activities within an upland white pine forest will target maintaining that specific community, and any planting or restoration efforts may seek to mimic the species assemblage present in that reference community .

Forest-Oak-Hardwood (F1)

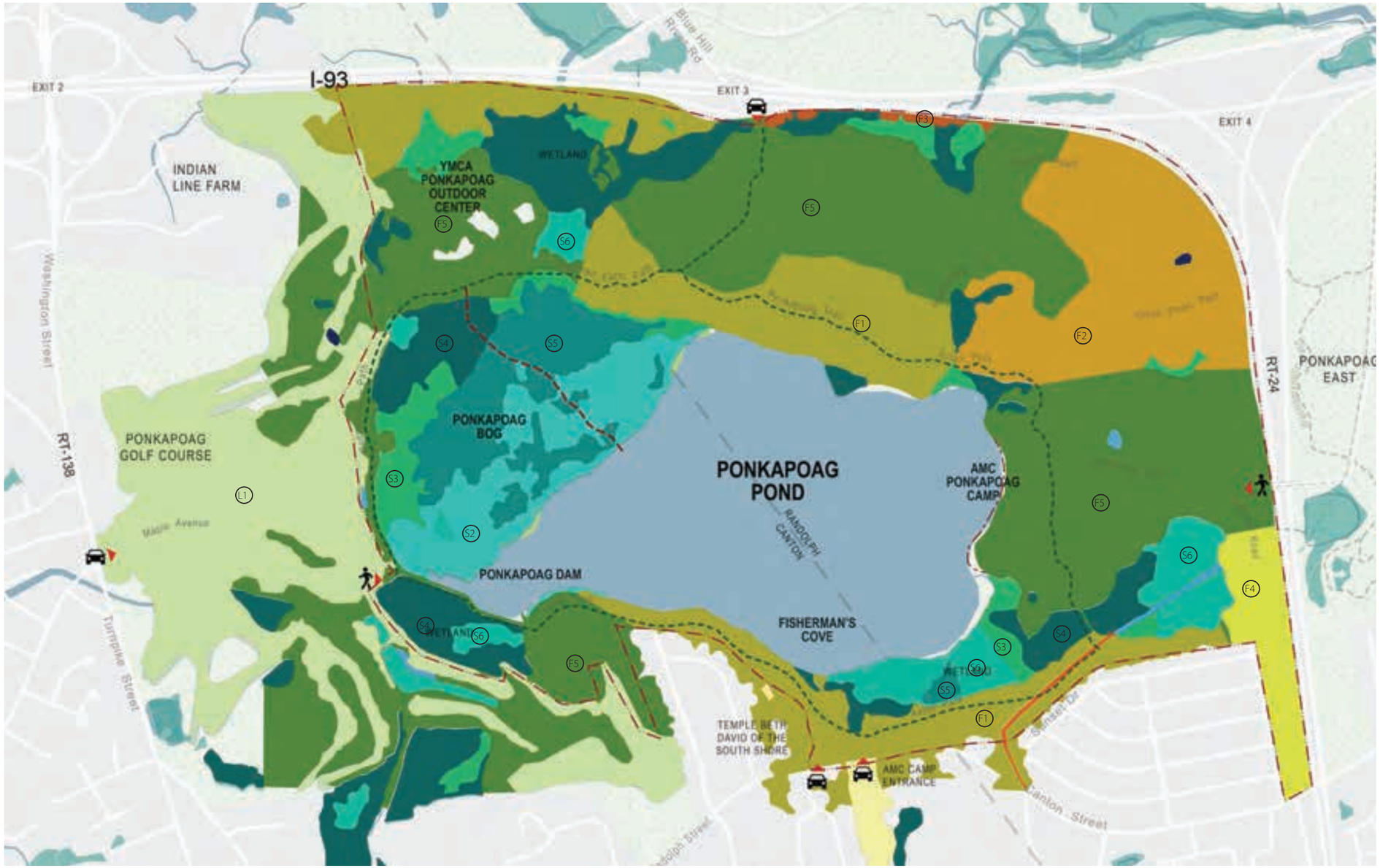
Oak–Hardwood Forest communities are often found as small patches within matrix forests which include a variety of community types, typically in areas with higher nutrient concentration. These forest types are dominated by red oak, black oak, white oak, sugar maple, bitternut hickory, pignut hickory ***(Carya glabra)***, and black birch ***(Betula lenta)***. Maple-leaved viburnum ***(Viburnum acerifolium)*** is common in the understory as well as hop hornbeam ***(Ostrya virginiana)***, red maple, wild geranium ***(Geranium maculatum)***, maidenhair fernC ***(Adiantum pedantum)***, witch hazel, and white wood aster.

Forest-Mixed-Oak (F2)

Mixed-Oak Forests occur on dry soils, found often on rocky slopes across Massachusetts. The forest canopy cover is typically about 70%, and often have young and/or stunted trees with diameters less than eight inches. This forest type is dominated by a variety of oak species such as red, black, white, and chestnut. White pine is also commonly found within this community type. The understory is covered with undecomposed oak leaves, with commonly found species such as striped maple ***(Acer pensylvanicum)***, witch hazel, lowbush blueberry, and wild sarsaparilla.

Forest-Red Maple (F3)

Red maple forest communities are often found in seasonally flooded basins or on slopes with groundwater seepage. Shallow to thick layers of organic matter over nutrient soil are common and standing water is often present in the spring. This community type is often nutrient-poor and acidic, and the vegetation is highly affected by water. The forest canopy is dominated by red maple ***(Acer rubrum)***, along with other species such as white ash ***(Fraxinus americana)***, black gum ***(Nyssa sylvatica)***, American elm ***(Ulmus americana)***, and white pine ***(Pinus strobus)***. The well-developed shrub layer typical of this community type often includes winterberry ***(Ilex verticillata)***, highbush blueberry ***(Vaccinium corymbosum)***, red osier dogwood ***(Cornus***



PONKAPOAG PLANT COMMUNITIES

- F1 Forest - Oak - Hardwood
- F2 Forest - Mixed Oak
- F3 Forest - Red Maple
- F4 Forest - White Pine - Hardwood
- F5 Forest - White Pine - Oak
- L1 Golf Course
- S1 Shallow Marsh Meadow Or Fen
- S2 Bog
- S3 Shrub Swamp
- S4 Wooded Swamp Deciduous
- S5 Wooded Swamp Coniferous
- S6 Wooded Swamp Mixed Trees

LEGEND

- LANDSCAPE MANAGEMENT AREA
- TRAILS
- ENTRANCE - VEHICULAR/ PEDESTRIAN
- ENTRANCE - PEDESTRIAN ONLY

Figure A-1. Plant Communities

sericea), and sweet pepperbush *(Clethra alnifolia)*. Within the herbaceous layer, species such as cinnamon fern *(Osmunda cinnamomea)*, royal fern *(Osmunda regalis)*, sensitive fern *(Onoclea sensibilis)*, sedges *(Carex spp.)*, and jewelweed *(Impatiens capensis)* are commonly found.

Forest-White Pine-Hardwood (F4)

White Pine – Hardwood Forest communities are often unevenly aged and are commonly found in the higher elevations of Massachusetts. The closed canopy is dominated by a mix of long-lived deciduous hardwood species such as sugar maple *(Acer saccharum)*, white ash *(Fraxinus americana)*, American beech *(Fagus grandifolia)*, black cherry *(Prunus serotina)*, and bitternut hickory *(Carya cordiformis)*, as well as evergreen species such as white pine *(Pinus strobus)* and eastern hemlock *(Tsuga canadensis)*. The understory of this community type typically includes elderberry *(Sambucus canadensis)*, hobblebush *(Viburnum lantanoides)*, intermediate wood fern *(Dryopteris intermedia)*, Christmas fern *(Polystichum acrostichoides)*, Canada mayflower *(Maianthemum canadense)*, and white wood aster *(Eurybia divaricata)*.

Forest-White Pine-Oak (F5)

White Pine – Oak Forest communities are common across Massachusetts at elevations below 3000 feet, typically located on dry to moist slopes or gently rolling hills. Within these forests, 25-75% of the total cover is made up of white pine, with the remainder primarily being composed of oak species such as red oak *(Quercus rubra)*, black oak *(Q. velutina)*, white oak *(Q. Alba)*, and chestnut oak *(Q. montana)*. Other commonly found tree species in this community type include American beech and red maple *(Acer rubrum)*. The understory typically includes species such as lowbush blueberry *(Vaccinium angustifolium)*, sheep laurel *(Kalmia angustifolia)*, witch hazel *(Hamamelis virginiana)*, wild sarsaparilla *(Aralia nudicaulus)*, Canada mayflower, and partridgeberry *(Mitchella repens)*. Signs of past human disturbance are often common, such as old logging roads and stone walls.

Golf Course (L1)

Golf courses are typically a collection tee boxes, fairways, and greens comprised of highly maintained grass lawn. Areas of unmanaged grass are often along the edges of these lawns and hazards such as sand and water traps are scattered around the course. Extensive landscaping is very common, and ornamental trees can often be found.

Shallow Marsh Meadow or Fen (S1)

Shallow marsh meadows and fens can be found across Massachusetts in broad, flat areas bordering low-energy rivers and streams, along pond and lake margins, and within well-defined basins. Within marshes, the substrate is typically a layer of highly decomposed organic muck; in fens, this is typically replaced by substantial peat accumulation *(Sphagnum spp.)*. The plant communities within shallow marshes typically include tussock sedge *(Carex stricta)*, Canada bluejoint *(Calamagrostis canadensis)*, sensitive fern *(Onoclea sensibilis)*, marsh fern *(Thelypteris palustris)*, cattails *(Typha spp.)*, swamp candles *(Lysimachia terrestris)*, boneset *(Eupatorium perfoliatum)*, red osier dogwood *(Cornus sericea)*, common reed *(Phragmites australis)*, and leatherleaf *(Chamaedaphne calyculata)*. In disturbed marshes, invasive species can easily become established, such as purple loosestrife *(Lythrum salicaria)*, reed canary grass *(Phalaris arundinacea)*, or Japanese knotweed *(Reynoutria japonica)*. Within shallow fens, the plant communities typically include a wide variety of sedge species *(Carex spp.)*, cattails, hardstem bulrush *(Schoenoplectus acutus)*, sweet pepperbush *(Clethra alnifolia)*, grass of Parnassus *(Parnassia palustris)*, leatherleaf, highbush blueberry *(Vaccinium corymbosum)*, meadowsweet *(Spiraea alba)*, large cranberry *(Vaccinium macrocarpon)*, St. John's wort *(Hypericum perfoliatum)*, arrow arum *(Peltandra virginica)*, and rose pogonia *(Pogonia ohioglossoides)*.

Bog (S2)

Bogs are semi-forested acidic peatlands, with incompletely decomposed plant material accumulating by being saturated year-round by cold, acidic, poorly oxygenated water, which is low in nutrients, and can often be found along pond borders. Short Atlantic white cedar trees dominate the partially forested areas, with some scattered tree species such as red maple, white pine, gray birch ***(Betula populifolia)***, and black spruce ***(Picea mariana)***. The lower levels are characterized by leatherleaf ***(Chamaedaphne calyculata)***, sheep laurel, highbush blueberry, swamp azalea ***(Rhododendron viscosum)***, cranberry ***(Vaccinium macrocarpon)***, sundew ***(Drosera spp.)***, pitcher plant ***(Sarracenia purpurea)***, and peat moss ***(Sphagnum spp.)***.

Shrub Swamp(S3)

Shrub Swamp communities are common across Massachusetts in areas where the water table is at or above the soil surface for most of the year, such as lowlands, river and stream margins, and along forested wetlands. Soils may be mineral or organic, and stunted trees are typically less than 25% of total cover. The composition of species varies much between different areas, but commonly observed species often include speckled alder, buttonbush ***(Cephalanthus occidentalis)***, swamp azalea, silky dogwood ***(Cornus amomum)***, winterberry, arrowwood ***(Viburnum dentatum)***, meadowsweet ***(Spiraea alba)***, and swamp dewberry.

Figure A-2. Shallow Marsh Meadow or Fen

Wooded Swamp Deciduous (S4)

Wooded Swamps dominated by Deciduous Trees are also typically found in seasonally flooded basins, depressions, floodplains, or areas with groundwater seepage, having typical characteristics of other swamp community types. The surface topography is commonly hummock-hollow with fluctuating surface water levels. Typical tree species include red maple, white ash, American elm, swamp white oak, scarlet oak ***(Quercus coccinea)***, black gum, yellow birch, and pin oak ***(Quercus palustris)***, with an understory dominated by winterberry, highbush blueberry, speckled alder ***(Alnus incana)***, spicebush ***(Lindera benzoin)***, cinnamon fern, royal fern, skunk cabbage, foamflower ***(Tiarella cordifolia)***, jewelweed, jack-in-the-pulpit ***(Arisaema triphyllum)***, goldthread ***(Coptis trifolia)***, swamp dewberry ***(Rubus hispidus)***, and a variety of sedges.

Wooded Swamp Coniferous (S5)

Wooded Swamps dominated by coniferous trees are typically found in large, seasonally flooded depressions often containing standing water and hummock/hill topography, with organic soils accumulating within the hollows. The tree canopy is typically dominated by eastern hemlock, white pine, Atlantic white cedar, black spruce, and red spruce ***(Picea rubens)***. Due to the thick and persistent evergreen canopy, the understory is often low in plant diversity with patches of ferns and moss being common. Typical species include

Figure A-3. Wooded Swamp Coniferous

winterberry, highbush blueberry, spicebush, sweet pepperbush, cinnamon fern, starflower ***(Lysimachia borealis)***, goldthread, partridgeberry, wild sarsaparilla, foamflower, rough-leaved goldenrod ***(Solidago rugosa)***, and Canada mayflower.

Wooded Swamp Mixed Trees (S6)

Wooded Swamps dominated by Mixed Trees are typically found in seasonally flooded basins, depressions, floodplains, or areas with groundwater seepage. Soils tend to be thick organic layers over mineral sands, with standing water being common during the spring months and saturation lasting throughout the growing season. The tree canopy is typically dominated by red maple, yellow birch ***(Betula alleghaniensis)***, black gum ***(Nyssa sylvatica)***, white ash, American elm ***(Ulmus americana)***, swamp white oak ***(Quercus bicolor)***, Atlantic white cedar ***(Chamaecyparis thyoides)***, eastern hemlock, and white pine. The forest understory is highly variable but can include species such as winterberry ***(Ilex verticillata)***, highbush blueberry ***(Vaccinium corymbosum)***, red osier dogwood ***(Cornus sericea)***, sweet pepperbush ***(Clethra alnifolia)***, cinnamon fern ***(Osmunda cinnamomea)***, sensitive fern ***(Onoclea sensibilis)***, royal fern ***(Osmunda regalis)***, skunk cabbage ***(Symplocarpus foetidus)***, jewelweed ***(Impatiens capensis)***, and a mix of sedge species ***(Carex spp.)***.

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3 | LANDSCAPE MANAGEMENT AREAS

For the purpose of this LMP, the overall management area has been subdivided into 11 management sub-areas (see Figure A-4) to facilitate directed management of key focus areas. The boundaries of these areas were delineated based upon a combination of dominant vegetation cover type, developed and undeveloped landscape features, and primary recreational uses. A discussion of each management sub-area and the predominant plant communities contained within each area are provided below.

1. Upland Forest

This management zone encompasses the northeast region of the Ponkapoag area, The western boundary of this zone is defined by the access trail from Interstate 93 to the Ponkapoag Trail. The southern boundary of this zone coincides with the northern shoreline of Ponkapoag Pond. This zone extends down the eastern region of the overall management area, but does not include the AMC camp. This area is defined by its largely undisturbed forested uplands and notable recreational features include a network of hiking trails and Duck Pond.

The primary plant communities identified in this area include:

- Forest -Forest-White Pine-Hardwood
- Forest-White Pine-Oak
- Forest-Mixed-Oak
- Forest-Oak-Hardwood
- Wooded Swamp Mixed Trees
- Wooded Swamp Deciduous

As this area is mostly undeveloped forest and is only used by day hikers, management activities within this zone are anticipated to be limited to invasive plant management and vegetation maintenance along trails.

2. AMC Ponkapoag Camp

This management zone consists of the AMC camp. It is bordered by Ponkapoag Pond to the west by Zone 1 to the north, by the Green Dot Trail to the east, and by a forested wetland to the south. This area is one of the few developed areas within Ponkapoag, and is comprised of rustic cabins, a main lodge, a year-round caretaker's cabin, picnic areas, trails, tent sites, and a beach area for campers. This area is currently operated and maintained by the AMC.

The dominant plant communities found within this zone include:

- Forest-White Pine-Oak
- Wooded Swamp Deciduous

Effective landscape management within this sub-area will focus on continued vegetation maintenance to support ongoing camp operations, with a focus on maintaining the invasive plant management efforts regularly implemented within this area given the relatively high degree of disturbance compared to other areas of Ponkapoag.

3. Residential Buffer

This management sub-area is located in the southeast corner of Ponkapoag, and is bordered by Acton Trail to the north, Fisherman's Cove parking log to the west, Randolph Street and Sunset Drive to the south, and by Route 24 to the east. This zone serves as an interface between developed areas and DCR lands, and is subject to higher levels of disturbance as a result of surrounding land uses. Additionally, this zone is utilized by abutting residential properties and contains informal access trails from these homes to Acton Trail.

The primary plant communities within this area include:

- Forest-Mixed-Oak
- Forest-White Pine-Hardwood
- Wooded Swamp Deciduous
- Forest-Oak-Hardwood
- Bog

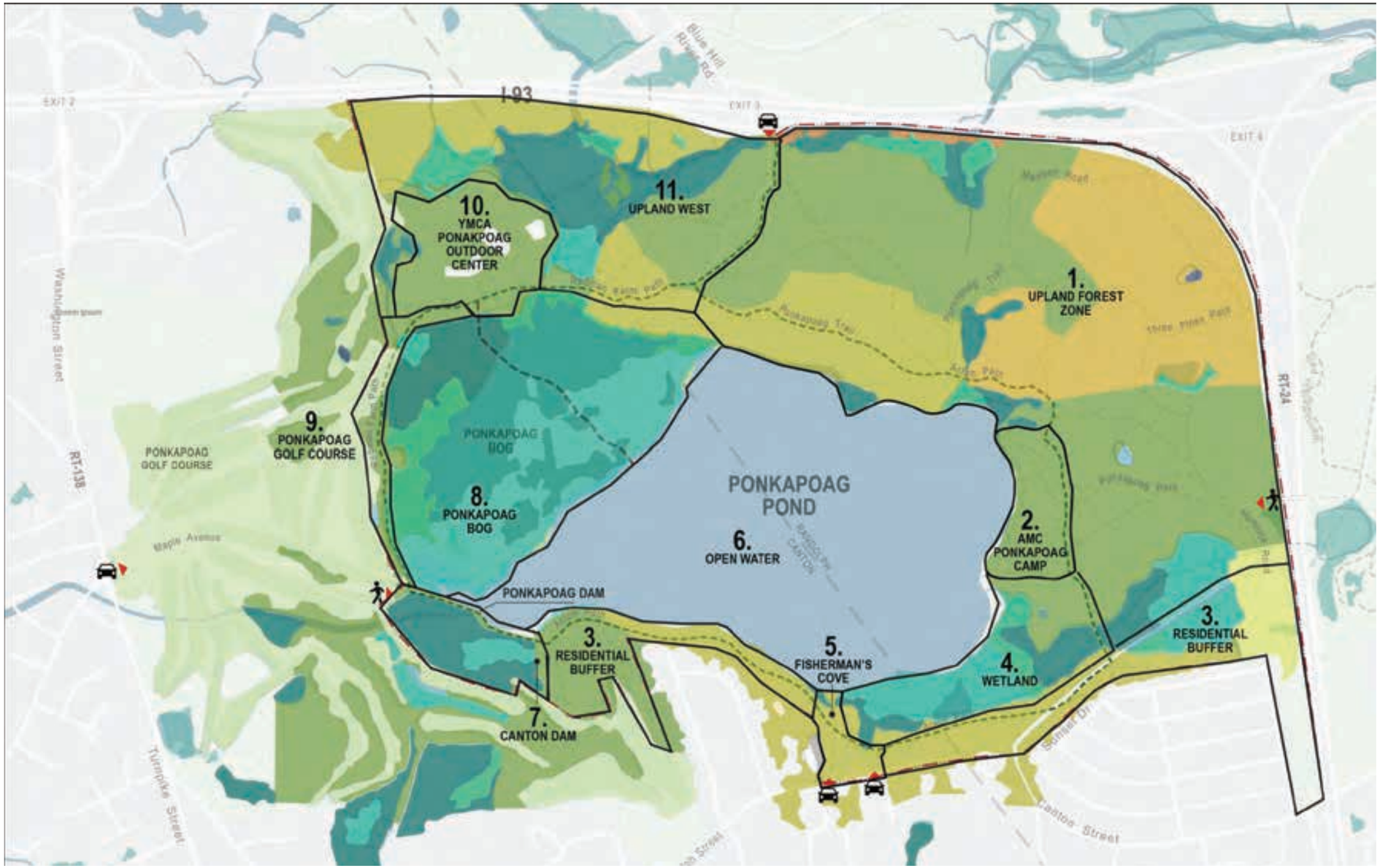

Figure A-4. Landscape Management Zone Key Plan

Management priorities within this area will include continued monitoring for and management of invasive species, vegetation maintenance along DCR trails, and monitoring and management of informal trail networks established by visitors accessing the park through unofficial entry points.

4. Wetland

This management zone is located on the southeast shore of Ponkapoag Pond, to the immediate south of the AMC camp. Acton Trail and Zone 3 are to the south, and Fisherman's Cove is located to the west. This area is undeveloped and relatively undisturbed as it consists primarily of a large forested wetland. Activities within this zone are limited to day hikers along the southern boundary of this area along Acton Trail.

Plant communities that are dominant in this zone include:

- Wooded Swamp Coniferous
- Wooded Swamp Deciduous
- Forest-Oak-Hardwood
- Wooded Swamp Mixed Trees
- Shrub Swamp
- Bog

Management efforts within this area are recommended to include continued monitoring for and management of invasive plants, particularly along the established trail to the south. Vegetation maintenance along Acton Trail will also be required. Additionally, this area should be monitored for the creation of informal trails, particularly ones providing unofficial access to the pond shore through the wetland.

5. Fisherman's Cove

This management area is one of the most visited day-use areas. This zone is bounded by the Temple Beth David to the west, by Ponkapoag Pond to the north, by a forested wetland (Zone 3) to the east, and by Randolph Street to the south. This area consists of a parking area, hiking trails, and maintained beach area. Additionally, 2022 master planning efforts have identified a number of improvements to this area that are anticipated to be implemented, including paved parking areas, installation of stormwater management features, realignment of the pond access trail, and creation of picnic areas.

The primary plant communities found in this zone include:

- Forest-Oak-Hardwood
- Wooded Swamp Deciduous

This zone will continue to require the most active management by DCR, given its heavy use year-round. Efforts will continue to focus on invasive plant management , vegetation maintenance along trails and parking areas, discouragement of off-trail use, wetland restoration at the beach area, and maintenance of the lawn areas adjacent to the pond.

6. Open Water

This zone consists of the open water section of Ponkapoag Pond. A small swimming area is located within this area of the pond at the AMC camp, otherwise this zone is unoccupied by structures. This area is used by canoes and kayaks during suitable weather.

Plant communities are limited to the perimeter of this zone and are limited to:

- Shallow Marsh

Management activities for this zone are recommended to focus on monitoring and removal of invasive species and prevention of erosion and sedimentation into the pond.

7. Canton Dam

This sub-area is located at the southwest corner of the management area. The Canton Dam, an earthen dam embankment with outlet structure, forms the northern boundary of this area along the pond shore. This dam is managed by the Ponkapoag Golf Course to control

irrigation efforts for the course turf. The Ponkapoag Golf Course borders this zone to the south and west. Ponkapoag Pond borders this zone to the north. A section of the Acton Trail bisects this zone, and is a heavily used section of trail providing wide views of the pond and quaking bog.

Plant communities in this area primarily consist of:

- Shallow Marsh
- Wooded Swamp Deciduous
- Forest-White Pine-Oak

Management efforts within this area are recommended to continue to focus on monitoring and removal of invasive plants, vegetation maintenance along the trail, and discouragement and restoration of unofficial footpaths to the pond shore.

8. Ponkapoag Bog

This sub-area consists of the Ponkapoag Bog, an important natural resource and popular feature for visitors. This bog is a quaking peat bog, with areas of Atlantic white cedar trees. This zone also includes the upland shoreline with which the bog interfaces. This zone is bordered by Ponkapoag Golf Course to the west, by the YMCA Outdoor Center to the north, by the open water of Ponkapoag Pond to the east, and by Canton Dam to the south. A heavily used trail bisects the bog, leading from Redman Farm Path (Green Dot Trail) through the bog and out to the open water of the pond. This trail is constantly saturated or even inundated at points, and consists of wooden blanks laid atop the bog vegetation.

The dominant plant communities encountered within this zone include:

- Bog
- Wooded Swamp Coniferous
- Shrub Swamp
- Wooded Swamp Deciduous
- Forest-Oak-Hardwood

Given the globally-rare and sensitive nature of this bog, management efforts should focus on preservation of and limiting disturbance to the bog. This can be achieved through the continued monitoring for and removal of invasive plants, limiting off-trail foot traffic, and discontinuing use of any unofficial trails.

9. Ponkapoag Golf Course

This sub-area is a narrow zone extending north to south and forms the western boundary of the management area. Ponkapoag Golf Course is located to the west, the YMCA Outdoor Center is to the north, the bog is to the east, and the Canton Dam is to the south. This Green Dot Trail (i.e., Redman Farm Path) runs the length of this zone along the perimeter of the golf course.

The primary plant communities found within this area include:

- Golf Course
- Forest-White Pine-Oak

Management efforts within this zone will overlap with ongoing maintenance of the golf course. Given this zone lays along the periphery of a heavily used and disturbed area and serves as a narrow interface between the golf course and the bog, management efforts are recommended to focus on ongoing monitoring for and removal of invasive plants, as well as trailside vegetation maintenance. Establishment of unofficial trails through this area to the bog are also recommended to be monitored for and blocked off and restored.

10. YMCA Ponkapoag Outdoor Center

This area consists of a day-use YMCA camp in the northwest corner of the management area. This area is primarily used in the summer months and use is typically discontinued during the winter. This area is currently operated and maintained by the YMCA. This area consists of a main lodge, smaller outbuildings and cabins, dirt parking areas, trails, and an in-ground outdoor pool and appurtenances.

The primary plant community in this area is limited to:

- Forest-White Pine-Oak

Management within this area is recommended to continue to complement existing efforts by the YMCA, with a focus on vegetation maintenance within day-use areas and trailsides, as well as monitoring for and removal of invasive plants.

11. Upland West

This sub-area forms the northwest corner of the management area. The YMCA is located to the west, Interstate 93 is located to the north, the access trail from the Interstate 93 parking area is located to the east, and Ponkapoag Bog is located to the south. This area contains the access drive to the YMCA, as well as a number of formal and informal trails. The eastern half of this zone is forested upland, while the western half consists of forested wetlands and streams.

The primary plant communities found within this zone include:

- Forest-White Pine-Oak
- Wooded Swamp Deciduous
- Forest-Oak-Hardwood
- Wooded Swamp Mixed Trees
- Bog
- Golf Course

Management within this area is recommended to focus on vegetation maintenance along the YMCA access road and trailsides, as well as ongoing monitoring for and removal of invasive plants. Additionally, monitoring for and discontinuing use of unofficial trails may also be desired in sensitive areas.

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4 | INVASIVE PLANT SPECIES

The entirety of the Ponkapoag Pond loop trail, the YMCA and AMC camps, Fisherman's Cove, and the southern parking area located along Randolph Street were assessed for the presence of invasive species. Several invasive species were observed to be widespread throughout the entirety of this survey area, including Garlic Mustard (Alliaria petiolata), Multiflora Rose (Rosa multiflora), and Glossy Buckthorn (Frangula alnus). These species were most commonly observed growing along the disturbed areas along both sides of the loop trail as well as the southern parking area and Fisherman's Cove. A natural gas pipeline right-of-way is located adjacent to the loop trail within the southeast portion of the property, and this area was dominated by additional invasive species such as Japanese Stiltgrass (Microstegium vimineum), Japanese Barberry (Berberis thunbergii), and Common Reed (Phragmites australis). Along the Canton Dam area within the western portion of the property near the golf course, invasive species such as Purple Loosestrife (Lythrum salicaria), Spotted Knapweed (Centaurea stoebe), and Reed Canary grass (Phalaris arundinacea) were observed. The areas surrounding the AMC camp located along the eastern shore of Ponkapoag Pond were largely free of any invasive species, due to ongoing efforts by AMC and their partners to control these species.

A description of the general characteristics and life history of the various invasive plant species follows, along with management considerations, and prioritization strategies.

Phragmites

Common reed, or Phragmites, is a tall perennial grass that colonizes wetlands and is tolerant of a wide range of freshwater and brackish conditions. Phragmites can reach up to 13 feet in height and produces a copious seed bank. This species spreads primarily through its extensive root and rhizome (underground stem) system that forms dense mats. The stems create dense colonies and old leaves can be seen at the base of the plants from the stems from the previous season. The leaves are smooth, flat, and gray-green or dark green and are up to 20 inches long and 1.5 inches wide and taper to a sharp point. Large, feathery inflorescences are purple and appear from July to September and turn straw-colored once mature, often persisting through the winter months. Although Phragmites provides some wildlife value for a limited number of species, once this non-native genotype has become established at a site, it causes the rapid decline of most other native species found in a given area, drastically reducing wildlife habitat value. It is noted by Marks et al. (1993) that areas invaded by Phragmites have excellent potential for recovery, provided that long-term management and monitoring occur. Phragmites is a difficult plant to manage, and reinvasion often occurs if a management strategy is not maintained.

This species was found along the Green Dot Trail near the intersection with the utility right-of-way in the southeast region of the management area.

Figure A-5. Common Reed *(Phragmites australis)*

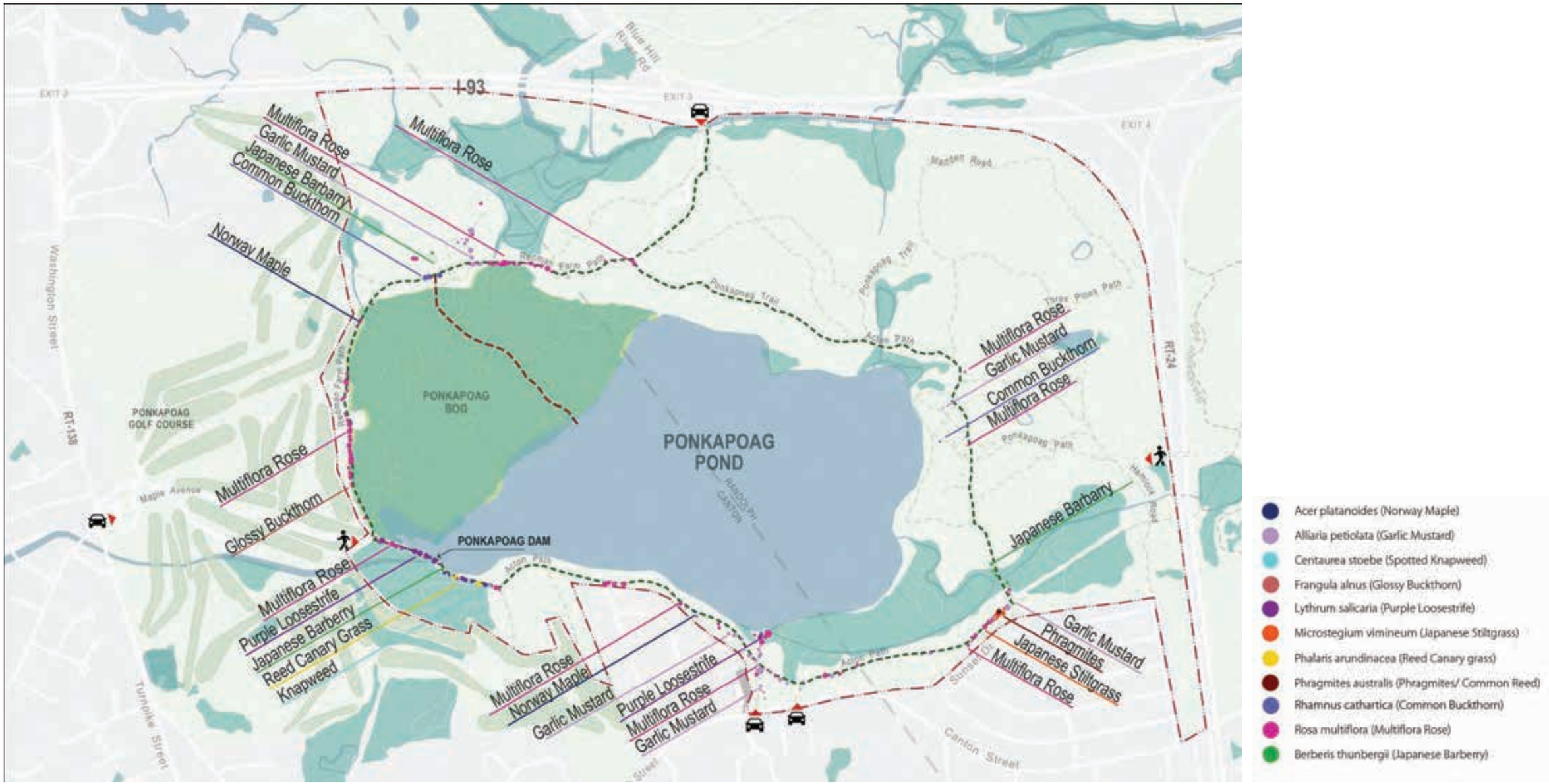

Figure A-6. Invasive plants found along Green Dot Trail, YMCA Outdoor Center, AMC Camp and Fisherman's Cove. The diagram doesn't represent all invasive species within the park.

Multiflora Rose

Multiflora rose ***(Rosa multilfora)*** is a large, thorny perennial shrub that can easily grow over 10 feet tall and 10 feet wide. Native to Asia, this species was introduced to the United States in the mid 1800s as rootstock for ornamental roses and is spread primarily by animals. Multiflora rose is distinguished from other roses by its white or pinkish five-petaled flowers that grow in branched clusters and the base of the compound leaves are fringed where they attach to the stem. As with many non-native species, Rosa multiflora tolerates a wide range of soil, moisture, and light conditions. When the tips of the arching stems reach the ground, they often take root and form a new root crown. If multiflora rose is near trees, the plant may behave like a vine and grow 20 feet into the tree. Birds and browsing animals eat the fleshy rose hips and the seeds pass through their digestive systems intact. Seeds remain viable within the soil for up to 20 years.

This species was encountered in multiple locations along the periphery of the Green Dot Trail.

Garlic Mustard

Garlic mustard ***(Allaria petiolata)*** gets its name from the distinct odor of crushed new leaves, which smell similar to garlic. In early spring, garlic mustard seeds germinate and form a rosette of leaves in the first year. The rosette leaves are kidney shaped with scalloped edges. Second-year plants bolt in mid-spring and send up a flower stalk or stalks, one to three feet tall, with small clusters of white, four-petaled flowers. Leaves alternate along the flower stalk and are more triangular and toothed than the rosette. Seedpods are long and narrow and are one to two and a half inches long and turn tan in color by mid-summer and split along the seams to reveal small black seeds. Plants die after flowering. Garlic mustard is distinguished from other plants with rosettes of rounded leaves by its garlicky odor, and in winter by the taper root, which has an "S" curve immediately below the leaves. This plant's odor also helps in distinguishing this plant from ground ivy. Garlic mustard grows in forests and along forest edges, riverbanks, and roadsides. It establishes in disturbed habitat and then often spreads into less-disturbed areas. This plant threatens several native butterflies whose larvae feed on native mustard plants. Native butterflies lay larvae on garlic mustard but they fail to survive due to the difference in the leaf chemistry from native mustards.

This species was encountered in multiple locations along the periphery of the Green Dot Trail.

Figure A-7. Multiflora Rose *(Rosa multilfora)*

Figure A-8. Garlic Mustard *(Allaria petiolata)*

Japanese Barberry

Barberry *(Berberis thunbergii)* rarely exceeds three feet tall and often grows as a dense understory in woodlands. This species, as with many other invasive plants, leafs out early in the spring to take advantage to sunlight before the canopy leafs out and generates shade, although this shrub is most noticeable in the fall when its branches are full of bright red berries. The leaves are small, oval, and narrowed at one end and cluster closely along the branches. Sharp, single spines emerge from the point where the leaf and branch join. Leaves may be dark green to dark red, depending on the cultivar. In the spring numerous small, pale yellow, six-petaled flowers bloom along the branches, either singly or in clusters of two to four. Oblong bright red fruits mature in late summer and last through autumn and often into winter. Japanese barberry prefers partial sunlight, but can also thrive in shade, particularly in younger forests. Barberry can form dense stands and out compete native plants. Its leaf litter also causes changes in the soil chemistry, thereby creating conditions proving unfavorable to native species.

This species was encountered in multiple locations along the periphery of the Green Dot Trail.

Common Buckthorn

Common buckthorn is a deciduous woody shrub or small tree that ranges from 3 to 7.5 m (10-25 ft) in height. It has simple, dark green leaves, with toothed margins and 3 to 5 pairs of prominent leaf veins. The leaves are alternate, but some may appear opposite. The Common buck thorns flowers are small, green-yellow, four-petaled flowers that are clustered along the stem. The fruits of the Common buckthorn are small, round fruits that ripen from green to purplish black. They are only produced on female plants but have high germination rates. Its range of habitats for the species is dry open forests, alkaline fens, sunny open sites and alvar. Common buckthorn leafs out early in spring and retains its leaves late into fall, shading out spring wildflowers and tree seedlings. There is some evidence that common buckthorn is allelopathic, producing chemicals that inhibit the growth of other species. Buckthorn alters ecosystem processes in complex ways. Its leaves and fruit are high in nitrogen. Invasive earthworms, which need rich litter, break it down rapidly, destroying beneficial fungi and exposing bare soils in the process. These soils provide ideal conditions for buckthorn germination and seedling growth but many native trees and shrubs need the beneficial fungi and will not reproduce without it.

This species was encountered in multiple locations along the periphery of the Green Dot Trail.

Figure A-9. Japanese Barberry *(Berberis thunbergii)*

Figure A-10. Common Buchthorn *(Rhamnus cathartica)*

Norway Maple

Norway maple is a tall deciduous tree that has been planted extensively as an ornamental tree, and is now invading natural areas where it often outcompetes native sugar and red maples and other deciduous trees. This tree typically reaches 40 to 60 feet in height, but may reach up to 100 feet. Leaves are oppositely arranged with five to seven sharply tapering lobes. The broken leaf petioles will reveal a milky sap. Similar to other deciduous woody invasive trees and shrubs, it leafs out earlier in the spring and its leaves typically remain green longer into the fall, thereby extending its ability to photosynthesize longer than other plants. Norway maple reproduces by seed, which it produces prolifically, and seedlings and saplings are shade tolerant. Once established in a forested area, the seedlings can quickly dominate the forest understory.

This species was found on the Green Dot Trail west of Fisherman's Cove, as well as on the Green Dot Trail adjacent to the golf course.

Glossy Buckthorn

Glossy buckthorn is a small tree or shrub with a spreading crown growing up to 6 m (20 ft) tall. Typically, it has multiple stems when young, and develops into a tree with a trunk that may reach 25 cm (10 in) in diameter at maturity. The leaves of the glossy Buckthorn are simple, leaves, and have h 8 or 9 pairs of veins with untoothed margins. Leaves are alternate in pattern. The stems of the Glossy buckthorn are greenish, often with tiny, soft fine hairs. The bark on older branches is a blotchy grayish-brown with prominent light raised areas. Its flowers are tiny with five greenish-white petals, arranged in clusters at the bases of the leaves. Buckthorn has pea-sized fruits with 3-4 seeds. They ripen from green to red to dark purple from July through September, although flowers, unripe and ripe fruit may all be present at the same time. Glossy buckthorn does best on sunny moist sites, although it can tolerate shade. It is found in a variety of wetlands including fens, as well as pastures, fence rows, roadsides, open woods including aspen stands and woodland edges. like many invasive shrubs, leafs out early in the spring and retains its leaves late into fall, increasing its energy production and shading out native plants.

This species was encountered in multiple locations along the periphery of the Green Dot Trail.

Figure A-11. Norway Maple *(Acer platanoides)*

Figure A-12. Glossy Buckthorn *(Frangula alnus)*

Purple Loosestrife

Purple loosestrife is a perennial plant found rooted in a range of wet soil habitats. It can grow in a couple feet of water or on dry shore near the water line. Plants range from two to six feet tall, with several half to one foot long flower stalks on a single plant. Purple loosestrife is a wetland plant with showy purple flowers arranged on flower spikes. Its leaves are lance-shaped with smooth edges and grow up to four inches long. They are usually arranged in pairs opposite each other on the stem, and rotated 90 degrees from the pair below. Leaves sometimes appear whorled around the stem. Each individual flower has five or six pink-purple petals surrounding small, yellow centers. Single flowers make up flower spikes, which can be up to one foot tall. Bloom is from early July through September. When flowers drop off, capsules containing many tiny seeds appear in their place. Plants may go to seed as early as late July. Each mature plant can produce up to 2.7 million seeds annually. The tiny seeds are easily spread by water, wind, wildlife and humans. Germination can occur the following season, but seeds can also lay dormant for several years before sprouting. Purple loosestrife has thick, woody roots. Roots are extensive and can send out 30 to 50 shoots, creating a dense web. Roots and stem fragments can also produce new plants.

This species was found along the shorelines of Fisherman's Cove, as well as within areas of emergent marsh along the Canton Dam. It is understood that biological controls of this species are already in progress at this location, and evidence of these efforts were observed during the invasive species mapping efforts.

Figure A-13. Purple Loosestrife *(Lythrum salicaria)*

Reed Canary Grass

Reed-canary grass is aggressive cool-season perennial grass that invades and often dominates a variety of wetland types, forming dense monotypic stands at the expense of native species, reducing botanical and biological diversity by homogenizing habitat structure and environmental variability. Invasion usually occurs after disturbance by erosion, sedimentation, nutrient enrichment, road salt inflow, or hydrological instability or modification, but can also be introduced from another area by animals. Rhizomes account for the majority of the localized spread of this grass, but it is also capable of spreading by seed and by stem fragments. Once established, this grass can be problematic to eradicate or even control, due to its thick rhizome structure that dominates the soil. Reed-canary grass can also alter hydrology by trapping silt and constricting waterways, and can even limit tree regeneration in forests by shading and crowding out seedlings. This grass also decreases retention time of nutrients and carbon stored in wetlands, thus reducing the carbon sequestration capabilities typical of diverse plant communities. This species is both drought and flood tolerant, indicating that it is capable of tolerating a variety of water levels. This species has two growth peaks, first in late spring and again in late summer. Leaf and inflorescence growth occur in the spring and stem and rhizome growth occur during the late summer peak. Like many non-native, invasive plants, this grass is one of the first wetland plants to emerge at the beginning of the growing season, enabling it to shade out native species that emerge later in the season.

This species was found along the Canton Dam.

Spotted Knapweed

Spotted knapweed is an aggressive herbaceous species known for its infestation of croplands and grazing areas. This species is a biennial or short-lived perennial with a stout taproot that can penetrate deep into hard soils for sustaining moisture and nutrients. During the first year of growth, it has a rosette of deeply lobed leaves borne on short stalks. The flowering stalks have alternate leaves with the leaves deeply lobed towards the base, and smaller leaves with fewer lobes at the top. Plants can grow up to three feet tall. The closed flower heads are egg shaped and surrounded by green bracts with brown triangular tips with fringed ends. The flowers are purple to pink and flower heads are either single or borne in clusters of two or three at the branch ends. This species produces nearly 1,000 seeds throughout its lifetime, and these seeds may persist in the seedbank for a period of up to five years.

This species was found along the Canton Dam.

Figure A-14. Reed Canary Grass *(Phalaris arundinacea)*

Figure A-15. Spotted Knapweed *(Centaurea stoebe)*

Japanese Stiltgrass

Japanese stiltgrass ***(Microstegium vimineum)*** is a widespread invader of woodlands. A prolific seeder with a sprawling growth habit. The tiny seeds are carried on hikers' shoes, cars, ATVs, and logging and road maintenance equipment. Once introduced, it is extremely difficult to remove. The stems of Japanese stiltgrass often form a dense, tangled mat usually 1 to 3 feet in height, sometimes up to 6 feet. The leaves elongate and lance shaped, each leaf blade is between 1 and 3 inches in length. A silvery, slightly off-center stripe runs the length of each leaf. The flower spike of the plant emerges in late summer, maturing to carry small seeds. The spikes are 1 to 2 inches in length. The stems are thin, delicate, and wiry with many interconnected via a horizontal runner stem, from which the roots emerge. Each stem is supported by small, stilt-like prop roots, giving the species its name. The stems remain over winter, forming a dense, matted layer, or thatch, over the soil. Japanese stiltgrass spreads exclusively by seed. Each plant can produce up to 1,000 seeds annually. Like most other annual invasive plants, Japanese stiltgrass seed is small and highly mobile. The seeds float and are easily dispersed in roadside ditches, streams, or wetlands by the movement of water. The seeds can also be transported on contaminated soil clinging to heavy equipment, especially along roadsides or in logging operations. The seeds can remain viable in the soil for up to five years, germinating when suitable conditions occur.

This species was found along the Green Dot Trail near the intersection with the utility right-of-way in the southeast region of the management area.

Figure A-16. Japanese stiltgrass *(Microstegium vimineum)*

INVASIVE PLANT MANAGEMENT CONSIDERATIONS

While it is possible to exert some control over invasive plant species, they often pose a problem that requires a long-term commitment in terms of vigilance and some level of sustained action in perpetuity. Despite long-term management requirements, the cost of invasive plant control decreases when invasive plant communities are lower in distribution, density, and abundance. If invasive plants are addressed during the initial stages of establishment when populations are low, the cost of maintaining the area over the long-term will be less than the control effort required to manage a heavily invaded area if the plants are not detected early on. Therefore, it is critical to find ways to identify priority species and populations and to target management efforts to areas of the greatest ecological significance so that available resources are allocated wisely.

In many situations, attaining a final restoration goal of native biodiversity is typically not viable after the first time control methods are performed. Restoring an area to its native condition is often reached in stages and generally involves multiple removal and restoration cycles. Successful restoration of a minimally managed habitat may occur naturally following removal of invasive plants, but in many cases, habitats have been significantly altered and over-taken by invasive plants such that restoration will not occur on its own and may be impractical to attempt. It is important to note that any management activity constitutes a disturbance in and of itself and may provide additional opportunities for invasive plants to become introduced and established after management, as invasive plants often colonize disturbed landscapes at a higher rate than undisturbed landscapes. Care must be taken to monitor all managed and restoration areas.

Those undertaking any management plan should be aware that complete eradication of certain invasive plants may be unlikely. Often, management success is primarily gained through reducing the size of a population and through the prevention of additional spread (i.e., containment). Eradication is considered to be attained when no target plants are detected from the initial infested area for three consecutive years. True eradication is typically practical only for small-scale populations, generally during the introduction phase. This further illustrates the importance of early detection of an invasive species, as the population size can determine the difference between a successful eradication project and implementing a long-term, costly containment strategy.

Invasive Management Prioritization Strategies

It is recommended that invasive plant management priorities be developed based upon the data presented in this plan in combination with the other short and long term goals of DCR at this property. High priority areas may consist of areas with threatened rare plants or animals; heavily infested areas near high quality habitat; areas with recent small invasions; or locations like streambanks and trail edges from which invasives are likely to spread quickly. The following factors should be considered when establishing the priorities for ongoing invasive species management at Ponkapoag.

1. Identi cation of Priority Plant Species to be Managed: Each species possesses different methods of growth and dispersal, and may be more capable of spreading aggressively within a given landscape. It is important to consider the biology of the plant intended for management.

2. Density and Extent: Large, dense patches of invasive plants are generally more difficult to eradicate than small, isolated patches that are detected early. Early detection and eradication are key to the effective management of invasive plants.

3. Accessibility/Location: Ease of access is also an important factor when prioritizing management areas. Easily accessed areas of land will be more conducive to transporting equipment and mobilizing volunteers to apply treatment methods. Actively managed trailsides and open areas are far more accessible than those

along a rocky trail or down a ledge, and are more easily prioritized, as treatment techniques can be regularly administered and monitored. If invasive plants are located in a wetland, certain permits and approvals may be required prior to implementing any management efforts.

4. Level of E ort: Level of effort is directly tied to the density, extent, and accessibility of each area. As previously mentioned, early detection of younger or low-density non-native plants presents an obvious opportunity for management, as management in these areas optimizes exerted efforts, is cheaper and easier to implement, requires the least amount of effort to control, and will likely be the most successful. It may be advisable to implement management strategies within these areas that will require the least effort, prior to commencing with dense expanses of non-native plants that will require years of follow up treatment and careful monitoring. One of the easiest goals to attain in any plan is managing the simplest populations to control, such as small areas on the Green Dot Trail, at the AMC or YMCA areas, or at Fisherman's Cove.

5. Surrounding Habitat Type and Quality: The quality and type of habitat surrounding each area of invasive species is important to consider, particularly to preserve biodiversity and particular habitats of interest. Prioritizing the management of a small area of invasive plants detected in a relatively pristine native plant community before the habitat is further degraded is advisable. Less-pristine and generally more disturbed plant communities colonized by non-native plants may be less of a priority. In addition, one should consider if there are non-native plants in neighboring tracts of land and the potential for reinvasion due to this proximity when prioritizing sites.

6. Visibility and Outreach: If a proposed management area is located in a more visible location, it can be used as a demonstration area to provide public education and outreach. An important component of controlling invasive plants is to educate visitors and neighbors about the threats these plants can pose and what efforts can be made to control them, on an individual scale.

INVASIVE PLANT MANAGEMENT RECOMMENDATIONS

Management plans consist of prevention, early detection and rapid response, prioritization, active management/plant control, monitoring, and education and outreach. Each of these central components are discussed below, along with an overview of existing invasive plant management efforts at Ponkapoag.

Existing Efforts

It is understood that the AMC as well as the Friends of Blue Hills lead ongoing invasive plant management activities. The AMC monitors and removes invasive plants found within their lease area, and the Friends of Blue Hills have an annual garlic mustard removal program supported by a large volunteer group. The recommendations in this plan assume the continuation of these partnerships and ongoing efforts by these groups.

Annual Monitoring & Prevention

Vigilance is also essential to detect new appearances of invasive plants. Invasive plant monitoring is recommended within these survey areas at least once a growing season to document the extent of plant populations, potential spread, and effectiveness of ongoing management efforts. Many invasive plants first establish on disturbed ground and in areas where native plant cover has been damaged. Special care should be taken to monitor such areas and restore native plant communities, if damaged. Monitoring is particularly important after earth work, large storm events with significant precipitation or wind, floods, and fires.

A detailed monitoring plan should be developed prior to implementation of control measures. Monitoring provides the data needed to determine the effectiveness of initial control efforts and the type(s) of follow-up control methods that may be necessary. Monitoring can be as simple as establishing and using fixed photo points on the site to record changes over time, or more involved, such as the use of quantitative measurements and inventories of vegetation using sampling grids or transects to assess species composition, abundance, and percent dominance of native species versus invasive species. At a minimum, each treated site should be inspected annually during the growing season.

Prevention is a vital component to any management strategy and is the easiest course of action to prevent invasions. The use of non-native species in landscaping, erosion control, and restoration plantings should be avoided and will prevent the direct introduction of invasives. Limiting disturbance to natural native areas will help to maintain the quality of native plant cover within priority areas and will defend against invasive plant colonization.

Landscaping and landscape equipment can spread invasive plants, either through direct planting or transport of seeds or viable plant fragments from one area to another. Machinery is also another means of spread. Seeds or plant fragments can be transported in tire treads, within mud caked on equipment, or within the mechanical parts of a mower or other similar equipment. Landscape equipment, vehicles, and other machinery should be inspected and cleaned before moving from one area to another to deter the spread of non-native plants.

Dumping of landscape debris containing viable plant parts may also spread invasive species; landscape debris and tree slash should be disposed of properly and the property should be monitored to ensure no illegal dumping of plant materials is occurring on the site . Neighboring properties may also contain invasive plant populations and may serve as a source of invasive plant spread onto the DCR's property. Outreach to adjacent landowners may assist in containing the potential spread of such plants.

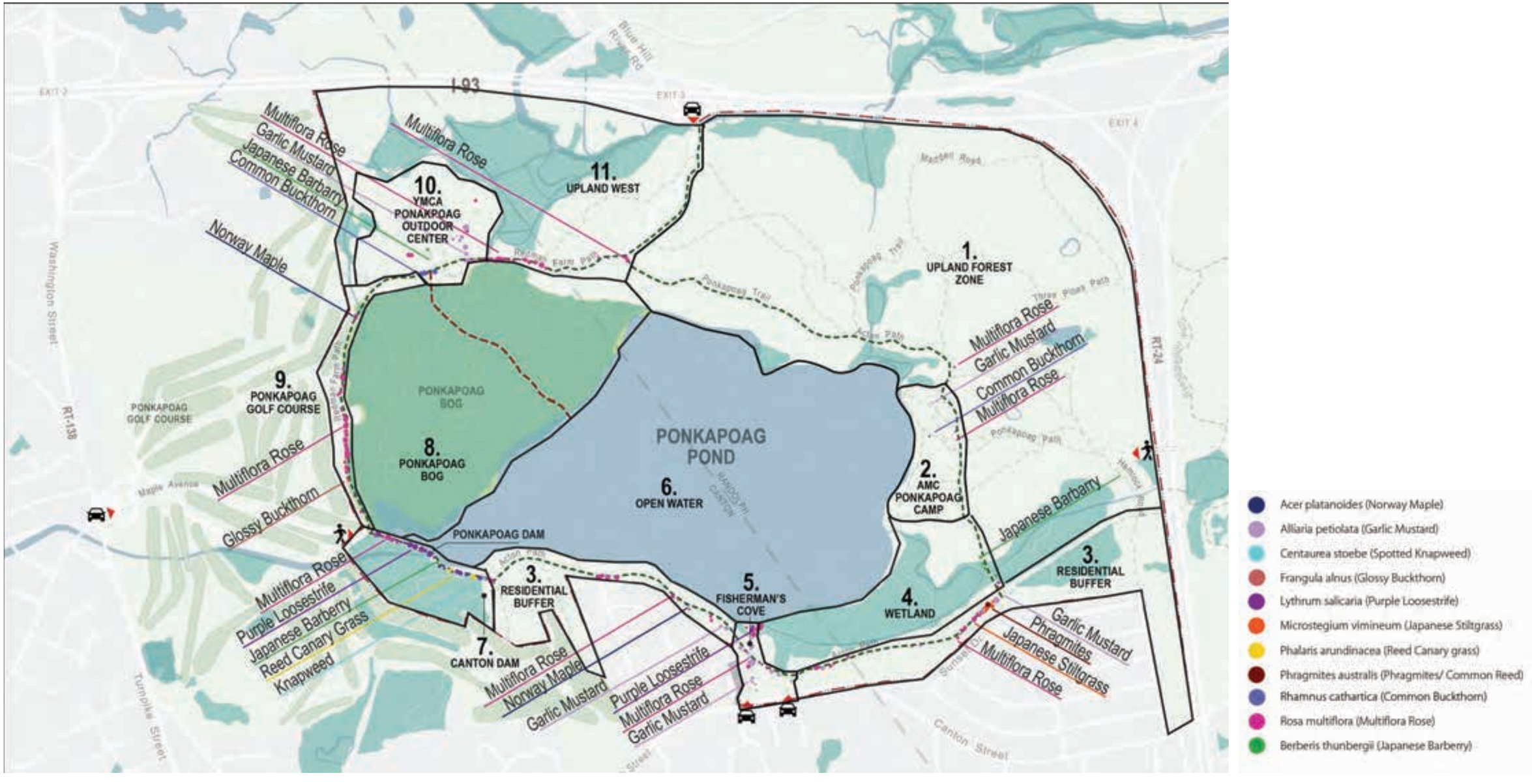

Figure A-17. Invasive species distribution in each landscape management area

MANAGEMENT TECHNIQUES

Given the ecological sensitivity of Ponkapoag, manual and mechanical control methods for invasive plant management are recommended. Manual controls, when properly implemented, can result in control of an invasive plant and can be administered by DCR personnel or volunteers. Recommended manual controls include:

- Hand-pulling of above-ground plant growth;
- Weed-pulling to remove tap roots and above-ground growth;
- Cutting above-ground growth;
- Digging to remove root crowns/root systems; and
- Mowing, brush-cutting, and weed-eating can eliminate above-ground growth.

When timed to coincide with each plant's growth cycle, these methods can be highly effective. The technique applied will depend upon the growth form, maturity, and density of the target species. The following section details which methods are most appropriate for each growth form and life stage of the target species. Follow up treatments within the same or subsequent growing seasons may be required, depending upon the density and/or extent of the established plant. All of these practices will involve a long-term commitment, involving one or more treatments per year over several years, to achieve the desired result. This is an important factor to consider prior to commencing any management plan.

Trees

Invasive tree species identified within the survey area were limited to Norway maple. This species, depending upon its maturity, can be managed with the following manual techniques.

- Hand Pulling: Seedlings can easily be hand-pulled in their first year of growth. Beyond that, the root system becomes too elaborate to make pulling feasible.
- Mowing: Larger, dense areas dominated by young tree seedlings can be easily controlled by mowing. Repeated applications will likely be needed over several growing seasons if new sprouts emerge.
- Uprooting: Tree saplings can be uprooted and removed manually with use of shovels, a pick axe, a Weed Wrench, or a Root Talon.

  Weed Wrench: Tree saplings can be removed manually with use of a Weed Wrench. The Weed Wrench is an all-metal tool that is very effective at pulling small to large trees out of the ground, even out of dry, hard soils. It has a set of jaws which clamp strongly onto the stem, and let you lever the plant out of the ground. When plants are wrenched out of the ground, it may disturb the soil and encourage new weeds to sprout, therefore continued monitoring of the sites after treatment is required. Four models are available (Heavy, Medium, Light, and Mini), and all are highly effective. Although the Weed Wrench is heavy and often expensive they typically provide long lasting effective service.

  Root Talon: The Root Talon is an appropriate tool for the removal of shallow rooted saplings less than 1¼ inches in diameter, but not effective against deeply rooted trees. It is an inexpensive, lightweight alternative to the Weed Wrench. Shaped like a pick-axe, it includes a specialized fork and gripping flange that grabs onto the tree stem and pulls them out of the ground. This will not provide the maximum pulling strength of a Weed Wrench, but is easily transportable.

- Cutting: Mature trees and larger saplings may need to be cut at ground level with power or manual saws. Cut stumps may re-sprout, therefore additional cuttings and follow up visits may be required for several years after the initial cutting. All the debris from mature trees cut in the vicinity of natural areas should be removed and properly disposed to eliminate potential seed sources.

- Girdling: Girdling has proven effective for larger trees where cutting is not practical. Girdling should be conducted using a hand-axe to make a cut through the bark approximately six inches above the ground, and cut completely around the trunk. Be sure that the cut goes well into or below the cambium layer (the layer just inside the bark).

Norway Maple Recommendation

- Girdling is most effective during the spring months (April to May), and seedlings and young saplings can be pulled from moist soils at any point through the growing season. Leftover stumps should be ground down or monitored as this species can sprout from cut stumps. Repeated follow-up cutting may be necessary.

Shrubs

Shrubs such as multiflora rose, buckthorn, and Japanese barberry may all be effectively managed using a variety of manual control applications. Some of these control methods are similar to those used for saplings and tree seedlings. Details for each method, along with species-specific recommendations, are provided below.

- Hand Pulling: Individual seedlings can easily be hand-pulled during the first few years of growth. This is most appropriate in areas of low shrub density; hand pulling dense stands can be labor intensive.
- Mowing: Large, dense stands of shrubs may be mowed down with brush cutters or brush mowers. This is recommended only for monotypic stands of invasive plants, as it is non-selective and will cut everything. If desirable native species are intermixed with the target area, this application may not be ideal. A large-scale treatment such as mowing should be followed by re-vegetation with a seed mix or native plantings, or a combination thereof, depending upon the surrounding community type.
- Uprooting: The Root Talon (described above) is also very effective against shallow rooted shrubs less than 1¼ inches in diameter. It was originally designed for the sole purpose of removing invasive buckthorn (Rhamnus) shrubs, which are often shallow rooted. Soil disturbance may result in seeds sprouting, so monitor the area after using the Root Talon. The Weed Wrench is effective at uprooting and pulling out shrubs that are too large or have deeply established roots to be removed with a root talon. Certain mature buckthorn may be successfully pulled from the ground, even out of dry, hard soils with this tool. The jaws will clamp strongly onto the stem allowing one to lever the plant out of the ground. When shrubs are wrenched out of the ground, it may disturb the soil and encourage new weeds to sprout; therefore the sites should be monitored after treatment.

Japanese Barberry Recommendation

- Digging or pulling is most effective. Repeated cutting and mowing can also be effective, but only if it's repeated monthly throughout the growing season. The best time for digging/ pulling is the months preceding and during flowering (late April to early May). apanese barberry has tough roots, but they are often shallow. A Root Talon is an effective tool against this species with proper gear to protect personnel from the sharp spines.

- Cutting: Shrubs may be cut to the base with power saws, hand saws, axes, loppers, shears, or clippers. Many shrubs are capable of sending out roots from cut plant parts or from maturing seeds even after the plant is cut down. Consequently, care should be taken to remove all plant parts from the site while being careful to not spread them to new locations during transport.

Buckthorn Recommendation

- Studies have shown that cutting back larger plants twice in a single growing season for 2-3 consecutive years results in fewer and shorter stems and reduced plant vigor. This is best done twice a season, in June and August. Plants with stem bases less than 4.5 cm (2 inches) in diameter can be successfully girdled (a 2- to 3-cm wide cut) during the winter months. Girdling does not disrupt soils and would not disrupt sensitive wetlands.

Multiflora Rose Recommendation

- Small patches of this plant may be managed through cutting by hand. One or more persons can hold back the canes with a pitchfork while another person cuts the base of the plant. Stems should be cut at least once per growing season as close to ground level as possible. Re-sprouts will need to be cut repeatedly or the rootstock can also be dug out. Digging out rootstock will disturb soils; any disturbed soil should be closely monitored or replanted with native plants.

- Prescribed Burning: Burning can kill some species, but it also stimulates other species' seeds to germinate or roots to re-sprout vigorously. Prescribed burning has proven to be somewhat successful in the eradication of larger areas of honeysuckle, although manual removal of the bush honeysuckles is widely recommended. As this method is non-selective and may encourage growth of other invasive plants it is not recommended.

Vines

While invasive vines were not encountered in the focus areas for the invasive plant survey, management techniques follow in the event a vine species is encountered during future monitoring efforts. Vines may be controlled using a variety of manual and mechanical methods, similar to those used on shrubs. Possible control options are described below.

- Hand Pulling: Individual seedlings on the ground can easily be hand-pulled during the first few years of growth. When removing large, well-established vines, it is best to not try and pull them from the trees. Often, the branches of the tree are weakened and may break and come down with the vine, further impairing the health of the tree and posing a danger to personnel conducting the work. All vines should be pulled before the onset of fruit production, to prevent the further spread of seeds.
- Uprooting: A Weed Wrench, Root Talon, shovel, or transplant spade may be used to uproot and pull out the base of vines. This is effective also in combination with cutting back above-ground vine growth. If root fragments remain, resprouting may occur and additional applications of this method will be required.
- Cutting: A recommended vine-cutting approach is to "cut a window" or create a gap in the trunk or stem of the vine. A "window" is created by cutting the stem as high as can be easily reached, then cut low to the ground, creating a gap that cannot be healed. A single cut in a vine stem can often recombine as the plant attempts to heal itself.

Herbaceous

The basic manual and mechanical management techniques discussed for other forms of vegetation growth may be easily adapted and applied to the invasive herbaceous species found at Ponkapoag. Pulling, uprooting with tools, cutting, and mowing are all effective approaches to managing undesirable herbaceous plant growth.

- Hand Pulling: As with other forms of plant growth, individual seedlings of any of the herbaceous species targeted at the Sanctuary can easily be hand-pulled during the first few years of growth. Larger, mature plants with more established roots may be best controlled using one of the other practices.

Spotted Knapweed Recommendation

- Small populations of spotted knapweed may be controlled through persistent hand pulling prior to seed set. With hand pulling, the entire crown and taproot of the plant must also be removed.

Garlic Mustard Recommendation

- Plants are easily pulled when soils are moist. Pull carefully and try to remove as much of the root as possible.

Purple Loosestrife Recommendation

- Hand-pulling is recommended for small populations and isolated stems. Plants should be pulled prior to setting seed (as early as late July). The entire rootstock must be pulled and removed from the site along with any broken stems due to the ability of this species to resprout.

- Uprooting: A Weed Wrench, Root Talon, shovel, or transplant spade may be used to uproot and pull out

Figure A-18. Hand pulling is very e ective with low-density herbaceous plants and in sensitive areas.

Reed Canarygrass Recommendation

- Small populations and isolated stems are best removed by uprooting, taking care to remove the entire root system to prevent resprouting.

Spotted Knapweed Recommendation

- Digging is a control technique that has proven to be very effective in areas with densities of less than 10 plants per square meter. Proper disposal of the excavated plants is essential.

- Cutting: This is a very practical approach to manage larger areas of mature herbaceous cover and is appropriate for any of the invasive herbaceous plants identified at the Sanctuary. Loppers, shears, or clippers are good tools to use, depending upon the stem size of the plant. Many plants can send out roots from cut plant parts or from maturing seeds even after the plant is cut down, so it is important to remove all plant parts from the site while being careful to not spread them to new locations during transport.

Phragmites Recommendation

- Cutting Phragmites can be done with weed whips, clippers, a machete, or other cutting tool. The stems and seed heads should be cut back. Weed whips or handheld cutting tools are ideal for use on wet or dry sites with low plant densities. Cutting should occur only during time frames that will avoid soil disturbance. Once an area has been cut, the thatch should be raked, bagged, and disposed of in an appropriate location to prevent seed spread and to allow sunlight to reach the soil surface. This ensures that the native seed bank will have an advantage during the subsequent growing season. Cutting individual plants once during late summer/fall (September to first killing frost) may be successful because it eliminates the surface biomass of the plant when it is using most of its energy for flower and seed production.

Garlic Mustard Recommendation

- Plants can be cut at ground level in the spring to control large stands. Plants that have begun to flower should not be left on site because seeds may still develop. Plants cut above ground level are likely to send up new flowering shoots.

Spotted Knapweed Recommendation

- Small infestations can be clipped or hand pulled repeatedly in a growing season. Wear gloves because the plants can cause skin irritation in some people. .

Japanese Stillgrass Recommendation

- Hand cutting is effective for small populations but not practical for larger infestations.

- Mowing: Large areas of terrestrial herbaceous plants (e.g., garlic mustard, reed-canary grass, and spotted knapweed) may be mowed down with brush cutters or brush mowers. This is recommended only for monotypic stands of invasive plants, as it is non-selective and will cut everything. If desirable native species are intermixed with the target area, this application may not suitable. A large-scale treatment such as mowing should be followed by revegetation with a seed mix or native plantings, or a combination thereof, depending upon the surrounding community type.

Reed Canarygrass Recommendation

- This species is best controlled via mowing in mid summer and again in early October in order to reduce seed production and encourage the growth of native species. Multiple mowings are required due to a second growth spurt when cut during the growing season.

Phragmites Recommendation

- The use of mechanical equipment is highly dependent on the size and wetness of the site and the density of Phragmites. Small mowers, brush hogs, and flail mowers may be used to cut back larger stands of Phragmites. Small mowers can be used effectively on low density sites as well. Larger mowers can be used on sites with a higher density of plants, but the site must be dry enough to support the weight of the mower in order to avoid soil disturbance. On very wet sites, cutting the plants when the ground is frozen would minimize soil disruption. Mowing should occur only during time frames that will avoid soil disturbance. Once an area has been mowed, the cut materials must be raked, bagged, and disposed of in an appropriate location to prevent seed spread and to allow sunlight to reach the soil surface to ensure the native seed bank will have an advantage during the subsequent growing season. Use of a flail-type mower can eliminate the need for thatch removal, since it will destroy most plant parts adequately. As with cutting, mowing during late summer/fall (September to first killing frost) may also be successful because it eliminates the surface biomass of the plant when it is using most of its energy for flower and seed production. If a mower is used, the mower deck should be set to a mowing height greater than 4 inches to minimize impact on small animals and native plants.

Spotted Knapweed Recommendation

- Mowing of large, dense populations of spotted knapweed during the months of April and May, soon after flowers open but before seed production, reduces the plant populations' ability to successfully produce a seed crop. It is important to note that seeds may remain viable in the soil for five to eight years. Special care needs to be taken to ensure that plant fragments and seeds are not spread by the mower. The mower should be carefully cleaned before moving from one location to another and personnel should remove any plant pieces adhered to their clothing or other tools. In addition, mowing often results in the plants merely reflowering at lower heights. Reseeding and/or planting with a native grass species is recommended following removal of the knapweed to allow for native succession. Eliminating the first small infestations prevents expensive treatments later.

Japanese Stillgrass Recommendation

- Regular, close mowing is most effective in reducing seed production. Mowing at least once in late summer is as effective as frequent mowing earlier in the year. Any mechanical control needs to occur prior to first flowering (beginning mid to late September). The best time to mow is late July to early August. Mowing must be repeated annually due to long seed bank viability (up to seven years).

Purple Loosestrife Recommendation

- Mowing is not recommended for this species, as it can further spread by distributing plant stems that can then sprout vegetatively.

DISPOSAL

It is important to emphasize that invasive plant management efforts often generate a substantial amount of plant debris and sediments that often contain plant root fragments and/or fruits and seeds. If this plant debris is not properly disposed of, it may contribute to the introduction or spread of the species at the project site or off site disposal location. A proper disposal method should be indentified prior to performing any of the practices described above. Depending upon the plant species and plant's development stage at the time of management, a number of disposal options are available.

Many trees, shrubs, and woody vines cut prior to flowering may be air dried and composted, chipped and composted, or built into a brush pile for habitat value. Woody plants removed during or after flowering may be burned as a means of disposal in accordance with relevant local laws, ordinances, and permits. Herbaceous (non-woody) plants removed prior to flowering can be fully air dried then composted or added to a brush pile as a habitat feature. For herbaceous materials removed during or after flowering, it is recommended that the material is either incinerated or bagged, placed in the sun for several weeks to rot or dry out, then disposed at an appropriate off-site location. Minimizing movement of flowered/fruited plants is important to prevent the unnecessary dispersal of seeds. Figure A-19 lists the available disposal methods and which types of plants each method is most appropriate for, along with a description and special notes for each method.

Method	Vegetation Type				Plant Stage	Description
	Trees		Vines*	Herbs		
Air Dry	X	X	X	X	Before Flowering	Small seedlings can be pulled and left with roots exposed to dry. This material may be composted, burned, or taken off-site once it is fully dead and dried. Place a barrier between the plants and the ground to prevent re-rooting from plant fragments.
Chip & Compost**	X	X	X		Before Flowering	Chip and use as mulch on site, or add to compost once fully dead and dried. If during or after flowering, chip but do not compost. Leave on site and monitor to ensure seeds do not sprout.
Construct Brush Piles	X	X	X		Before Flowering	Larger woody plants may be used to construct brush piles for wildlife habitat. Pile all material at a single location. Be sure all material is completely dead and dried before use. Brush piles may create ideal habitat for mice and ticks. If flowers or fruit are present, cover piles to prevent spread by birds, etc.
Incinerate	X	X	X	X	During or After Flowering	Incineration of material is viable if it can be bagged and transported securely to an incinerator.
Gather Material & Burn	X	X	X		During or After Flowering	Burn in accordance with all local laws, ordinances, and permits. Monitor weather to avoid hazardous fires.
Use as Firewood	X	X	X		During or After Flowering	Only use as firewood locally. Moving firewood beyond the region of the site can spread undesirable insects or plants to new regions.
Bag & Dispose				X	During or After Flowering	Do not compost. Bag all material and allow to rot in a sunny location for several weeks, and then dispose off-site. If volume of material is too large to bag, remove all flowering heads in a plastic bag, allow to rot, dispose of in trash.

Figure A-19. Disposal methods for invasive plants.

**It is generally not necessary and sometimes not possible to dispose of vines caught high in trees or tightly wrapped around tree trunks. If the vine is cut at the base and dies, the plant will gradually break apart and fall out of the tree. Dead and dried fallen fragments may be disposed of as described above.*

***Spotted knapweed should not be composted under any circumstances as it can survive composting. These plants should not be placed in brush piles either.*

RE-VEGETATION & ACTIVE RESTORATION

Areas that have been completely overtaken by non-native plants, especially on a large scale, will likely need restorative plantings to discourage invasive regrowth and to bolster the recolonization of native plants. Active restoration through supplemental native plantings within managed areas is recommended. Following the implementation of the proper management techniques for a species within a given area it is anticipated that some native vegetation will re-colonize via natural succession. It is recommended that these native communities be supplemented with additional native plantings to facilitate their success and rapid re-colonization and to discourage reestablishment of the invasive species. For instance, supplemental plantings of native shrubs may be used in areas where non-native woody plants have been removed. When selecting native species to plant, the surrounding habitat should be assessed and similar species should be selected for planting. For instance, if several large buckthorn shrubs are removed and the surrounding shrub community is dominated by healthy spicebush plants, it is advisable to restore with this species or other native shrub species in that same vegetation community. Smaller, easy to manage areas may not require active restoration through native plantings.

Restorative plantings may also be selected based upon the ultimate habitat management goals DCR. If DCR prefers to attract or sustain certain bird, insect, or mammal species, then native plantings may be selected to target those goals, although it is preferable to utilize similar species found at the site as they are more likely to thrive.

VEGETATION MAINTENANCE

Maintenance of vegetation along official trails throughout Ponkapoag is also recommended. This consists of pruning or mowing trail edges to maintain passable corridor for day hikers, and also removes hazard vegetation such as broken tree limbs.

Routine mowing is also recommended at the Fisherman's Cove beach area, in order to maintain the grass day-use area for pond visitors.

It is assumed that AMC and YMCA camps will continue to maintain vegetation through mowing and selective pruning or hazard tree removal at their respective facilities as part of this plan.

Scienti c Name	Common Name	Recommendation for Landsacpe Management Zone
DECIDUOUS TREES/ ORNAMENTAL TREES/ EVERGREEN TREES		
Acer pensylvanicum	Striped Maple	Forest-Mixed-Oak
Acer rubrum	Red Maple	Forest-Oak-Hardwood, Forest-Red Maple, Forest-White Pine-Oak, Wooded Swamp Deciduous, Wooded Swamp Mixed Trees
Acer saccharum	Sugar Maple	Forest-Oak-Hardwood, Forest-White Pine-Hardwood
Alnus incana	Speckled Alder	Shrub Swamp, Wooded Swamp Deciduous
Betula alleghaniensis	Yellow Birch	Wooded Swamp Deciduous, Wooded Swamp Mixed Trees
Betula lenta	Black Birch	Forest-Oak-Hardwood
Black gum	Nyssa Sylvatica	Forest-Red Maple, Wooded Swamp Mixed Trees
Carya cordiformis	Bitternut Hickory	Forest-White Pine-Hardwood
Chamaecyparis thyoides	Atlantic White Cedar	Wooded Swamp Coniferous, Wooded Swamp Mixed Trees
Fagus grandifolia	American Beech	Forest-White Pine-Hardwood, Forest-White Pine-Oak
Fraxinus americana	White Ash	Forest-Red Maple, Forest-White Pine-Hardwood, Wooded Swamp Deciduous, Wooded Swamp Mixed Trees
Nyssa sylvatica	Black Gum	Wooded Swamp Deciduous
Ostrya virginiana	Hop Hornbeam	Forest-Oak-Hardwood
Picea mariana	Black Spruce	Wooded Swamp Coniferous
Picea rubens	Red Spruce	Wooded Swamp Coniferous
Pinus strobus	White Pine	Forest-Mixed-Oak, Forest-White Pine-Hardwood, Forest-White Pine-Oak, Wooded Swamp Coniferous
Prunus serotina	Black Cherry	Forest-White Pine-Hardwood
Quercus alba	White Oak	Forest-Oak-Hardwood, Forest-Mixed-Oak, Forest-White Pine-Oak
Quercus bicolor	Swamp White Oak	Wooded Swamp Deciduous, Wooded Swamp Mixed Trees
Quercus coccinea	Scarlet Oak	Wooded Swamp Deciduous
Quercus montana	Chestnut Oak	Forest-White Pine-Oak
Quercus palustris	Pin Oak	Wooded Swamp Deciduous, Wooded Swamp Mixed Trees
Quercus rubra	Red Oak	Forest-Oak-Hardwood, Forest-Mixed-Oak, Forest-White Pine-Oak
Quercus velutina	Black Oak	Forest-Oak-Hardwood, Forest-Mixed-Oak, Forest-White Pine-Oak
Tsuga canadensis	Eastern Hemlock	Forest-White Pine-Hardwood, Wooded Swamp Coniferous, Wooded Swamp Mixed Trees
Ulmus americana	American Elm	Forest-Red Maple, Wooded Swamp Deciduous, Wooded Swamp Mixed Trees
DECIDUOUS SHRUBS/ EVERGREEN SHRUBS		
Adiantum pedantum	Maidenhair Fern	Forest-Oak-Hardwood
Cephalanthus occidentalis	Buttonbush	Shrub Swamp
Chamaedaphne calyculata	Leatherleaf	Shallow Marsh Meadow or Fen
Clethra alnifolia	Sweet Pepperbush	Forest-Red Maple, Shallow Marsh Meadow or Fen, Wooded Swamp Coniferous, Wooded Swamp Coniferous, Wooded Swamp Mixed Trees
Cornus amomum	Silky Dogwood	Shrub Swamp
Cornus racemosa	Gray Dogwood	Wooded Shrub Swamp Deciduous, Forest-White Pine-Hardwood, Forest-Oak-Hardwood
Cornus sericea	Red Osier Dogwood	Forest-Red Maple, Shallow Marsh Meadow or Fen, Wooded Swamp Mixed Trees
Hamamelis virginiana	Witch Hazel	Forest-Oak-Hardwood, Forest-Mixed-Oak, Forest-White Pine-Oak
Ilex verticillata	Winterberry	Shrub Swamp, Wooded Swamp Deciduous, Wooded Swamp Coniferous, Forest-Red Maple, Wooded Swamp Coniferous, Wooded Swamp Mixed Trees
Kalmia angustifolia	Sheep Laurel	Forest-White Pine-Oak
Lindera benzoin	Spicebush	Wooded Swamp Coniferous
Pogonia ohioglossoides	Rose Pogonia	Shallow Marsh Meadow or Fen
Rhododendron viscosum	Swamp Azalea	Shrub Swamp
Rubus hispidus	Swamp Dewberry	Shrub Swamp
Spiraea alba	Meadowsweet	Shallow Marsh Meadow or Fen, Shrub Swamp
Vaccinium angustifolium	Lowbush Blueberry	Forest-Mixed-Oak, -Forest-White Pine-Oak, Forest-White Pine-Oak
Vaccinium corymbosum	Highbush Blueberry	Forest-Red Maple, Shallow Marsh Meadow or Fen, Wooded Swamp Deciduous, Wooded Swamp Coniferous, Wooded Swamp Mixed Trees
Vaccinium macrocarpon	Large Cranberry	Shallow Marsh Meadow or Fen
Viburnum acerifolium	Maple-Leaved Viburnum	Forest-Oak-Hardwood
Viburnum dentatum	Arrowwood Viburnum	Shrub Swamp
PERENNIALS/GRASSES		
Aralia nudicaulis	Wild Sarsaparilla	Forest-Mixed-Oak, Wooded Swamp Coniferous
Arisaema triphyllum	Jack-In-The-Pulpit	Wooded Swamp Deciduous
Calamagrostis canadensis	Canada Bluejoint	Shallow Marsh Meadow or Fen
Carex spp.	Sedges	Forest-Red Maple, Wooded Swamp Mixed Trees
Carex stricta	Tussock Sedge	Shallow Marsh Meadow or Fen
Coptis trifolia	Goldthread	Wooded Swamp Deciduous, Wooded Swamp Coniferous
Eupatorium perfoliatum	Boneset	Shallow Marsh Meadow or Fen
Eurybia divaricata	White Wood Aster	Forest-Oak-Hardwood
Geranium maculatum	Wild Geranium	Forest-Oak-Hardwood
Hypericum perfoliatum	St. John's Wort	Shallow Marsh Meadow or Fen
Impatiens capensis	Jewelweed	Wooded Swamp Mixed Trees
Lysimachia terrestris	Swamp Candles	Shallow Marsh Meadow or Fen, Wooded Swamp Coniferous
Maianthemum canadense	Canada Mayflower	Forest-White Pine-Oak, Wooded Swamp Coniferous
Mitchella repens	Partridgeberry	Forest-White Pine-Oak, Wooded Swamp Coniferous
Onoclea sensibilis	Sensitive Fern	Forest-Red Maple, Shallow Marsh Meadow or Fen, Wooded Swamp Mixed Trees
Osmunda cinnamomea	Cinnamon Fern	Forest-Red Maple, Shallow Marsh Meadow or Fen, Wooded Swamp Deciduous, Wooded Swamp Coniferous, Wooded Swamp Mixed Trees
Osmunda regalis	Royal Fern	Forest-Red Maple, Wooded Swamp Deciduous, Wooded Swamp Deciduous, Wooded Swamp Mixed Trees
Parnassia palustris	Grass of Parnassus	Shallow Marsh Meadow or Fen
Peltandra virginica	Arrow Arum	Shallow Marsh Meadow or Fen
Phragmites australis	Common Reed	Shallow Marsh Meadow or Fen
Solidago rugosa	rough-leaved goldenrod	Wooded Swamp Coniferous
Schoenoplectus acutus	Hardstem Bulrush	Shallow Marsh Meadow or Fen
Sphagnum spp.	Peat Accumulation	Shallow Marsh Meadow or Fen
Thelypteris palustris	Marsh Fern	Shallow Marsh Meadow or Fen
Tiarella cordifolia	Foamflower	Wooded Swamp Coniferous
Typha spp	Cattails	Shallow Marsh Meadow or Fen

Figure A-20. Recommended planting species per landscape management zone for re-vegetation and active restoration.

6 | LANDSCAPE MAINTENANCE SCHEDULE

Landscape Management Schedule		WINTER			SPRING			SUMMER			FALL			RESPONSIBILITY		
LANDSCAPE MANAGEMENT AREA	TASK	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCR	Permit Holder	Stewardship Organization
Zone 1 - Upland Forest	Invasive Plan Removal													x		x
	Multiflora Rose				■	■	■	■	■	■	■			x		
	Trimming/ cutting Hazard Vegetation or Vegetation along the trail				■			■			■			x		x
	Invasive Plan Monitoring						■				■			x		x
Zone 2 - AMC Ponkapoag Camp	Invasive Plan Removal														x	
	Buckthron	■	■	■				■		■					x	
	Multiflora Rose				■	■	■	■	■	■	■				x	
	Garlic Mustard				■	■	■	■							x	
	Trimming/ cutting Hazard Vegetation or Vegetation along the trail				■			■		■		■			x	
	Mowing (once per month)						■	■	■	■	■				x	
	Invasive Plan Monitoring						■				■				x	
	Seeding/overseeding of lawn area near cabins						■				■				x	
Zone 3 - Residential Buffer	Invasive Plan Removal													x		x
	Norway Maple				■	■	■	■	■	■	■	■		x		x
	Multiflora Rose				■	■	■	■	■	■	■			x		x
	Garlic Mustard				■	■	■	■						x		x
	Phragmites										■	■	■	x		x
	Japanese still grass								■	■	■	■		x		x
	Trimming/ cutting Hazard Vegetation or Vegetation along the trail				■			■		■		■		x		x
	Invasive Plan Monitoring						■				■			x		x
Zone 4 - Wetland	Invasive Plan Removal													x		x
	Japanese Barberry					■	■							x		x
	Invasive Plan Monitoring						■				■			x		x
	Note: Recommend to monitor invasives due to their current limited extent and to avoid wetland impacts (except for along acton trail, where vegetation maintenance is proposed).						■				■					
Zone 5 -Fisherman's Cove	Invasive Plan Removal													x		x
	Multiflora Rose				■	■	■	■	■	■	■			x		x
	Garlic Mustard				■	■	■	■						x		x
	Purple Loosestrife							■	■					x		x
	Trimming/ cutting Hazard Vegetation or Vegetation along the trail				■			■		■		■		x		
	Mowing (once per month)						■	■	■	■	■			x		x
	Invasive Plan Monitoring						■				■			x		x
	Seeding/overseeding of turfgrass area by Pond Shoreline						■				■			x		
	Rain Garden Inspection/ Maintenance						■		■		■			x		
	Monitor to ensure that rain garden function effective after storm, remove trash and debris						■				■			x		
	Inspect vegetation condition, prune back over growth, replace dead						■							x		
	Inspect Drawdown time - the system shall drawdown within 72- hours following a rainfall event (A qualified professional should assess the						■							x		
Zone 6 - Open Water	Invasive Plan Monitoring						■				■			x		
	Note: There is no recommendation as it's open water and there have no aquatic invasives identified such as Eurasian milfoil.						■				■					

Landscape Management Schedule		WINTER			SPRING			SUMMER			FALL			RESPONSIBILITY		
LANDSCAPE MANAGEMENT AREA	TASK	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCR	Permit Holder	Stewardship Organization
	aquatic invasives identified such as Eurasian milfoil.						■				■					
Zone 7 - Canton Dam	Invasive Plan Removal													x		x
	Japanese Barberry					■	■							x		x
	Multiflora Rose				■	■	■	■	■	■	■			x		x
	Spotted Knapweed				■	■	■	■	■	■	■	■	■	x		x
	Trimming/ cutting Hazard Vegetation or Vegetation along the trail				■			■		■		■		x		x
	Invasive Plan Monitoring						■				■			x		x
Zone 8 - Ponkapoag Bog	Invasive Plan Monitoring						■				■			x		
	Note: Zone 8 is the most natural habitat type and we didn't survey the bog for invasives, so its best to be left alone						■				■					
Zone 9 - Ponkapoag Golf Course	Invasive Plan Removal													x		x
	Norway Maple				■	■	■	■	■	■	■	■		x		x
	Multiflora Rose				■	■	■	■	■	■	■			x		x
	Buckthron	■	■	■				■		■				x		x
	Trimming/ cutting Hazard Vegetation or Vegetation along the trail				■			■		■		■		x		x
	Invasive Plan Monitoring						■				■			x		x
Zone 10 - YMCA Ponkapoag Outdoor Center	Invasive Plan Removal														x	
	Multiflora Rose				■	■	■	■	■	■	■				x	
	Buckthron	■	■	■				■		■					x	
	Japanese Barberry					■	■								x	
	Garlic Mustard				■	■	■	■							x	
	Trimming/ cutting Hazard Vegetation or Vegetation along the trail				■			■		■		■			x	
	Mowing ((once per month)						■	■	■	■	■				x	
Zone 11 - Upland West	Invasive Plan Removal													x		x
	Multiflora Rose				■	■	■	■	■	■	■			x		x
	Trimming/ cutting Hazard Vegetation or Vegetation along the trail				■			■		■		■		x		x

NOTES:

1. Tree Cutting, Trimming involving any removal: tree is defined as 2" of diameter at 4.5 feet above the ground and inventory all naturally occurring trees of 6" or greater diameter at 4.5 feet above the ground.
2. Invasive Management activities require approval from DCR Ecology before work can begin.
3. The invasive species presented in each zone were based on the survey performed along Green Dot Trail in September 2021. It doesn't include all invasive in the whole site.
4. Any work within 100 feet of wetlands or within 200 feet of a perennial stream will require Conservation Commission approval.
   Additionally, any work undertaken by a State Agency (i.e., DCR) in an ACEC triggers MEPA review unless it is otherwise considered maintenance as part of an approved and established maintenance plan.

Figure A-21. Landscape Management Schedule by zone

Landscape Management Plan Invasive Plant Control/Removal Schedule		WINTER			SPRING			SUMMER			FALL			Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11
Invasive Species	Frequency	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	Upland Forest	AMC Ponkapoag Camp	Residential Buffer	Wetland	Fisherman's Cove	Open Water	Canton Dam	Ponkapoag Bog	Ponkapoag Golf Course	YMCA Ponkapoag Outdoor Center	Upland West
Norway Maple	1) Hand Pulling: Seedlings can easily be hand-pulled in their first year of growth. 2) Mowing: Larger, dense areas dominated by young tree seedlings can be easily controlled by mowing. 3) Cutting: Mature trees and larger saplings may need to be cut at ground level with power or manual saws. Cut stumps may re-sprout, therefore additional cuttings and follow up visits may be required for several years after the initial cutting. All the debris from mature trees cut in the vicinity of natural areas should be removed and properly disposed to eliminate potential seed sources. 4) Girdling: Girdling has proven effective for larger trees where cutting is not practical. Girdling should be conducted using a hand-axe to make a cut through the bark approximately six inches above the ground, and cut completely around the trunk. Be sure that the cut goes well into or below the cambium layer (the layer just inside the bark).					hand pulling/ cutting/mo wing/ girdling	hand pulling/ cutting/mo wing/ girdling	hand pulling/ cutting/mo wing/ girdling	hand pulling/ cutting/mo wing/ girdling	hand pulling/ cutting/mo wing/ girdling	hand pulling/ cutting/mo wing/ girdling	mowing/ girdling	mowing/ girdling			*						*		
Japanese Barberry	Digging or pulling is most effective. Repeated cutting and mowing can also be effective, but only if it's repeated monthly throughout the growing season. The best time for digging/pulling is the months preceding and during flowering (late April to early May).					pulling/ digging	pulling/ digging										*			*			*	
Buckthron	Cutting back larger plants twice in a single growing season for 2-3 consecutive years. Plants with stem bases less than 4.5 cm (2 inches) in diameter can be successfully girdled (a 2- to 3-cm wide cut) during the winter months.	girdles	girdles	girdles				cutback		cutback					*							*	*	
Multiflora Rose	Small patches of this plant may be managed through cutting by hand. One or more persons can hold back the canes with a pitchfork while another person cuts the base of the plant. Stems should be cut at least once per growing season as close to ground level as possible. Re-sprouts will need to be cut repeatedly or the rootstock can also be dug out. Digging out rootstock will disturb soils; any disturbed soil should be closely monitored or replanted with native plants.				cutback	cutback	cutback	cutback	cutback	cutback	cutback			*	*	*		*		*		*	*	*
Spotted Knapweed	1) Small populations of spotted knapweed may be controlled through persistent hand pulling prior to seed set. With hand pulling, the entire crown and taproot of the plant must also be removed. 2) Digging is a control technique that has proven to be very effective in areas with densities of less than 10 plants per square meter. Proper disposal of the excavated plants is essential. 3) Mowing of large, dense populations of spotted knapweed during the months of April and May, soon after flowers open but before seed production, reduces the plant populations' ability to successfully produce a seed crop. It is important to note that seeds may remain viable in the soil for five to eight years. *NOTE: Special care needs to be taken to ensure that plant fragments and seeds are not spread by the mower. The mower should be carefully cleaned before moving from one location to another and personnel should remove any plant pieces adhered to their clothing or other tools. In addition, mowing often results in the plants merely reflowering at lower heights. Reseeding and/or planting with a native grass species is recommended following removal of the knapweed to allow for native succession. Eliminating the first small infestations prevents expensive treatments later.*				pulling/ digging/	pulling/ digging/ mowing	pulling/ digging/ mowing	pulling/ digging/	pulling/ digging/	pulling/ digging/	pulling/ digging/	pulling/ digging/	pulling/ digging/							*				
Garlic Mustard	Plants are easily pulled when soils are moist. Pull carefully and try to remove as much of the root as possible. bag and dispose of pulled plants as garbage				pulling	pulling	pulling	pulling							*	*		*					*	
Phragmites	Cutting Phragmites can be done with weed whips, clippers, a machete, or other cutting tool. The stems and seed heads should be cut back. Weed whips or handheld cutting tools are ideal for use on wet or dry sites with low plant densities. Cutting should occur only during time frames that will avoid soil disturbance. Once an area has been cut, the thatch should be raked, bagged, and disposed of in an appropriate location to prevent seed spread and to allow sunlight to reach the soil surface. Cutting individual plants once during late summer/fall (September to first killing frost)										cutting/ mowing	cutting/ mowing	cutting/ mowing			*								
Japanese still grass	Regular, close mowing is effective in reducing seed production. Mowing at least once in late summer is as effective as frequent mowing earlier in the year. Hand weeding is effective for small populations but not practical for larger infestations. Any mechanical control needs to occur prior to first flowering (beginning mid to late September). Best time to mow is late July to early August. Must be repeated due to long seed bank viability.								cutting/ mowing	cutting/ mowing	cutting/ mowing	cutting/ mowing				*								
Purple Loosestrife	Hand-pulling is recommended for small populations and isolated stems. Plants should be pulled prior to setting seed (as early as late July) The entire rootstock must be pulled and removed from the site along with any broken stems due to the ability of this species to resprout. Mowing is not recommended for this species, as it can further spread by distiubuting plant stems that can then sprout vegetatively.							pulling	pulling									*		*				
Reed Canary grass	This species is best controlled via mowing in mid summer and again in early October in order to reduce seed production and encourage the growth of native species. Multiple mowings are required due to a second growth spurt when cut during the growing season. Small populations and isolated stems are best removed by uprooting, taking care to remove the entire root system to prevent resprouting.							mowing	mowing	mowing	mowing	mowing								*				

NOTES:

1. Tree Cutting, Trimming involving any removal: tree is defined as 2" of diameter at 4.5 feet above the ground and inventory all naturally occurring trees of 6" or greater diameter at 4.5 feet above the ground.
2. Invasive Management activities require approval from DCR Ecology before work can begin.
3. The invasive species presented in each zone were based on the survey performed along Green Dot Trail in September 2021. It doesn't include all invasive in the whole site.
4. Any work within 100 feet of wetlands or within 200 feet of a perennial stream will require Conservation Commission approval.
   Additionally, any work undertaken by a State Agency (i.e., DCR) in an ACEC triggers MEPA review unless it is otherwise considered maintenance as part of an approved and established maintenance plan.

Figure A-22. Landscape Management Schedule by invasive species

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Appendix B

Meeting Minutes

1 | KICK-OFF MEETING WITH DCR AND DESIGN TEAM

HALVORSON
Tighe&Bond STUDIO

MEETING NOTES

project	DCR Ponkapoag Pond Master Plan & Fishermans Cove Improvements
date	21 June 2021
subject	Kick off Meeting with DCR and Design Team
copy	Halvorson | Tighe & Bond team, DCR team

DCR Attendees:
Danielle Mellett – Project Manager
Ginna Johnson – Deputy Chief, Design and Project Management
Ruth Helfeld – Director of Landscape Architecture
Susan Kane – South Region Director
Kevin Drake – South Region Field Operating Team Leader
Wendy Pearl –Director of Historic Landscape Initiative
Ale Echandi – Inland Ecologist

Design Team Attendees:
Bob Uhlig, Halvorson | Tighe & Bond Studio (HTB)
Olivia Stasin, HTB
Joe Persechino, Tighe & Bond
John Lorden, Tighe & Bond

Summary of Dialog:

1. Resources from DCR for the Project Team
   a. HTB indicated the team will be looking to obtain any historical and current information including plans and building/ site assessments for the AMC and YMCA camp sites.
   b. DCR indicated resource management plans are available – both the original 2010 and - newer (2nd) version, archaeological information, ACEC designation file, DCR proposed pathways, Invasive Species Management Plans, Friends of Blue Hills trail plan
   c. HTB to set up Procore or Sharepoint for file sharing (similar to what was established for DCR Herter).
   d. Ginna has a meeting between AMC and DCR on Thursday regarding renewal of lease and will provide information after that meeting.
   e. DCR has used Covid 19 to reorganize DCR archives through Judy Green and Sean Fisher. This effort is still in progress and therefore some archive information may not be available until December
   f. Re: Archaeological information: Ellen Burkland, long time DCR archaeologist has retired, therefore Wendy Pearl will be providing guidance as well as Jeffrey Harris, DCR Cultural Resources Planner, who also will provide assistance and coordination re: permitting. Wendy indicated that DCR doesn't currently have an archaeologist on staff but is interviewing and indicated what would be in our files is what's available. Information within files is confidential and should be treated so until told otherwise. DCR indicated

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there are recorded sites of first people burials which are very important areas. DCR indicated the importance of this project and its outcome to respect the site and the names. There may be tribal consultation during the MP process to confirm findings and interpretations with indigenous people themselves. DCR made it clear that we don't want to whitewash the site and its history based on white people's interpretations but should be based on freedoms and expressions of those communities. DCR definitely wants to survey what is there and not disturb and respect the story and get representatives of indigenous peoples to the table. DCR indicated Marty will have to look through the documents and filter. DCR will want to know if burials are in or adjacent to the proposed site improvements. HTB asked how we will initiate consultation and DCR said through federal consultation with tribes and if we have questions and information to share DCR indicated that they may want to engage a tribal consultant for review and input.

g. Re: Aquatic Invasives: Ann Carol and Venessa Curran, DCR Lakes and Ponds will have information. Currently priority habitats have not been established and should be part of the Master Plan document.

2. First People Burial Sites and Canoe

a. DCR indicated there is a high incidence of first people burials and potentially first people canoes which may have been sunk and in the pond.

3. Other Resources

a. Pete Church – Head of Forestry and Forest Fire Control. He has served in a lot of varying capacities within Blue Hills and has offered his assistance. He may have information on forest health and management.

b. DCR to confirm if Paul Cavanaugh prepared the Resource Management Plan for Blue Hills.

4. Survey of Fisherman's Cove

a. T&B to check on schedule for Feldman to acquire survey for Fisherman's Cove as DCR confirmed that DCR has reviewed and agreed upon the limit of work.

5. Structure of the Groups

a. DCR indicated they anticipate the group and meeting structure to be similar to DCR Herter with Working Groups, Stakeholder Groups and the General Public. Working Groups will be smaller in scale than Herter.

6. Golf Course
   a. DCR clarified that the DCR Ponkapoag Golf Course is not in the scope but should be recognized given its part of the watershed and its storm drainage flows to the pond and the maintenance practices at the golf course impact the health of the pond.

6. Project Schedule
   a. HTB reviewed overall project schedule. HTB indicated to DCR the potential for advancing the Fisherman's Cove Improvements earlier depending on whether this effort waits for the completion of the MP or advances prior to the MP being complete. Advancing the FCI could better position us for completing CDs and permitting and be prepared for construction earlier in 2022.
   b. HTB reviewed the schedule of the Landscape Management Plan and that it could wait until the end of the three phases or advance earlier. DCR expressed a preference to try to complete the LMP with or after the MP to maintain the momentum of the MP. Hard and electric copies of the Landscape Management Plan will be part of the final submission.

7. Next Steps
   a. HTB to set up Procore or Sharepoint file sharing similar to established for DCR Herter.
   b. DCR to upload resources for use by team to Procore or Sharepoint site and identify which materials are confidential. Information to be shared with Marty should be coordinated.
   c. HTB to coordinate schedule with Danielle and DCR and Design Team for site visits on 7/19 and 7/26 to be broken up into multiple site walks to include the full loop, YMCA/AMC camp sites, and Fisherman's Cove.

NOTE: The foregoing represents our understanding of the discussions and decisions made during this meeting. If anyone has any changes or comments, please notify the author within five business days of receipt.

2 | SITE VISIT #1 - GREEN DOT LOOP TRAIL WALK

HALVORSON
Tighe&Bond STUDIO

MEETING NOTES

project	**DCR Ponkapoag Pond Master Plan & Fisherman's Cove Improvements**
date	19 July 2021
subject	**Site Visit #1 – Green Dot Loop Trail Walk**
copy	Halvorson | Tighe & Bond team, DCR team

DCR Attendees:
Danielle Mellett – Project Manager
Ginna Johnson – Deputy Chief, Design and Project Management
Susan Kane – South Region Director
Stephen Doody - District Manager of South Region's South Coast District
Ale Echandi – Inland Ecologist
Jeffrey Harris -- Preservation Planner

Design Team Attendees:
Bob Uhlig/ Iris Lin/ Olivia Stasin - Halvorson | Tighe & Bond Studio/ Landscape Architecture
Joe Persechino/ John Lorden - Tighe & Bond / Civil Engineer
Amanda Houle/ Jeremy Degler – Tighe & Bond/ Environmental Scientists
Mike Rossini – Tighe & Bond/ Electrical Engineer
Martin Dudek – Commonwealth Heritage - Archaeologist
Karen Stein Shanley / Alicia Mason– Good Good Signage

Summary of Dialog:

1. **Design Team Update**
   a. Design Team confirmed having 2011 and 2017 Resource Management Plans
   b. Design Team update: GIS files were being coordinated between DCR and T&B GIS staff and design team.
   c. Design Team requested from DCR: provide:
      1. historical and current information including plans and building/ site assessments for the AMC and YMCA camp sites.
      2. Ponkapoag ACEC Resource Management Plan
      3. Mass Historic Documents
      4. ACEC designation file
      5. DCR reports from recent projects at Golf Course and elsewhere on site
      6. Rare Species List and Location
      7. Invasive Species Management Plans
   d. Commonwealth Heritage proposes performing the Underwater Survey in Autumn 2021 at a date to be coordinated with DCR.

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e. Environmental Scientists confirmed that invasive species and wetlands have been identified and will be transferred to GIS for the area from Fisherman's Cove to AMC Camp and the remaining west part of the loop will be obtained during today's site visit.

2. **DCR Overview**

a. **DCR Files and Resources:** Danielle to review and provide an update on available files and the information requested above.

b. **AMC and YMCA Camps** are independent camp sites within Ponkapoag that have separate written leases with DCR. YMCA lease was recently renegotiated and shared with the Design Team and AMC lease is currently being renegotiated. AMC campers use separate gate off Randolph Street and YMCA campers use gate at Rt 128 overpass. Campers use Green Dot trail to access camps.

c. **Maintenance by Camps**: DCR identified that it's a challenge to manage and oversee maintenance activities of AMC and YMCA. Site visit noted periodic stock piles of aggregate material for use in grading roadway/ pathway surfacing. DCR doesn't have staff to hold AMC and YMCA accountable for maintenance. Design Team and DCR discussed having semi-annual meetings to review AMC and YMCA improvement and maintenance plans and commitments and enforce construction access permits as a means to improve and to check compliance, the question is who within DCR would be assigned this responsibility.

d. **Ponkapoag Golf Course** is not part of the scope but part of the watershed and has influences on the pond. DCR highlighted tree allee through golf course as a potential supplemental connection from golf course parking lot to trail with signage. DCR has concerns about nutrient runoff from golf course into the pond and bog, golf course use of water impact on bog and pond; potential migration of invasives into the pond from the golf course. DCR staff suggest managing interface between pond and golf course through implementing green infrastructure; potential migration of invasives into the pond from the golf course. DCR asked Design Team to look at potential improvements that could be recommended for the interface between the Green Dot Loop Trail and the hole on Course #2 which has golfer hitting toward walkers on the trail as the hole alignment crosses the trail.

e. **Impact of Adjacent Development within the Watershed**: DCR has concerns about nutrient runoff from adjacent roadways and development on adjacent parcels.

f. **Parking and accessibility:** is a challenge at the site both from Randolph St entry to the South and Rt 128 entry to the north. Personal watercraft boat parking and access to the Pond are a challenge from the Randolph Street. DCR acknowledges there is insufficient parking on site and wants to research the potential for satellite parking with shared abutters at Temple Beth David and Massasoit CC to the south; shared parking with Ponkapoag Golf Course to the west; and potential for use of Houghton's Pond parking adjacent to Blue Hill River Road which is north of Rt 128 to the north.

g.

Park Identity and Signage Deficiencies: Overall, focus on increased access for visitors. Currently, there is no signage indicating Ponkanoag Pond main entrance. Rt 128 highway signage should be brown vs. green to denote Blue Hills and Ponkapoag Pond as parks. Rt 128 overpass trailhead is not recognizable as a park. Consider creating greater connection between Houghton Pond and Ponkanoag including improved signage. Signage should occur where Ponkpoag Pond Trail and Golf Course Interface. Parking may be encouraged at Golf Course, and if so, consideration for signage to improve connection. DCR noted the numbering system on DCR trails system based on areas within Blue Hills and the resource for this system is Paul Denehey, DCR uncertain if system is helpful or confusing depending on sophistication of user groups. This numbering system was initially developed by Friends of Blue Hills. DCR mentioned liking the white signs/ colored signs fabricated and installed by DCR staff and Friends Group and Design Team should consider if and how this fits into the wayfinding and signage system.

h. **DCR Signage Coordination between Design Team and DCR**: DCR to provide GoodGood with DCR contact information for Kristen at DCR interpretive / visitor information services for coordination on signage standards, materials, and fabrication.

i. **Wayfinding/ Signage Priorities at Ponkapoag**: DCR wants to prioritize standards for wayfinding and signage at trailheads, trail interfaces, areas of significance and parking areas which would help inform both Ponkapoag Pond as well as the Blue Hills Range. Signage to include two maps – one of Blue Hills and one of Ponkapoag. Signage to include wayfinding which helps identify where you are, degree of difficulty, directions to other locations, distances and time walking to other locations, distance to other parking lots such as golf course to encourage use, other connections, interpretive signage, and no posting of public information. Interpretive panels are not to be too text heavy, but like Arnold Arboretum with fun facts, all too often signage makes too many assumptions about what the average person is able to understand, interpretive signage should also clarify your experience. Discussion that wayfinding signage might include some interpretive content.

j. **Wayfinding/ Signage re: Green Dot Trail:** The "Green Dot" trail is not specific to Ponkapoag, but instead represents 'easy' trails throughout the entire Blue Hills system. When developing the overall system, consider how this "Green Dot" trail works alongside other ways of navigating the park. There are markers for the "Green Dot" trail, but these markers are not consistent.

k. **Signage Materials & Construction**: Input from some DCR staff was that sign designs and materials should be simple such that anyone can build from "Home Depot" materials. This topic is to be further discussed and confirmed with DCR. One unused kiosk along the walk was noted as being too large by one DCR staff member, and someone else pointed out how it sat on top of the land in a way that did not disturb the ground.

l. **Bog Boardwalk:** Input from some DCR staff was that the existing volunteer-built boardwalk within the bog needs to be rebuilt as its not accessible nor stable but DCR recognizes that to do so will involve permitting challenges

m. **Trail Paving Surfaces**: DCR indicated there is no standard paving surface material or blend of aggregate. DCR to set up a dialog with DCR staff responsible for trail standards to provide direction/ input to Design Team.

n. **Mountain Biking Impacts:** DCR noted that one of the challenges with mountain biker use of the site is they often create new pathways that create undesirable cut throughs as well disturb existing vegetation which frequently results in erosion.

o. **Dam and Forebay Area**: It was noted that significant presence of invasive plant intrusion into the area adjacent to the dam. DCR recommends reviewing plan and contacting Rob Lowell Re: the design of the dame and to determine if forebay between dam and pond is intended to capture runoff before it enters the pond. It was noted that purple loosestrife is growing in the forebay and that the Neponset River Watershed Association is using release of beetles to naturally try to mitigate this invasive by weakening it.

p. **Select Access Points to Pond**: DCR asked Design Team to assess recommending select points of access to the pond from the loop trail to specifically identify locations and to mitigate haphazard locations being created by users.

q. **Landscape Management Plan**: work with Susan and Stephen as they work with and manage seasonal staff. DCR requests the Design Team subdivide the site into smaller sectors. Current maintenance is performed by a combination of hired DCR operations staff and volunteers. DCR's intention is to turn over landscape management plan to DCR operations so they can manage after Master Plan is completed. The Master Plan will likely identify the need for additional staff to support the MP.

r. **DCR Landscape Maintenance and Management Challenges**: Susan indicated the vast majority of their time and efforts is focused on "firefighting" issues that arise and dealing with roadways, deferred maintenance and old infrastructure such that DCR staff is too spread out and not able to focused on the areas they are responsible for. DCR relies on the contributions of the volunteers at Friends of Blue Hills.

s. **Utility Companies Notifying DCR**: Are required to contact DCR and apply for a permit in advance of performing maintenance and improvements and to notify DCR when they are planning to work on DCR property but its not clear if they follow these requirements.

t. **Fisherman's Cove Site Observations**: DCR staff would like to see a rain garden or wetland pond created where groundwater present west of the path at Fisherman's Cove to eliminate area which is mown and perpetually wet. Trash barrels are not a permanent solution to trash and DCR policy is "carry in and carry out" so barrels should be removed. DCR also concerned about dog poop clean up by park users and following the DCR policy. DCR reviewed Fisherman's Cove area with insufficient parking, poor surface conditions of trails and parking areas resulting in erosion toward pond, DCR indicated that a range of layout and paving material options should be considered for review with DCR.

u. **Site Furniture:** DCR expressed an interest in additional site furniture made of natural materials such as wood or stone in the form of seating and picnic tables strategically located at trail heads and nodes along the loop trail.

v. **Climate Change Thoughts**: DCR want the Design Team to think about how to make Ponkapoag Pond/ Park resilience to climate change and how it can be a resource for the community such as surrounding neighbors don't know about park and use for hot days

w. **User Group Impacts without Giving Back**: Stables abutting park use park without any agreement with DCR and without providing any monetary or inkind services to improve or maintain park amenities.

x. **Conflicting Uses:** While most uses co-exist well, DCR and Design Team need to be congnizant of and work to mitigate any areas of potential conflict at trail crossings or uses.

y. **Ad hoc cross path connections**: DCR made design team aware of informal path connections between adjacent neighborhoods as well as the golf course and the pond that are impacted the habitat and plant life

Prepared by Halvorson / Tighe & Bond Studio

NOTE: The foregoing represents our understanding of the discussions and decisions made during this meeting. If anyone has any changes or comments, please notify the author within five business days of receipt.

3 | SITE VISIT #2 - AMC PONKAPOAG CAMP

HALVORSON
Tighe&Bond STUDIO

MEETING NOTES

project	DCR Ponkapoag Pond Master Plan & Fisherman's Cove Improvements
date	26 July 2021
subject	Site Visit #2 AMC Camp
copy	Halvorson | Tighe & Bond team, DCR team

DCR Attendees:
Danielle Mellett – Project Manager
Ginna Johnson – Deputy Chief, Design and Project Management
Susan Kane – South Region Director
Stephen Doody - District Manager of South Region's South Coast District

AMC Attendees:
Dennis Maher

Friends of Blue Hills Attendees:
Judy Lehrer Jacobs
Steve Olanoff

Design Team Attendees:
Bob Uhlig/ Iris Lin/ Olivia Stasin - Halvorson | Tighe & Bond Studio/ Landscape Architecture
John Lorden - Tighe & Bond / Civil Engineer
Amanda Houle– Tighe & Bond/ Environmental Scientists
Mike Rossini – Tighe & Bond/ Electrical Engineer
Martin Dudek – Commonwealth Heritage - Archaeologist
Chris Genter – Oudens Ello – Architects
Karen Stein Shanley – Good Good Signage

Summary of Dialog (during site walk from Fisherman's Cove to AMC Camp):

1. AMC Site Mantra
   a. Purposefully rustic
2. AMC Buildings and Site Facilities
   a. AMC camp operated and managed by volunteers whereas educational area with pavilion, platforms, boat storage and dock are operated and managed by AMC organization.
   b. AMC camp includes 19 cabins, 18 for rent and one occupied by caretaker/ manager - Nicole
   c. one lodge is for seasonal use during the summer months and closed without access the rest of the year. Outdoor fire pit and group of 8 to 10 picnic tables located outside adjacent to the lodge building.
   d. two sites for tents

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d. Four (4) cabins built from chestnut trees were originally built on site and are on the National Historic Register. North is the oldest cabin on site. South Cabin burned and was removed 10 years ago but foundation has been salvaged and demarcated. Three (3) cabins remain intact.
e. restrooms are non-ADA compliant, prefabricated tight-tank structures from two or three companies using green flush technologies.
f. One (1) pavilion and four (4) wood deck platforms at grade are used for outdoor education and are locate SE of the AMC cabin complex. Boat/ canoe racks to accommodate six (6) boats are located adjacent to the pavilion. Metal dock is in the pond adjacent to the outdoor education area.
g. AMC has no plans to expand their building program beyond the existing facilities.
h. Boat racks for canoes and kayaks are located upland from and adjacent to the boat launch into the lake but launching requires a step down from the land into the water vs a gradual transition.
i. Non-potable running water is located outside of the main lodge for campers to carry water to their cabins for dish washing. There is no flow control of wastewater from cabins.

3. AMC Rentals and Operation
   a. open and operational year-round, heaviest use from 3rd week of June through Labor Day. Off season use is predominantly weekends. Reservation bookings are available starting in May and one can reserve for up to three weeks.
   b. The pond beaches/ cabin areas are for campers. Visitor can pay daily fee for the use of beach and facilities.
4. AMC Vehicular Site Access via Pathway/ Roadway and Parking
   a. Keyed access at Randolph Street Gate: one key for DCR police and local fire, one combination lock for use/ access by campers and combination is changed periodically.
   b. FOBH noted there is no sign identifying AMC camp entry off Randolph Street
   c. AMC campers, staff and maintenance access AMC site via the gate on Randolph Street and the road to the camp which partially occupies the same alignment as the Green Loop Trail.
   d. most but not all cabins have one allocated parking space except adjacent to lodge and restrooms where several cabins share a combined parking area
   e. All noted path/ roadway surfaces are poorly draining and have no crown or pitch to facilitate stormwater off the path/ roadway surfaces, frequently vehicle tire ruts are visible which hold water and don't facilitate drainage, and there are minimal signs of swales or drainage culverts under the path/ road to facilitate stormwater runoff.
   f. aggregates for surfacing at periodic locations along the path/ roadway. DCR mentioned that Design Team should consider providing recommendations for best management practices.
   g. All noted that water bars designed to facilitate stormwater away from and across the path/ roadway are generally dysfunctional resulting in site erosion
   h All noted challenges to grading, stormwater runoff, erosion, and ADA access from the AMC "day lot" which is on and at the bottom of a slope and used as overflow for cabin use parking and day park users.

i. Vehicular access is not permissible beyond the generator structure however there is no sign nor impediment to vehicular travel beyond this point.

5. AMC Site ADA Access
   a. Site and all facilities are non-ADA compliant.
   b. DCR goal is to achieve ADA access to at least one cabin (perhaps the largest one) and to one restroom and the lodge.
   c. DCR indicated there will be a balance between achieving ADA compliancy and providing improved access to the lake given the steepness of the slope.
   d. DCR directed the Design Team to use the US Forest Service Guidelines as the standard for Accessibility.
6. AMC Environmental Issues
   a. AMC staff does not address invasives, however FOBH annually conducts an invasives survey around the pond and have assisted in removal of garlic mustard.
7. AMC and DCR Lease Agreement/ Capital Improvements and Maintenance Practices
   a. DCR and AMC in the process of negotiating a new lease agreement.
   b. Agreement indicates that AMC to submit and review with DCR Archaeologist proposed improvements and maintenance activities for approval prior to initiating and to limit activities to within existing areas of disturbance.
   c. AMC reviewed during site walk maintenance practices of stockpiling well graded granular
   d. AMC reviewed location of electrical generator enclosed within a built structure which is used for limited DC battery charging and electricity to pump non-potable water. The generator has a limited run time capacity and is used to charge a small battery bank located in the lodge. There are cables routed underground from the generator to the lodge. The electrical system serving the lodge, comprised mostly of antiquated equipment and loose cabling for DC lights and ports for charging electronic devices, is not code compliant and well past its intended service life.
   e. AMC asked DCR and Design Team to consider opportunities for solar power to supplement or provide power to lode for caretaker/ manager. After careful review of the site, due to the abundance of forested area, and the limited exposure to open areas in and around the AMC cabins and main lodge, solar PV is not a viable power system consideration currently for a significant power source. A small system, 1.5KW and below may be applicable for battery charging, that would be roof mounted to the main lodge. The lodge roof structure would need to be evaluated for load capacity. A code compliant, standalone/off grid power system with inverters would need to be provided to support the roof mounted PV panels.
   f. AMC indicated that DCR and AMC conduct and annual inspection of the site together.
8. Abutting Development/ Neighborhood Impacts
   a. All noted the encroachment by residential abutters with debris, disturbance, and structures beyond their property lines into the park area resulting in environmental impact, degradation and erosion.
9. On Site Utility Impacts

a. All noted underground natural gas utilities ROW through the site adjacent to the Green Loop Trail in the SE of the site and a variety of invasives growing in this area due to the disturbance and ongoing maintenance practices of keeping vegetation under control and to a minimum height.
b. All noted defunct, outdated communications cable attached to tree trunks along the path/ roadway in the SE of the site which should be identified for removal in a manner which minimizes impacts on trees.

9. Signage
   a. All noted the use of AMC eclectic signage at parking and cabins to identify structures and their names.
   b. AMC noted that a subcommittee was studying signage for AMC camp and that the DCR should contact the lead AMC member – Ralph and the reality is that AMC has already begun replacing some of the signage at the camp with updated, "purposefully rustic" signage.
   c. The bathroom facilities at AMC may be considered public however signage does not currently clarify this, but this may be required, and they may have to be clearly marked as open to all. Currently they are locked and require a combination to unlock and gain access.

Next Steps/ Action Items

a. DCR to provide update to the Design Team on the outcome of the DCR/ AMC lease negotiations.
b. MP to address: Path surface conditions and stormwater management techniques should be addressed in MP.
c. MP to address issue of lessee submitting and reviewing with DCR Archaeologist proposed improvements and maintenance activities for approval prior to initiating and to limit activities to within existing areas of disturbance
d. MP to address encroachment by residential abutters with debris, disturbance, and structures beyond their property lines into the park area resulting in environmental impact, degradation, and erosion.
e Vehicular access is not permissible beyond the generator structure however there is no sign nor impediment to vehicular travel beyond this point.
f.. Design team to study whether we can make pathways in most locations comply with ADA criteria and address erosion issues.
g. DCR to confirm that they want Design Team to consider opportunities for solar power to supplement or provide power to lode for caretaker/ manager.
h. DCR to confirm their goal is to achieve ADA access to at least one cabin (perhaps the largest one) and to one restroom and the lodge.
i. DCR to contact AMC about signage committee and connect DCR and Design Team re: efforts and DCR to provide direction about decision making process.

Prepared by Halvorson / Tighe & Bond Studio

4 | SITE VISIT #3 - FISHERMAN'S COVE

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MEETING NOTES

project	**DCR Ponkapoag Pond Master Plan & Fisherman's Cove Improvements**
date	26 July 2021
subject	**Site Visit #3 Fisherman's Cove**
copy	Halvorson | Tighe & Bond team, DCR team

DCR Attendees:
Danielle Mellett – Project Manager
Susan Kane – South Region Director
Stephen Doody - District Manager of South Region's South Coast District

AMC Attendees:
Dennis Maher

Friends of Blue Hills Attendees:
Judy Lehrer Jacobs
Steve Olanoff

Design Team Attendees:
Bob Uhlig/ Iris Lin/ Olivia Stasin - Halvorson | Tighe & Bond Studio/ Landscape Architecture
Joseph Persechino/ John Lorden - Tighe & Bond / Civil Engineer
Amanda Houle– Tighe & Bond/ Environmental Scientists
Martin Dudek – Commonwealth Heritage - Archaeologist
Karen Stein Shanley – Good Good Signage

Summary of Dialog:

1. Paving Options for Fisherman's Cove Entry and Parking off Randolph Street

a. All discussed the options and pros and cons for paving of the entry and parking lot with compacted granular fill vs. bituminous concrete paving as follows:
   1. entire area of proposed improvement paved in bituminous concrete.
   2. just the entry and top parking lot paved in bituminous concrete assuming this are would have year round use and maintenance with plowing in winter on the upper area and the remaining lower roadway and parking areas be granular paved
   3. entire area remaining compacted granular improvement

b. DCR indicated the design team should study the various paving options, pros/ cons and cost implications and consider the issues of stormwater runoff, erosion and ledge.

2. Additional Parking and Access Options to increase Capacity

a. DCR indicated they intend to contact Temple Beth David of the South Shore about a potential agreement for shared use of their parking lot for users

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b. FOBH suggested other adjacent parking areas to provide supplemental parking including: (1) Ponkapoag Golf Course parking lots using access pathways, (2) parking at Houghton's Pond and access across Rt 128 bridge with consideration for narrowing bridge to balance pedestrian/ bike and vehicular access.
c. DCR would like to explore additional parking spaces in the parking area, potentially with additional pull in spaces, and to delineate parking spaces while maintaining the rustic feel of the current parking area.
d. The larger trees should remain and be protected.
e. Accessible parking spaces should be incorporated into the design.
f. Drainage design to include BMPs for treatment and storage.
g. Design should explore if a turn around area can be implement at the boat unload area to avoid backing up with trailers.

3. Gates and Access Restrictions

a. Gates will need to accommodate local emergency/ fire department access.
b. Gate aesthetics to be considered and DCR to share their standard details and requirements.
c. Strategy of Gates and Bollard to be considered for transition from parking area to pedestrian area to restrict vehicular access to prior to the interface with the Green Loop trail and yet provide spatial accommodations for people carrying boats and pedestrians accessing the pond edge.
d. The gate should include space wide enough for a wheelchair to fit through.

4. Site Furnishings at Nodes/ Trail Heads

a. All agreed there should be consideration for picnic tables and seating at Fisherman's Cove interface with Green Loop Trail and other trailheads/ nodes along the pond/ Green Loop Trail.
b. Design team to look at alternatives for picnic and seating accommodations

5. Signage

a. All agreed there should be consideration for signage and wayfinding at Fisherman's Cove interface with Green Loop Trail and other trailheads/ nodes along the pond/ Green Loop Trail.
b. Design team to connect with DCR signage contact for input and standards.
c. DCR also requested that the design team consider interpretive signage at strategic locations throughout the Ponkapoag Pond site and that one thematic element could be to focus on geologic history, going back to the Ice Age.

FOBH and DCR recommended signs consider two maps: one of the Blue Hills overall and one of Ponkapoag enlargement that includes features, wayfinding and distances/ walk time durations between points of interest.

d. FOBH discussed how trails within Blue Hills are identified as Green, Yellow and Red based on Level of Difficulty.

e. All discussed the signage #s and the pros and cons of this system as discernible by the more sophisticated trail users but not user friendly for the general public and the need to make sure signage is useful to the common everyday user.
f. DCR further suggested that we think about users and potential for having signage that maps for "family friendly routes" that people can navigate without the need for a map.

6. Creating Moments

a. DCR and FOBH requested that the design team consider the opportunities of creating moments around the trail and at trailheads and opportunities to convey both what you can see as well as interpretive information.
b. DCR and FOBH requested the team look at opportunities for select overlooks at the pond edge to overcome the informal pathways along the pond edge which result in environmental degradation.

7. Program at Fisherman's Cove at Pond Edge

a. DCR and FOBH requested that the design team look at opportunities for: (1) returning the area west of the boat launch back to a wetland, (2) designing the boat launch to be designed of a natural material which is durable and capable of resisting erosion given the heavy use by pedestrians accessing the water and boat launches.
b. DCR and FOBH requested that the design team look at opportunities for short term boat storage/ racks in proximity to the boat launch while not being highly visible.

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NOTE: The foregoing represents our understanding of the discussions and decisions made during this meeting. If anyone has any changes or comments, please notify the author within five business days of receipt.

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5 | SITE VISIT #4 - YMCA PONKAPOAG OUTDOOR CENTER

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MEETING NOTES

project	**DCR Ponkapoag Pond Master Plan & Fisherman's Cove Improvements**
date	16 August 2021
subject	**Site Visit #4 YMCA Camp**
copy	Halvorson | Tighe & Bond team, DCR team

DCR Attendees:
Danielle Mellett – Project Manager
Susan Kane – South Region Director
Stephen Doody - District Manager of South Region's South Coast District

YMCA Attendees:
Joseph Barry – Director of Property Management & Facilities
Marian, Ashley, Shawn

Friends of Blue Hills Attendees:
Skid Maysles
Steve Olanoff

Design Team Attendees:
Iris Lin/ Olivia Stasin - Halvorson | Tighe & Bond Studio/ Landscape Architecture
John Lorden - Tighe & Bond / Civil Engineer
Amanda Houle– Tighe & Bond/ Environmental Scientists
Mike Rossini – Tighe & Bond/ Electrical Engineer
Martin Dudek – Commonwealth Heritage - Archaeologist
Karen Stein Shanley – Good Good Signage
Conrad Ello - Oudens Ello – Architects

Summary of Dialog:

Summary of Dialog (during site walk from Parking lot at Blue Hill River Road to YMCA Camp):

1. **YMCA Summer Camp Programs**
   a. Bring inner city children to nature
   b. Schedule: M-F 8am to 5 pm, total of 11 weeks.
   c. 168 ppl/ year 2021, Normal year is 350 kids, age 7-13 years old. 25 staffs. Prefer to have 400 kids, which is the limit in their lease. There is typically a 1:10 ratio of staff to kids.
   d. kids and half of staffs come in by bus. There are 9-10 buses.
   e. Summer camp programs include: outdoor academic classes, art and craft, science, swimming, sport activities, rope course, archery, etc.

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f. The camp is closed during the winter, but they would consider being open during spring and fall during school vacations.

2. YMCA Buildings and Site Facilities

a. The lease for YMCA camp is 26 acres. But there is no delineation or boundary of the 26 acres.
b. Main Lodge- office space, kitchen/food storage, nurse station, great room for art and craft and summer learning. There is no fire used in the kitchen (no stoves, just microwave). Roof need to be repaired. No air conditioning in the building. The main lodge is in good shape.
c. There are three pavilion structures which are designed to accommodate two groups for different activities with wall and storage space in the middle. YMCA wish to have 3 more pavilion or enclosed structure.
d. There is one restroom building with drinking fountain outside. The restrooms are not accessible. There are also porta-potty on site but only for overflow use.
e. There are one cabin for art and craft; one cabin for science class… both are similar in size and could accommodate 13-15 ppl.
f. There is one cabin for storage.
g. Swimming area – one large L-shape pool (3.5-9 ft) and one small pool is not functioned. Prefer to make it a splash pad. Large pool has an accessible lift for pool access. Bathhouse with changing room and showers. Additional outdoor changing room outside of the chain-link fence is lack of privacy. The 6-foot chain-link fence is in poor shape. Pool is drained to below the jets and protected during winter. Pool water is dechlorinated before draining to the northeast sloped wooded area outside of fence and towards existing wetlands. Bathhouse needs update and need more changing rooms.
h. one basketball court – need resurfacing and repaired because of ponding
i. there is a rope course in wooded area, including a zip line. YMCA hire inspector to check before the summer camp starts. This ropes course is an important piece to the kids as they build confidence over time.
j. Center gathering space with seating and a small platform. YMCA wish to have a stage area for performance.
k. There is a Gaga Ball Pit beyond the basketball court that gets a lot of use.
l. There is a volleyball area with an adjustable height net.
m. The site is serviced by a drilled well and there are no issues with the well or water.
n. Lunches for kids are prepackaged under a contract with City Fresh. Milk and juice served with snacks and are stored in refrigerators in the cabins.

3. YMCA Operation

a. The signed lease with DCR only allow YMCA to use the camp site for summer months. YMCA would love to expand the programs for vacation weeks or during weekends to let people enjoy the four seasons at the facilities and do more types of activities, such as cross-country ski.

b. Before the season starts, YMCA staffs and volunteers inspect the site and clean a lot of fallen trees, or cut down any trees that are in poor shape and could fall. Volunteer groups also help repair or build some facilities, such as pavilions. Trees are sometimes mulched to add chips to walking paths.

c. The camp closed after summer. All buildings and restrooms are locked. YMCA staff would come to check on facilities for regular basis. Public are welcome to come into the site and walk around or use picnic tables.

4. YMCA Vehicular Site Access via Pathway/ Roadway and Parking

a. There are 10 parking spaces adjacent to the main lodge. Currently, there is no need for additional parking spaces as there is an overflow parking area by the bus parking

b. Buses come from I-95 entrance and turn around parking lot to drop-off and pick-up kids. At busy times, YMCA coordinates one person at entrance and one a camp who communicate via radio to hold cars back and avoid conflicts on the narrow roadway.

c. Public parks at the I-95 entrance before the gate. Only one side is allowed for parking, but people would park on both sides. One of the no-parking signs is hidden behind leaves.

d. The main access road from I-95 entrance to the camp site is plowed in wintertime for fire truck access which interrupts the loops for cross-country skiers.

e. YMCA maintained the roadway from I-95 entrance to the camp site and the parking lot.

f. There is a portion of the driveway to the camp is relatively steep that have stormwater runoff and erosion issues as well as challenges for ADA access.

5. YMCA Site ADA Access

a. Site and most facilities are non-ADA compliant.

b. All paths are either dirt path or on grass that are non-ADA compliant. Most of paths are relatively level.

c. DCR goal is to achieve ADA access to site facilities.

d. DCR directed the Design Team to use the US Forest Service Guidelines as the standard for Accessibility.

6. YMCA Environmental Issues

a. YMCA site is surrounded by wetland and in close proximity of Atlantic White Cedar Bog.

b. invasive species are common in the site. YMCA staff don't actively remove these invasive species.

c. Entire site with within Areas of Critical Environmental Concern and Protected Recreation Open Space.

7. YMCA and DCR Lease Agreement/ Capital Improvements and Maintenance Practices

a. The lease currently allows up to 400 campers.

b. The lease currently stipulates a 2:1 match of funds with MassDCR providing 2 times that of YMCA.

8. On Site Utility Impacts

a. Propane tank on site to provide hot water

b. The facility is served by single phase overhead utility construction that terminates at pole VZ-9, with a pole mount 50KVA transformer that delivers a 200A, single phase service at 120/240V, to a main panel in the YMCA campus center. The campus center distributes single phase 120V circuits to selected cabins for general purpose lighting and receptacle loads. There is also a small Kohler propane fueled generator that serves selective loads at the facility. The pool facility is served by its own dedicated, 100A, 120/240V single phase, separately metered service via an overhead service drop.

9. Signage

a. There are minimum signage for the direction of each facility. Some signages on buildings. There is opportunity of way finding signage and interpretive panel for YMCA camp history.

10. YMCA Wish List

a. Would like to expand the programs for vacation weeks and weekends.
b. Would like a boat launch and storage area near the camp. Potential solution is to have a new one near the dam or near the camp at the east, use the one at AMC site or at Fishman's cove. Canoes would be stored and locked at this location. DCR mentioned that new boat launch needs to meet Chapter 91 requirements for public access. Design team to evaluate locations.
c. Would like a dock for fishing.
d. More storage spaces
e. More (3) pavilions or buildings for various programs that could be enclose during storm events. Potentially sliding panels to allow both open air and closed from adverse weather.
f. Need new roofs on several buildings.
g. basketball court need resurfacing.
h. new splash pad to replace the small pool.
i. Would like to provide more activities to more families by providing busing on the weekends
j. Areas/paths for biking/learning to ride.
k. Geocaching
l. New horseshoe pits and mini golf holes.
m. Increase size of raised vegetable gardens. There are an important part of preservation and establishing healthy eating habits. This is ideal for protecting potential archaeological resources that may be buried below the ground. Use of geotextile fabric below the bed would allow for drainage. The same can be done for horseshoe pits and mini golf.
n. They are currently planning for camera security on site as there is currently no form of security.
o. YMCA wants to maintain a rustic feel at the site but need it to be more modern.
p. Consider being open during spring and fall during school vacations.

Prepared by Halvorson / Tighe & Bond Studio

NOTE: The foregoing represents our understanding of the discussions and decisions made during this meeting. If anyone has any changes or comments, please notify the author within five business days of receipt.

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6 | DCR & DESIGN TEAM MEETING TO REVIEW "WHAT WE HEARD" & NEXT STEPS

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MEETING NOTES

project	**DCR Ponkapoag Pond Master Plan & Fisherman's Cove Improvements**
date	14 September 2021
subject	**DCR & Design Team Meeting to Review "What We Heard" & Next Steps**
copy	Halvorson | Tighe & Bond team, DCR team

DCR Attendees:
Danielle Mellett – Project Manager
Ginna Johnson – Deputy Chief, Design and PM
Ruth Helfeld – Director of Landscape Arch
Susan Kane – South Region Director
Stephen Doody - District Manager of South Region's South Coast District
Ale Echandi – Inland Ecologist
Jeffrey Harris – Preservation Planner
Thomas McCarthy – Director of Universal Access Program

Design Team Attendees:
Iris Lin/ Bob Uhlig - Halvorson | Tighe & Bond Studio/ Landscape Architecture
John Lorden - Tighe & Bond / Civil Engineer
Amanda Houle– Tighe & Bond/ Environmental Scientists
Martin Dudek – Commonwealth Heritage - Archaeologist
Karen Stein Shanley – Good Good Signage
Conrad Ello - Oudens Ello – Architects

Summary of Dialog:

1. DESIGN TEAM PRESENTED "WHAT WE HEARD" AND INITIAL OBSERVATIONS/ RECOMMENDATIONS BASED ON SITE VISITS AND MEETINGS

a. Bob Uhlig reviewed overall project scope and objectives and presented Loop Path & Access Points issues and observations and initial thoughts
b. Iris Lin presented AMC Camp issues and observations and initial thoughts
c. Conrad Oudens presented YMCA Camp issues and observations and initial thoughts
d. John Lorden presented Fisherman's Cove issues and observations and initial thoughts
e. Karen Stein Shanley presented DCR Branding, Signage and Wayfinding issues and observations and initial thoughts

2. OVERALL DCR PONKAPOAG / LOOP ROAD & ACCESS POINTS DIALOG

a. Ale Echandi expressed concern about ongoing "illegal" mountain bike trails in the northeast corner of the site which have been created by park users but have not been permitted and may have adverse environmental impacts to what are sensitive environments.

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b. Design Team reviewed existing vehicle capacities at two main entry points as follows:
   1. North Entrance at Rt #I-93 = 13 vehicles
   2. South Entrance at Randolph Street = 22 vehicles

c. Design Team proposed site improvements in the form of alternative cross country skiing route to avoid use of and conflicts with roadway and new pedestrian route from YMCA to potential boat launch and storage at north side of pond. Commonwealth Heritage will review areas once recommendations are refined for site improvements and their locations.

d. Ginna Johnson conveyed DCR interest in providing an ADA compliant elevated loop boardwalk through the Atlantic White Cedar bog with a floating dock at the point in which the current bog walk meets open water of the pond to provide a range of experiences including a destination at the pond edge. Ale Echandi indicated that the existing boardwalk should be removed as it doesn't accommodate varying water levels and that it could be reconstructed in its current alignment in an elevated form on helical piles. Ale Enchandi and Amanda Houle indicated that permitting a new path with a new alignment with added disturbance to the bog would be a challenge to permit and recommended proposing a new ADA compliant elevated loop boardwalk with the same alignment as the existing.

e. Tom McCarthy discussed Accessibility—experientially and programmatically; this should be considered regarding all aspects of the project. Tom asked the design team to create a programmatic pathway to accessibility for the overall site and it should consider current and potential future experiences and opportunities. Re: trail areas in the south that exceed ADA compliant slopes, he indicated short sections of trail with slopes up to 10% is acceptable.

f. Ginna Johnson ended the conversation just questioning what type of funding the partners have in terms of the overall project.

3. AMC CAMP NOTES:

a. DCR asked design team to provide a recommendation for the AMC camp permit limit line for review and discussions with AMC to achieve a formal agreement of limits of activity and disturbance.

b. DCR needs to know building code compliance requirements and whether the AMC Camp is currently in compliance.

c. DCR senior staff: confirmed that lodge does not need to be relocated

d. Main lodge and caretaker's cottage require a lot of upgrades, DCR to provide a program of upgrades and expectations.

e. DCR asked for a building and accessibility assessment for all structures. Different levels of stabilization and rehabilitation are needed for buildings." The 3 historic cabins have significant structural and material degradation, but historic status also requires following historic restoration standards to avoid having an adverse effect on the resource.

f. Design team to confirm code and regulatory requirements.

g. Ale Enchandi indicated currently cabins are in compliance with regulatory permitting however the dock and tent platforms have not been permitted by conservation commission, no Chapter 91 approval, no environmental approvals, etc.

h. DCR expressed concern about health and stability of hazard trees around the structures given insect damages and high use/ compaction around trees and asked design team to make recommendations.

i. DCR indicated that AMC is currently using nylon rope between trees to deter and direct pedestrian circulation on steep slope and asked design team to make recommendations for a solution that is more long term and aesthetically consistent wit the site.

j. DCR to request of AMC that they provide their list of deferred maintenance items.

k. For restrooms, existing buildings are not ADA compliant so options including building and new ADA compliant restroom building or adding an ADA compliant restroom to an ADA complaint cabin.

l. DCR indicated that for improvements there was not currently a financial arrangement that defined matching contributions between DCR and AMC.

4. YMCA CAMP NOTES:

a. Ginna Johnson noted that the YMCA Camp has no coherence; there's a difference between rustic and haphazard. She hopes the design team can provide some continuity to improve the overall coherence of the site.; maybe a loop circuit that is well defined and provides continuity and coherence.

b. Design teams observations is that the overall camp lacks general maintenance and that facilities are not accessible. Design team recommends a maintenance plan be prepared for the structures, site and infrastructure. In general based on visual reconnaissance, renovations are needed at a minimum for the bathroom building, pool and buildings.

c. The message from YMCA to the design team was focused on aspirations to provide more program and activities with an interest in expanding their programs to beyond just weekday to including weekends with families and to include program on school vacations/ holidays during winter and summer months.

d. DCR and YMCA agree that the amount of parking provided within the site is sufficient as campers are bussed daily to and from the site.

e. DCR asked design team to provide a recommendation for the 26-acre YMCA camp limit for review and discussions with YMCA to achieve a formal agreement of limits of activity and disturbance.

f. DCR indicated that for improvements the financial arrangement was that DCR provides $2 for every $1 provided by YMCA.

g. The lease between DCR and YMCA of Greater Boston was renewed on 1/1/17 through 10/31/26 and in summary noted "the Permittee may access and utilize the premises to

provide a day camp experience from 6/1 through 9/30 from 7.30 AM to 6.00 PM, Monday through Friday". The current annual payment by YMCA to DCR was $500/ annually in 2020 but increased to $5,000/ annually in 2021 with an annual increase of approx. $150. The maximum daily capacity of campers is 400.

5. FISHERMAN'S COVE:

a. Ginna Johnson indicated a goal for DCR is to make the entry off Randolph Street more inviting and accommodating, however she stressed that re-design should maintain current trees, both trunks and canopy within the parking areas rather than create one large paving field with trees at the perimeter.

b. Re: Fisherman's Cove Improvements DCR indicated that there is a contractual relationship with Fish and Wildlife as its technically "their" boat launch. Susan Kane indicated she would contact them to better understand what their requirements for improvements and maintenance would be. In addition, F&W may have funds available to assist with the project.

c. Options for paving of vehicular and pedestrian areas between Randolph Street entrance and Ponkapoag Pond were discussed and it is our understanding that DCR's preference is to have the upper area adjacent to Randolph Street be bituminous concrete and preferably pervious and a stabilized aggregate between this area and the pond. Further the preference would be to have the bituminous concrete area be maintained year-round with plowing of ice and snow if staffing permits and the remaining area would remain in a natural state.

c. Ginna Johnson and Ale Enchandi encouraged the team to look at green infrastructure solutions within the Fisherman's Cove area related to stormwater runoff using a combination of plugs and seed mixes for revegetation.

d. Specifically related to the open area adjacent to the pond, Ale Enchandi would like to see the lower area adjacent to the pond revert to wetlands while the upper area remain lawn. DCR discussed internally discussing letting the area revert to wetlands by modifying maintenance practices of operations by stopping the mowing of this area and observing to see what happens and it if reestablishes as a wetland and if it produces a potential seedbank.

e. Susan Kane and Stephen Doody both acknowledge that maintenance of this area is typically deferred until other areas of higher priority within the Blue Hills Reservation are addressed and ay invite the need for additional staffing to address this need.

f. Susan Kane indicated its currently hard to invite people to use this resource given its limitations and operations is looking forward to recommendations/ solutions from the master plan that will address long term maintenance.

5. DCR BRANDING & SIGNAGE, WAYFINDING & INTERPRETIVE:

a. Karen Stein started the conversation noting that there were four general buckets that the signage issues fell under: (1) a complete lack of signage (e.g. at the main entrance way), (2) not well maintained signage (e.g. signage at the YMCA Pool), (3) ad hoc signage, both hand-lettered and paper printouts primarily at AMC and YMCA locations, (4) and finally, "one-off" Rules signage where a sign shows up once, but may not really be a part of a larger system of signs.

b. All discussed usage of "white signs with vinyl lettering" Directional Signage. Ale Echandi mentioned that the Directional Signage at Ponkapoag is a part of the larger Blue Hills system, and therefore she was reluctant to update it. Karen Stein questioned if the signage could be finessed, perhaps even considering an updated type/layout template and method of fabrication. Bob Uhlig questioned whether DCR had ever gone through this process before, and therefore, if now was the time to consider updates. In the end, it did seem like they agreed to consider options. Ginna Johnson was in favor of this approach.

c. DCR wants AMC signage at Randolph Street entry only for clarity for AMC users.

d. There was agreement internally that DCR needs to advocate MassDOT to modify or add DCR Road Marker/Lead-in (Brown) highway signs either on I-93, Route 24 and Washington Street to more clearly identify the site and points of access for both current and potential users.

e. Ginna Johnson indicated the design team should work with DCR standards that DCR can make themselves and Paul Jahnige can send samples of. DCR asked Karen Stein to contact Gerald Aulter (sp?), and Paul Jahnige regarding "natural surface trail signage".

f. Regarding Interpretive signage, discussed style guide. Danielle Mellette confirmed we will be working with Kristin Karl-Carnahan, Chief of Interpretive Services, throughout the process.

Prepared by Halvorson / Tighe & Bond Studio

NOTE: The foregoing represents our understanding of the discussions and decisions made during this meeting. If anyone has any changes or comments, please notify the author within five business days of receipt.

HALVORSON
Tighe&Bond STUDIO

MEETING NOTES

project	DCR Ponkapoag Pond Master Plan & Fisherman's Cove Improvements
date	8 December 2021
subject	Public Meeting
copy	Halvorson | Tighe & Bond team, DCR team

Elected Officials
Keisha Adarkwah – MA State Senator
Jessie Gordon – Randolph Town Councilor
Walter Timilty – MA State Senator

Public Attendees:
Patrick Adams
Aimee Brisbin
Cynthia
Katy Clark
Sandra Cohen
Amir Degany
Joe Dunn
Barbara Grasso
Christine Griffin
Brian Howard
Kelly
Liz LaRosee
Dan M
Gary McDonald
Steven Olanoff
Bexi Perez
Aline Ricketson
Roberta Singer
Debby Stein Sharpe
Pete Tierney
Michelle Tyler
Elizabeth Arsenault
Casey
Mary Calhoun
Steve Cobble
Jack Conway
Bill Driscoll, Jr.
Christopher Etheart
James Green
Casey Haley
Owen Hughes, Jr.
Ken
M5G6567
Pete Matthews, Jr.
Tyler Miller
Matt Panucci
Bruce Pontbriand
Tracy Robinson
Sarah
Ann Sullivan
Sarah Titus
Thomas Walker
Bill Boles
Cheryl
Dominic Cammarata
Martin Cohen
Judith Conway
Pamela Dow
Laura Gersch
Thomas Green
Alison Hodge
J&D
Daniel Kidwell
Melanie
Neil McDaid
Trisha Minton
Candice Paris
Richard
Ann Schunior
Skip
Ray Theberge
Lee Toma

AMC Camp Attendees
Jess Wilson
Laura Gersch
Becki Linhart

Friends of Blue Hills
Judy Lehrer Jacobs

LANDSCAPE ARCHITECTURE, PLANNING + URBAN DESIGN

25 KINGSTON STREET, 5TH FLOOR, BOSTON, MA 02111-2200
P 617.536.0380 HALVORSONDESIGN.COM

DCR Attendees:
Danielle Mellett – Project Manager
Ginna Johnson – Deputy Chief, Design and PM
Ruth Helfeld – Director of Landscape Arch
Dan Cushing – Director of Public Engagement
Susan Kane – South Region Director
Stephen Doody - District Manager of South Region's South Coast District
Ale Echandi – Inland Ecologist
Amy Wilmot

Design Team Attendees:
Iris Lin/ Bob Uhlig/ Inmaculata Gil Cerezo - Halvorson | Tighe & Bond Studio/ Landscape Architecture
John Lorden - Tighe & Bond / Civil Engineer
Jeremy Degler – Tighe & Bond / Wetland Scientist
Martin Dudek – Commonwealth Heritage - Archaeologist
Karen Stein Shanley – Good Good Signage
Conrad Ello - Oudens Ello – Architects

Summary of Dialog:

1. DESIGN TEAM PRESENTED SITE OBSERVATIONS/ RECOMMENDATIONS
   a. Bob Uhlig reviewed:
      1. project scope consisting of (1) Master Plan, (2) Improvements at Fisherman's Cove and (3) Landscape Management Plan.
      2. the project collective goals including providing improved public access and enhanced visitor experience while being mindful and protective of the site as both a cultural and historic resource as well an ecological and environmentally sensitive natural resource.
      3. DCR's looks enhance the experience for all users through:
         a. Improved Accessibility
         b. Expanded Public Amenities
         c. Diverse Programs and Activities
         d. Educational opportunities and Learning
         e. Signage and Wayfinding
      4. Ponkapoag Pond, Green Dot Loop Trail & Access Points issues and observations and recommendations on topics including ecological and environmental conditions; circulation; site amenities and activities; topography; stormwater, pollutants and drainage, and landscape management.
   b. Iris Lin presented AMC Camp site related issues, observations and recommendations related to access, site circulation, pond access, site amenities and user experience and

Conrad Oudens presented AMC Camp facility assessments and recommendations for improvements and accessibility.

c. Iris Lin presented YMCA Camp site related issues, observations and recommendations related to access, circulation, site circulation, pond access, site and user experience and Conrad Oudens presented YMCA Camp facility assessments and recommendations for improvements and accessibility.

d. John Lorden presented Fisherman's Cove issues and observations and recommendations.

e. Karen Stein Shanley presented DCR Branding, Signage and Wayfinding issues and observations and recommendations.

f. DCR and Design Team reviewed project schedule and deliverables for the three deliverables due in Winter/ Spring 2022.

2. PUBLIC COMMENT – HAND RAISED

a. Jesse Gordon, who identified himself as a Randolph Town Councilor, attended and commented at the 11/16/21 working group and reiterated that his priority is to make certain that improvements benefit Randolph residents. The pond is current being utilized for swimming at the AMC camp and elsewhere and therefore he proposes the following three improvements for consideration:

   1. "proposed deck" amenity on north side of Pond, that could serve as a camp for Randolph students with picnic tables, parking and a lifeguarded beach
   2. clear and formalize trails to provide access to Ponkapoag Pong at the AMC Camp over the Route # 24 bridge, Deer Park neighborhood, Canton Street, and Randolph Street.
   3. Open Fisherman's Cove to swimming and extend beach east to Randolph.

   DCR Response: DCR isn't looking to have the same program and experience at each site and as is found at Houghton's Pond. Furthermore, swimming is not allowed per legislative dictate as the pond is an Area of Environmental Concern which requires protection and the water depth is shallow which is not conducive to safe swimming.

b. Neil McDaid, who identified himself as a long, time user and volunteer park maintainer said he was initially excited about proposed improvements to Ponkapoag Pond as access from Randolph east of Route #24 is limited. However, he is disappointed that improvements appear to be focused on AMC and YMCA Camps rather than on improvements that will benefit the public and public trail users. He supports the recommendation for improvements to Acton path, plans for access to Deer Park neighborhood in Randolph and improvements to the bridge connection over Route # 24. He indicated he was disappointed that only FOBH brought in as part of working group.

DCR Response: DCR project priorities and Limit of Work is focused on the areas west of Route #24 include improving public access including improvements and accessibility on circumferential Green Dot Loop Trail and improvements at Fisherman's Cove off Randolph Street to increase parking and access to Ponkapoag Pond. At the same time, DCR is committed looking at the overall site and connections beyond as part of the Master Plan.

c. Daniel Kidwell, who identified himself as a user since 1970s from Randolph and a site maintenance volunteer – stated that a major appeal and differentiator of the Ponkapoag experience is pristine nature of the pond. He further articulated that the appeal and uniqueness is accentuated by user experience in which one has to work a little harder to access trails and to get a boat in the pond. Daniel asked if a study been conducted both pre and post covid about annual usage as he has observed substantial increase in users and is concerned and how much the site can handle without adverse impacts to its unique qualities. Other appealing qualities include limited access to pond and when you get to the pond edge you can't see any visual evidence of human improvements within the view shed so any improvements should be done with sensitivity and toward retaining this quality.

   DCR Response: DCR appreciates your perspective and concerns and acknowledge that planning for and implementing improvements is a balancing act and requires a light touch while maintaining access and protecting ecological resources

d. Casey indicated that one of his favorite parts was the bog and path and noticed some of it seems to be missing. He asked for clarification as to how wide would a new bog path be and how would it be constructed to minimize impact to the bog health.

   DCR Response: DCR and Design Team will be sensitive to the approach to the bog path which will likely be raised up above the bog at one elevation and use helical piles to minimizing impact and will be designed to maintain a minimal width to meet accessibility standards and to maintain the intimate qualities of the existing walkway.

e. Bill Boles indicated his interest in the improvements focused on accessible routes and bike routes.

f. Tom Walker, who identified himself as a Milton resident indicated he likes to cycle and ride and asked if these users and uses would be restricted in the future.
   DCR Response: DCR is not looking to change uses on existing trails

g. Ann Schunior, identified herself as volunteering on the ongoing invasives project and asked if there are other ways of thinking about parking and access from the south including considering the opportunity for parking and access from other streets which dead end adjacent to the site.

DCR Response: DCR is studying other opportunities to use existing parking on adjacent institutional parking areas but would require approval by municipalities to provide parking and access from non DCR property

3. PUBLIC COMMENT – CHAT POSTINGS

a. Question: Will there be publicly accessible bathrooms with the Ponkapoag Pond site?

DCR Response: No

b. Question: What is the source of funding for AMC and YMCA camps improvements?

DCR Response: There is currently no funding available, or sources identified. Any improvements and funding would be approved by and completed in association with DCR who has a lease with each entity.

c. DCR hopes that Master Plan efforts will encourage funding specifically for Fisherman's Cove improvements which will be open and accessible to the public.

d. Question from FOBH: Please provide an estimate of the number of trees removed for Fisherman's Cove Parking and Access Improvements.

DCR Response: 8 total, 3 of which are dead.

e. AMC improvements result in a minimal increase in the quantity of parking spaces

f. Question: Clarify how the bog boardwalk improvements will be implemented?

DCR Response: As stated earlier in the meeting with a raised walkway which is installed on a helical support system which minimized adverse impact to the bog.

g. Question: What is the project planning for pathway improvements east of Route #24?

DCR Response: the project limits are west of Route #24, but will include recommended improvements/ connections across Route #24.

h. Question: Is there plans for interpretive signage recognizing the Massachusetts Tribe at Ponkapoag

DCR Response: Yes, there are plans to include.

i. Question: are there horseback riding restrictions being considered as part of the Master Plan?

DCR Response: Not at this time.

Prepared by Halvorson / Tighe & Bond Studio

NOTE: The foregoing represents our understanding of the discussions and decisions made during this meeting. If anyone has any changes or comments, please notify the author within five business days of receipt.

Name		Comment	City	State	Zip
Jack	Conway	Hello, Please consider developing a Randolph beach and a recreational area (with lavatories). Please also include a boardwalk from an expanded parking area (and trails with clearly marked signage). Thank you. Sincerely. Jack Conway	Randolph	MA	02368
Judith	Conway	Hello, As long time resident, I believe it's necessary to have a clear path preferably a board walk to Ponkapoag Pond from the parking area. It would also be wonderful for Randolph residents to have a picnic area to be with their families. Please focus on some of these suggestions. Thank you for your time. Judith Conway	Randolph	MA	02368
Bill	Driscoll Jr.	I think upgrades to the leased camps are a good idea but implementation of those upgrades prior to adding a splash pad or other amenities that are open to the public at Ponkapoag or at nearby Houghton's Pond would make the most sense and seems more equitable. Additionally, I write to share an initial reaction to the bog walk redesign. The proposal seems far more intrusive and destructive to the ecology than the existing bog walk. The bog walk trail is unique and adding the wider decking as proposed would destroy the authenticity of the path along with the vegetation, trees, etc. during construction of the boardwalk. The proposal is a dramatic redefinition of what's there currently. Perhaps adding a more accessible decked boardwalk elsewhere on Ponkapoag and one that won't disturb such a fragile area would be better. Bill Driscoll Jr. State Representative 7th Norfolk District	Boston	MA	02213
Jesse	Gordon	I heard a DCR representative describe public input as "ranging from a desire for more access to a desire for more pristineness." I took notes during the 12/8/21 meeting and I'd like to address that "range", because it should be very heavily weighted towards "more access." Following are some people who spoke in favor of "more access": * Dan Kidwell of Randolph: supported trail connecting to Randolph's Donovan School (to Rt 24 project line) * Christopher Etheart of Randolph: supported access points for Randolph's Deer Park residents. * Bill Boles: supported connecting to Donovan School, plus wheelchair access. * Thomas Walker of Milton: supported bicycle access as well as horseback access. * Ann Schunior of Randolph: supported small trail access in cooperation with Town of Randolph. * Jesse Gordon of Randolph: supported connecting to Donovan School; Deer Park access; cooperation with Town of Randolph for numerous more access points. The first participant did mention the term "pristineness," but not for "overall pristineness" -- only to maintain a pristine view when one looks across Ponkapoag Pond to the opposite shore. That is entirely consistent with improving pedestrian access trails, since none of those are in view of the shoreline. More accurately portrayed, public input "ranged from a desire for specific access methods, to calls for much more access in general." I think DCR's summary assessment should include that more accurate portrayal, rather than the statement in my opening paragraph. Sincerely, --Randolph Town Councilor Jesse Gordon	Randolph	MA	02368

Sandra	Cohen	I am a 45 year resident of Randolph and was only made aware of the Ponkapoag Pond Master Plan recently. I had no idea that there is access from Randolph to some of these bucolic Blue Hills locations from my town. How very disappointing. Now is the time to fund for access for Randolph residents to access these sites within our community. My understanding is that both Milton and Canton have easier accessibility; not so for us. With the forthcoming multi-million dollar improvement project, we want our share. As a resident, I would ask for walking access from Canton St., to Fisherman's Cove; Ponkapoag Pond access from Deer Park area; picnic and public parking at multiple Randolph locations. In addition we need improve signage in the town to direct us to the above. These outdoor venues should be known to all to take advantage of them. Green outdoor space is in limited supply. We need to share it with our neighboring towns but need the same opportunities to utilize them; walking trails into these areas; public parking, picnic areas and signage. Thank you for your consideration of my input. Sandra Cohen 63 Bittersweet Ln. Randolph sandicohen@yahoo..com	Randolph	MA	02368
martin	cohen	My choices woulld be: Pave the walking path Swimming in fishermen cove Access from deer park More easy parking place Thank you	Randolph	MA	02368
Ann	Sullivan	I think Randolph needs more recreation area. I support a proposal to extend Fisherman's Cove to make access to the beach in Randolph. I hope that there will be improved access to the walking paths. I recommend putting some benches on the path so that people can rest and take in the scenery. I hope that the north side of Ponkapoag Pond can extend the access to Randolph as well. While there is a construction project going on, there can be improvement in the roads, lighting, signs and parking. Then the beautiful pond will be available for more people. Thank you	Randolph	MA	02368
Judy	Lehrer Jacobs	The Friends of the Blue Hills appreciated the opportunity to be part of the Ponkapoag Pond Master Plan working group. We appreciate the plan's improvements to Fisherman's Cover parking lot and the efforts to make the lot and park recreation assets accessible. We offer the following recommendations on the draft plan. Ponkapoag Bog Boardwalk We agree that the boardwalk needs significant work to allow people to enjoy the views of this spectacular landscape. We also want to stress the importance of protecting the bog's sensitive habitat. •The bog is within an Area of Critical Environmental Concern, and is a unique ecosystem home to endangered species which live close to the boardwalk. Any work done in the bog should make sure to protect the endangered species during and after construction under close coordination with the Natural Heritage and Endangered Species program. •Any improvements to the boardwalk should avoid damaging the existing white cedar pines that line the boardwalk. These pines are vital to the health of the ecosystem. •If soil borings are required, we request that you require robotics to perform the work so as to minimize ecosystem disturbance. •We recommend that you require that the new boardwalk be built at the same time as the helical structure so that the new structure of the boardwalk can be used to support the helical piles construction and minimize damage to the sensitive habitat. Trail Connections We would like to encourage the DCR to focus future studies on other public resources in the park that improve access, including recommendations for: •Trails that would allow public access from the Pond to Indian Line Farm, as well as access to the Bradley Estate and future potential trail routes, like the Warner Trail. •Increasing access from parts of the park north of Route 93. •Allowing increased access from existing parking lots and exploring existing private lots as possible	Milton	MA	02186
Roberta	Singer	Can we make a larger parking lot on Canton St near the trail around the pond that is blacktopped. There isn't enough parking & as of now too many dirt potholes.	Randolph	MA	02368

Gary	McDonald	I am a resident of Randolph and have spent countless hours driving to other towns for access to hiking trails and ponds for my children to use. Going forward I'd like to see Randolph's access to Ponkapoag created so that the residents would have easy access to the pond and the trails throughout the Blue Hills. In past years Randolph has been left out of the planning process and money for its development. Please make sure that does not happen this time. Regards Gary McDonald 7 Fogo Road Randolph MA	Randolph	MA	02368
Jesse	Gordon	The Randolph Master Plan, written with input from numerous members of the community, is the official town document that expresses the desires of the people of Randolph. It includes the following section relevant for Ponkapoag Pond: From the Randolph Comprehensive Master Plan, December 2017: in "Land Use" section (p. 18): "Residents have stated their desire for parks throughout the town. The Blue Hills Reservation [is a] major town asset.... If a resident cannot get around easily in a car, they might find it difficult to get to existing major open spaces and recreational areas in town." The people of Randolph have been saying clearly for years: "We want pedestrian access to the Blue Hills." There is currently almost zero pedestrian access to Ponkapoag Pond from Randolph -- only those "in the know" can get there. How about we change that, working jointly with DCR and the Town of Randolph? Sincerely, Town Councilor Jesse Gordon	Randolph	MA	02368
Pete	Matthews Jr	Please be sure to include repairs to the Bog Walk. Lumber to replace broken boards has been stacked in the YMCA parking lot for years, but only partial repairs have been performed. Only half of the Bog Walk, at most, can be walked for most of the year. This needs professional attention. The green-dot trail and the Bog Walk also need pruning and occasional tree removal each year to remain passable. When I can, I do some of this with hand tools as a public service, but I have not been able to get onto the second half of the Bog Walk for a couple of years. The last time I was able to get back there, low plants had seriously encroached on the boards in the sunny section. It will take a hedge trimmer to clear the path, but I would not undertake the use of power tools myself without permission, and then only after repairs to the path. Thanks for your consideration of these matters. Pete Matthews Jr	Canton	MA	02021
Katy	Clark	As a long-time user of the trails around Ponkapoag Pond going back more than 40 years, I cherish this resource. I have seen usage sky-rocket during Covid. Happy to see so many more people enjoying nature, but also sorry to see the trails being turned into highway systems in some places. All in all, the suggested improvements look good, especially the idea of decoupling the golfers from the thru trail users on the west side of the pond. I hope that some of the improvements include filling in parts of the trails, especially those between the YMCA and AMC camps, that have eroded over time and become extremely rocky. I also have a plea that those in charge of the YMCA Camp do a much better job of cleaning up trash at the end of the summer camp season. The amount of waste left on the ground really detracts from the beauty and serenity of the area.	Canton	MA	02021

Aimee	Brisbin	After carefully considering the project proposal by reviewing the PDF of the current site issues, observations, and initial recommendations, as well as factoring in our own experience as volunteers on the invasive species project, we have some questions, comments, and concerns about the proposed changes at Ponkapoag Pond that would like to share. We appreciate DCR's commitment to protecting this natural, fragile habitat of a historically significant region with indigenous roots. We also commend your efforts to increase accessibility services throughout the reservation which are severely lacking. Anyone who wants to enjoy our natural areas should be able to. That being said, we are concerned about a potential conflict between new construction (docks, parking areas, road/trail paving) and preserving the integrity of the reservation's ecosystem. With the work we are doing recording invasive species, it seems that the proposed plan will not adequately address the pressing ecological issues. The plan's priorities will likely lead to increased foot traffic throughout the reservation, which will inevitably lead to more damage done - littering, graffiti, etc. If the parking lots, roads, and/or trails are going to be paved, this will make current runoff issues worse. We doubt that creating two rain gardens in a small area near Fisherman's Cove will equate to less runoff. Furthermore, the disturbance caused by construction will likely lead to the spread of more invasive species. Executing the vegetation management plan after construction is completed seems counterintuitive. We propose completing the vegetation plan before any construction is started, so that the health of the ecosystem will be more responsibly managed throughout this project. Thank you for your time and hopefully your consideration! The TEC High School Volunteers	East Walpole	MA	02032
Trisha	Minton	I cannot download the master plan on my phone. Can you send a hard copy to me?	Randolph	MA	02368
Casey	Haley	Dear DCR, As a resident of Randolph, I do visit the Ponkapoag Pond Trail and I deeply appreciate the pond's beauty. I became aware of the proposed improvements and attended the open forum on 12/08/21 to learn more about the vast area of improvements that took place around the pond. One particular area of interest to me is the bog boardwalk trail that threads its way through thick patches of white cedar trees. Once this trail is made accessible, many more people will have an opportunity to share the same experience of awe and wonder as I have but I do want this improvement to have a "light touch" that will preserve the overall feel of Ponkapoag Pond which is understated and natural. This is an opportunity to improve the trail that thinks outside the norms where the trail is simply widened for accessibility. While the trail would have to be widened a certain amount for a wheelchair and also allow for two-way traffic, I would like the designers to think of this trail as being intermittently interrupted by the cedar trees at the edges and within the boardwalk itself. As an example, the parking lot off Randolph Street are proposed to be increased from 22 to 44. This increase was done with existing trees placed randomly throughout the proposed area of parking so it's my hope that the same strategies are applied at the proposed boardwalk. Another idea for the proposed boardwalk is to have multiple paths going toward the edge of the pond that weave in and out of the trees while always maintaining that required width forward that is both elegant and modest. Thank You, Casey Haley	Randolph	MA	02368-4826
bruce	pontbriand	I attended the meeting and I am in support of the proposed plan. However, I am opposed to any change in restrictions that would allow swimming at the Pond. The habitat is too fragile for this type of activity, and the pond is just too shallow. Houghtons Pond already provides this opportunity for the surrounding communities.	Randolph	MA	02368

Jesse	Gordon	I suggest three goals around the idea of adding public recreational access: A. More access from Exit 3 on I-93. - Boston students can attend the YMCA Camp for free -- how about a camp where Randolph students can attend for free? - There's parking for a dozen cars there -- how about dozens of cars, like at Houghton's Pond in Milton? - DCR also plans one (1) picnic table along the "Outdoor Recreation Access Route (ORAR)" -- how about dozens, like at Houghton's Pond? - DCR plans a "Wood Deck" on Randolph's shore -- how about a lifeguarded sandy beach, like at Houghton's Pond? B. More access to AMC Camp. - Better "wayfinding signs" for the mile-long "Ponkapoag Path" to the Rt 24 crossing. - There are 4 more access points from the Deer Park neighborhood on Sunset Drive -- Randolph could maintain those "right-of-way" access points on our side - How about a small parking area on "Hemlock Road" walking trail (past the dead end of Turner Drive in Deer Park)? C. More access from Canton Street. - At the November meeting, we discussed allowing swimming at Fisherman's Cove. Last night the DCR said the pond was too shallow to allow swimming. Swimming already occurs at both the AMC Camp and at Fisherman's Cove -- there is high public demand -- and I suggest DCR regulate swimming rather than trying to ban swimming. - How about picnic areas at Fisherman's Cove? We could extend the current area eastward into Randolph, where there's plenty of area for picnic tables. - How about a sidewalk from Canton Street and Randolph Street to the Fisherman's Cove entrance, so people can safely walk? Map for all of the above at: http://www.jessegordon.com/BlueHills/Ponkapoag_Plan.jpg Sincerely, Jesse Gordon Randolph Town Councilor 617-320-6989	Randolph	MA	02368
Daniel	Kidwell	Thank you everyone. I just came off the comments meeting tonight. An impressive plan so far. Kudos to those involved. Thank you to the moderators, I was able to voice the following observations during the meeting but wish to log them here as well: Please take note this pond is pristine and a unique resource in the Boston area. I compare it as a user for over forty five years to another favorite pond in Vermont, Stratton Pond on the Long Trail in the Green Mountains. The view from the shore looking out across both ponds is remarkable for their total lack of any visible human created improvement along the shore. Please in your efforts to improve access, do not add any visible structures like boat launch platforms or viewing platforms. The three structures that currently exist along the shore, ie the end of the Cedar Swamp boardwalk, the swimming pier at the AMC camp, and the dam at the Golf course are well hidden (or minimal) from view from the water side. Any improvements to the Fisherman's Cove area in the way of boating or viewing access should please keep this ideal in mind to the utmost. Second, please recognize that through the years, the difficulty in access to the trails and to getting a boat onto the water has been one of the area's saving graces. It has help to prevent overuse. Granted, improvements need to be made both in parking and in general signage in order to discourage the creation of "volunteer trails" and other risks brought on by the Covid related surge in usage. However is must be recognized that this area can not support a great increase in usage that may be encouraged by over-improving the ease of access. IMHO, it should remain as a place that one must work a little harder at in order to find a trail, or launch a hand carried boat. Please do signage, walking, and parking improvements with a very light touch, and please....please....please do not make it possible to drive a boat down to water's edge.	Randolph	MA	02368

Owen	Hughes Jr.	Hello, by way of background, my family owns and operates Canton Equestrian Center which is directly across from the car entrance to AMC site. I attended your presentation tonight and was very impressed with the plan - thanks for all your efforts thus far. i would like to raise a few points/questions to consider: 1) there is a wet spot on south west side of trails (end of Cynthia/Harrison Road) which was an area you identified requiring improvement which was great to see. Please consider this is a primary horse back riding path so adding a boardwalk/bridge would introduce a new safety issue for riders. Can you elaborate on the plan to address this issue? 2) the main entrance to the trails for our riders is the same entrance used by AMC. There is also a new sidewalk that is now bringing much more foot traffic from the newly developed neighborhoods to that entrance. Therefore, this now creates conflicts between cars, riders and hikers. At one point, there was a discussion of designating an entrance path for riders to help. This isn't a major concern given the light car traffic but with the increased foot traffic now, worried this will become more of a conflict in the future. Ideally, we would prevent foot traffic through that entrance and route walkers to the main parking lot. This would be difficult to police but building a sidewalk on that side would help promote users to enter/exit from the parking lot - something to consider. 3) is parking going to still be allowed on Randolph Street after the additional parking is built? If not, I suggest installing additional signage to clarify the parking rules and point parkers to the main parking lot. 4) some Canton residents were upset that there was no notice in our local newspapers while Randolph got notice and appear to be more informed of the plans. Going forward, is there a way to ensure Canton papers are notified as well? Or is there an newletter we can sign-up for? Thank you, Owen Jr. CEC General Mgr.	CANTON	MA	02021
Laura	Gersch	Why did Danielle Mellett say that part of the goal was to "relieve the strain on Houghton's Pond"? And what would this entail in terms of numbers? How many people who are currently going to Houghton's Pond are you aiming to redirect to Ponkapoag Pond?	Boston	MA	02130

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Appendix C

Invasive Species Site Survey

THE SURVEY WAS PERFORMED BY TIGHE & BOND FIELD STAFF IN SEPTEMBER, 2021

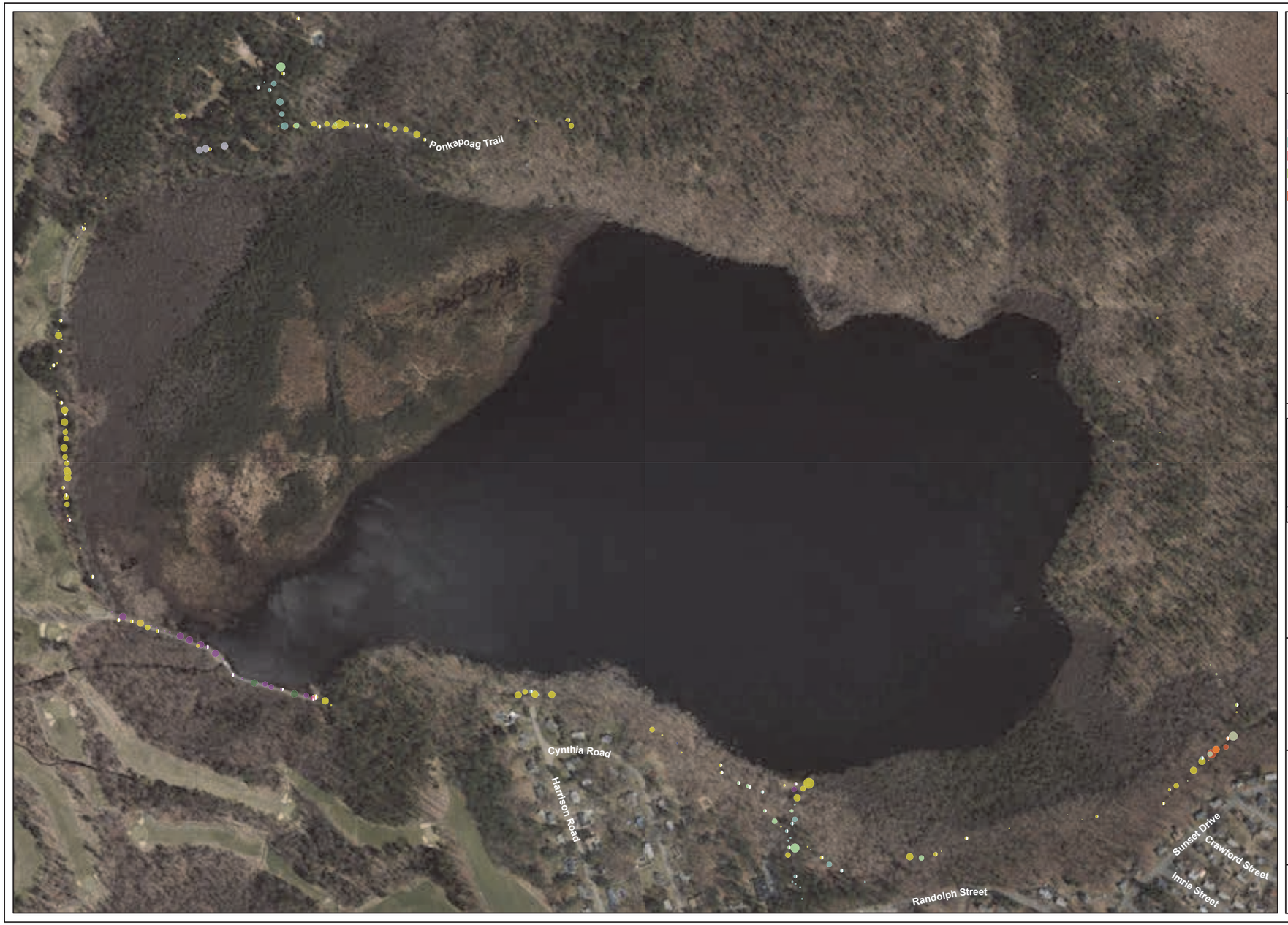

FIGURE 1
INVASIVE SPECIES SITE PLAN

LEGEND

- Common Buckthorn
- Garlic Mustard
- Glossy Buckthorn
- Japanese Barberry
- Japanese Stiltgrass
- Knapweed
- Multiflora Rose
- Norway Maple
- Phragmites
- Purple Loosestrife
- Reed Canary Grass

LOCUS MAP

N W E S

0 250 500
Feet

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NOTES

1. Based on MassGIS Color Orthophotography (2013-2014)

Ponkapoag Pond Master Plan
Invasive Species Plan
Washington Street
Canton, Massachusetts

September 2021

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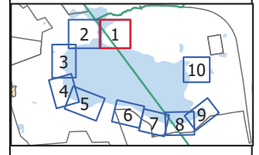
Radius
2' 3' 4' 5' 6' 7' 8'
10' 12' 15' 20' 25' 30'

LOCUS MAP



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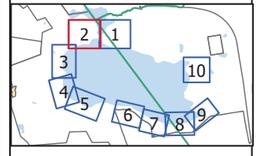

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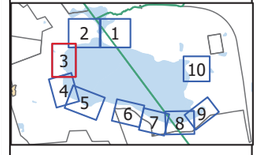

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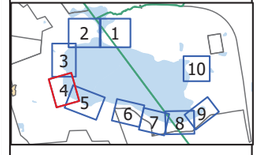

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Radius: 2', 3', 4', 5', 6', 7', 8', 10', 12', 15', 20', 25', 30'

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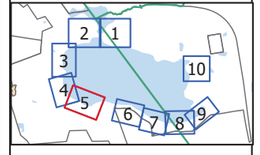

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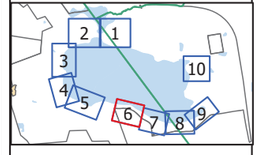

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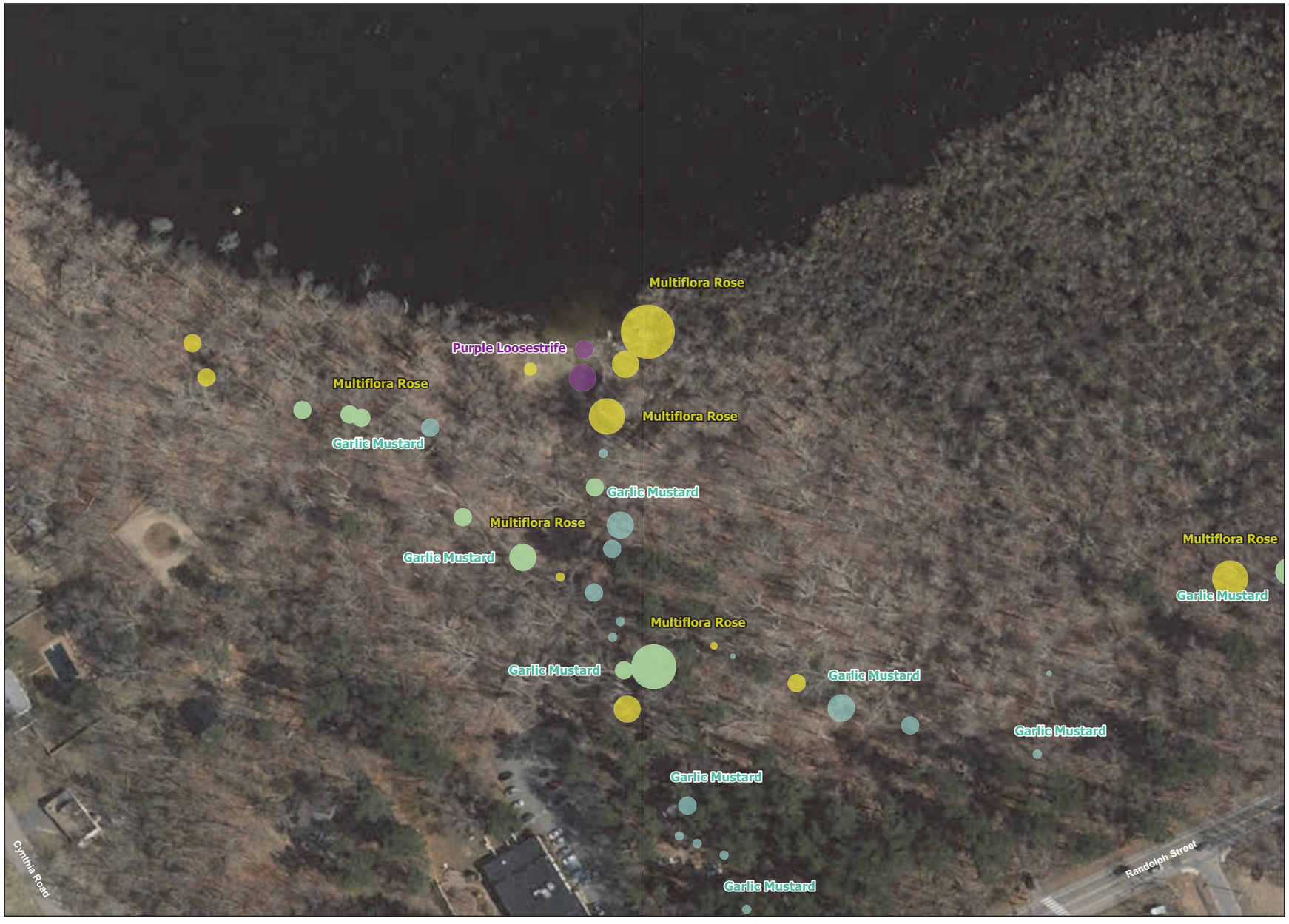

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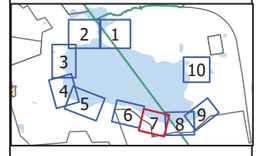

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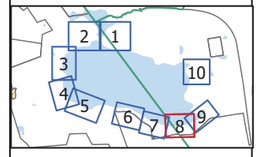

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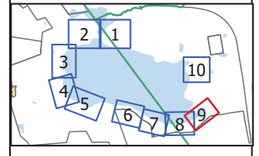

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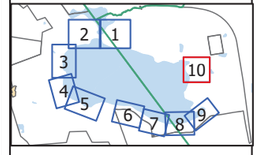

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