

DCR-BOFF Forest Management Proposal

Project Name: Brookline Road 2.0
Property Name: Townsend State Forest
Acres: 81
Forestry District: Northeast
Forester: Zani/Waterman

Date Proposed: February 2025
Town(s): Townsend
Landscape Designation: Woodland
Rec Complex/District: Townsend
FOTL/F&P Supervisor: Gallant/Amadon

GENERAL PROJECT DESCRIPTION

Acres	Overstory Forest Type	Understory Forest Type	Stand Description
8	Overstory: White Pine	Understory: Native shrubs and grasses, white pine, white oak	Stand 1; former 1930s white pine plantation previously thinned in 1983 and 1995. 2016 irregular shelterwood establishment cut created gaps to begin diversifying age and structure. Current project will expand gaps and thin within matrix.
15	Overstory: White Pine-Hardwood	Understory: Native shrubs and grasses, white pine, white oak	Stand 2; naturally regenerated mixed white pine-hardwood stand commercially thinned in 2016. Current project will introduce expanding gaps (irregular shelterwood).
12	Overstory: White Pine, Red Pine	Understory: Native shrubs and grasses, white pine, black birch	Stand 3; former 1930s red pine-white pine plantation. 2016 irregular shelterwood establishment cut created gaps to begin diversifying age and structure. Current project will expand gaps and thin within matrix.
26	Overstory: Oak, Mixed Hardwood, White and Red Pine	Understory: native shrubs and grasses, scattered hardwoods	Stand 4; previously unmanaged oak-mixed hardwood-pine stand. Current project will commercially thin stand to regulate stand density, encourage natural regeneration, and improve vigor of remaining trees.
20	N/A	N/A	Wetlands and/or otherwise unharvested project area.

Project Summary, Goals and Objectives:

This project includes mostly return entries to a previously managed area (Stands 1-3) with one newly established stand (Stand 4). The project area consists of 4 stands: 1) a former white pine plantation - current project will expand gaps in expanding gap irregular shelterwood, 2) mixed pine-hardwood, commercially thinned in 2016 - current project will initiate expanding gap irregular shelterwood, 3) a former red pine-white pine plantation with naturally regenerated mixed hardwood - current project will expand initial gaps from expanding gap irregular shelterwood initiated in 2016, and 4) a mixed pine-hardwood stand, previously untreated - project will commercially thin while favoring climate adapted species. These forest stands are either plantations that were deliberately established by the Civilian Conservation Corps (1 & 3) or natural regeneration following agricultural abandonment (2 & 4). Previous forest management projects have created conditions for advanced regeneration to be present throughout most of the project area. Red pine scale presence has been verified by DCR Forest Health staff. The overall management goals of the project's proposal align with climate adaptation practices and biodiversity goals as laid out by subject matter experts (e.g. NIACS and DPW, respectively), as well as the following quoted Recommendations from the Climate Forestry Committee ("CFC") concerning (1) Resilience of Plantations as a function of their Structural Complexity and Susceptibility to Invasive Species and (2) Active Management Using Multi-Aged Silviculture: (1)"There was Committee consensus that plantations should be converted to more compositionally diverse forests via harvesting, and some also supported adaptive management of other stands with several risk factors,

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such as a dense stand of diseased trees that would represent a fire risk to nearby development.” (“Report of the Climate Forestry Committee: Recommendations for Climate-Oriented Forest Management Guidelines” hereafter referred to as “CFC Report”, page 38). “There was some agreement on the Committee that some current forest conditions, such as plantation monocultures, many compositionally and structurally simple second-growth stands, forests heavily infested with non-native invasive plants, or those lacking plants in the understory due to heavy deer browsing, may not exhibit the same level of resilience as forests with a higher degree of ecological integrity and absence of invasives.” (CFC Report, page 38) “actions to diversify species composition can help reduce the impacts of an invasive pest or pathogen... Make efforts to maintain genetic pools and diversity of threatened species on the landscape.” (CFC Report, page 39) “CFC recommendations related to the overall missions and land management of the Divisions of Drinking Water Supply Protection, Fisheries and Wildlife, and State Parks and Recreation...Prioritize for active management forest stands that have simplified structure and low species diversity, especially plantations that are in poor health. Seek to enhance structural complexity and propagate diverse species well-adapted to the site and predicted future conditions.” (CFC Report, page 45-46) (2) CFC Recommendations Concerning Active Management: Multi-Aged Silviculture “When forests are actively managed, the Committee recommends adopting ecological principles, including...Retaining some trees on site, particularly large mature ones, while meeting species regeneration goals by using multi-aged silvicultural systems.” (CFC Report, page 33) The current proposal builds on previous forest management and incorporates the following climate modifications: allow for greater percentage of retention with a focus on species better suited to climate change (e.g. oaks), retain more dead trees to provide short term carbon storage and habitat improvements, and create conditions for a diverse suite of species, age classes and structural complexity to benefit both climate change resilience and wildlife habitat.

MASSACHUSETTS FOREST ACTION PLAN GOALS

The goals listed below are sourced from *DCR (Department of Conservation and Recreation) Bureau of Forest Fire Control and Forestry. 2020. MASSACHUSETTS STATE FOREST ACTION PLAN 2020*

- **Increase resistance and resilience of trees and forests to mitigate and adapt to the effects of climate change**
- **Manage forest ecosystem health and biodiversity**
- **Support and enhance forest economy**

CLIMATE CHANGE ADAPTATION STRATEGIES AND APPROACHES

The strategies and approaches listed below are sourced from the Response to the Report of the Climate Change Committee, 2024 and the Report of the Climate Forestry Committee: Recommendations for Climate-Oriented Forest Management Guidelines, 2024.

- **1: Sustain fundamental ecological functions.**
- **2: Reduce the impact of biological stressors.**
- **5: Maintain and enhance species and structural diversity.**

CLIMATE ADAPTATION

Action Type	Identified Issue	Action Description
Resilience	Pine plantations	Silvicultural treatments that convert monotypic forest types to a diverse forest type of native plant species.
Resistance	Oak forest types	Silvicultural treatments that maintain and expand opportunities for oak recruitment across project area.

Adaptive Management Strategies: Per the Response to the Report of the Climate Forestry Committee: “Focus active management for resilience on areas...most at risk and in need of ecological restoration/climate resilience such as plantation monocultures”; Promote a diversity of tree species and age classes across the
This DCR-BOFF Forest Management Project Proposal is intended for public review

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project area to reduce impact of invasive pests and increase resiliency to climate change, facilitate natural regeneration of oak species resistant to effects of changing climate, provide carbon sequestration in young trees and carbon storage in legacy trees.

CLIMATE CHANGE CONSIDERATIONS

The Department of Conservation and Recreation, Division of State Parks and Recreation has determined that the decision to implement this project is consistent with EEA climate goals and guidelines and agency land management objectives.

Activities proposed	Carbon and climate change considerations
Full overstory removal, complete stand, plantation conversion to native species. (see Silviculture section page 7, description of gradual pine plantation conversion through expanding gap irregular shelterwood entries in order to prevent spread of pests and disease, to release native regeneration, and increase age and structural diversity; Stands 1 and 3)	Long considered a critical practice on agency lands to improve biodiversity and forest resilience, the conversion of single-species conifer plantations to more diverse mixes of native species has recently been encouraged as a climate-smart practice by NIACS and other climate adaptation experts. Tree monocultures, intensively managed throughout the world to produce much of the wood we all use, are highly vulnerable to the kinds of pest and disease impacts that are likely to worsen as climate changes. Conversion of monoculture plantations aligns with many climate-smart forestry practices highlighted in the CFC report, including but not limited to: • Improving resistance to pests and pathogens. • Increasing resiliency by promoting diversity of plant species. • Providing age class/structural diversity. • Improving conditions for a wide variety of local wildlife through the creation of temporary young forest habitat. Promoting future-adapted tree species in the regeneration mix.
Full overstory removal, partial stand, variable retention harvesting (see Silviculture section page 7, description of initiation of expanding gaps in irregular shelterwood system to diversify stand structure, favoring large specimens and climate-adapted species; Stand 2)	Variable retention (VR) is a regeneration technique based on natural disturbance ecology that retains important biodiversity components of the stand during the harvest to meet habitat objectives. The retained components include a diverse species mix of live and dead trees in a range of diameters with an emphasis on the larger sizes, cavity trees, and large snags and logs of different decay stages. These are in a patchwork pattern across the stand from single trees to large groups measured in acres. • This practice more closely aligns with natural disturbance patterns. • Promotion of a diversity of age classes, species composition and structural diversity enhances overall forest resiliency.

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	• More carbon is left on the landscape for longer periods, in live trees, snags, and coarse woody material while regeneration develops. • Improving conditions for a wide variety of local wildlife through the creation of temporary young forest habitat. • Maintenance of continuous forest corridors provides for wildlife habitat connectivity. • As part of a regeneration system this method can be used to help guide species diversity towards more future-adapted mixes.
Diffuse overstory removal, partial cut, mid-rotation thinning. (see Silviculture section, page 7, description of commercial thinning to improve vigor and resilience of remaining trees, favoring climate-adapted species; Stand 4)	Classic thinnings are partial cuts implemented during the ‘middle years’ of stand development (‘intermediate treatments’) to adjust species composition, shift growth towards desirable and more vigorous trees, and maintain desired density and stocking levels. Stands may be thinned multiple times prior to initiating the regeneration phase near the end of a planned rotation. Time intervals between thinnings are generally considerations between rotation lengths and the response of the trees on the site. Climate-smart practices that agency foresters keep in mind when conducting thinnings include: • Retaining higher residual densities that maintain higher levels of carbon stocks on the landscape. • Retaining better-formed and more vigorous individuals which will improve carbon sequestration capacity. • Taking the opportunity to favor desired species, especially those species that are better adapted to future climate scenarios.

SOILS AND TOPOGRAPHIC FEATURES

Acres	Soil Type	Drainage Characteristic
6.0	Scarboro mucky fine sandy loam, 0 to 3 percent slopes	Very poorly drained
2.0	Wareham loamy fine sand, 0 to 5 percent slopes	Poorly drained
7.4	Freetown muck, 0 to 1 percent slopes	Very poorly drained
23.5	Hinckley loamy sand, 3 to 8 percent slopes	Excessively drained
1.4	Sudbury fine sandy loam, 3 to 8 percent slopes	Moderately well drained
0.2	Scituate fine sandy loam, 3 to 8 percent slopes, extremely stony	Moderately well drained
10.2	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	Well drained

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13.3	Canton fine sandy loam, 8 to 15 percent slopes, extremely stony	Well drained
1.9	Canton fine sandy loam, 15 to 35 percent slopes, extremely stony	Well drained
15.0	Canton fine sandy loam, 8 to 15 percent slopes, extremely bouldery	Well drained

Average Slope Percent: Variable
General Aspect: Varied

Terrain Consistency: Variable
Terrain Position: Multiple

Description of Soils and Topographic Features: The soils in the project area are of generally low to moderate productivity due to parent material and drainage characteristics. The terrain can best be described as generally sloping towards the southeast. The project area is sporadically covered by stones and boulders of various sizes and distribution.

WETLAND FEATURES

	Present	Crossing	Work within Filter/Buffer
Wetlands:	Yes	Possible	Possible
Regulated Streams:	Possible	Possible	Possible
Non-Regulated Streams:	Yes	Possible	Possible
Vernal Pools:	Possible	No	No
Seeps:	Possible	Possible	Possible

Description of Wetland Features: Several wetland features are present within the project area including vegetated wetlands and intermittent streams. The most significant wetland is Wolf Swamp. Beaver activity over time has expanded the swamp due to dam building and subsequent flooding of previously forested areas. This flooding has improved habitat for wetland dependent species of flora and fauna. There are two streams associated with the project area. One stream runs south out of Wolf Swamp and the other small intermittent stream flows south-east between stands 1 and 2 into Wolf Swamp. There are no planned wetland crossings in the project area at this time, all stream crossings will be made with temporary bridges to be removed at close of operations. There will be no cutting within wetlands to minimize any impacts on the site, and a 50-foot no-cut buffer from wetland resources will provide additional protection. No cutting will be allowed within 50-foot filter strips along streams, with the exception of any trees removed at an approved stream crossing for equipment access.

CULTURAL RESOURCES

	Present	At Risk	Work Within Buffer
Stone Walls:	Yes	No	Possible
Foundation / Cellar Hole:	No	N/A	N/A
Well:	No	N/A	N/A
Structures:	No	N/A	N/A
Cemetery:	No	N/A	N/A
Other: N/A			

Description of Cultural Resources: There are several stone walls located within the project area. These areas will be mapped and documented to protect their historical significance during operations. Consultation with the Office of Cultural Resources will take place prior to preparing a written prescription for the project area. Where stone walls will be crossed, existing breaks will be utilized to protect their integrity. Work that is

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to occur within close proximity to existing cultural resources will adhere to DCR's BMPs pertaining to work near and around cultural resources.

NATURAL HERITAGE / WILDLIFE-HABITAT MANAGEMENT / OTHER RESOURCES

Natural Heritage Polygon: No

Natural Heritage Restrictions: No

Restrictions on Harvest Description: None anticipated

Wildlife Specific Management: No

Targeted Species: All

Goals: Maintain and enhance habitat for native species already present

Additional Habitat Management: Yes

Habitat Type: Oak-Pine Forest Type

Goals: Provide habitat for native species found in upland hardwood forest types by increasing browse and mast production. Provide thermal cover by encouraging softwood regeneration throughout project area.

Retain cavity trees and snags throughout area for use by wildlife and future coarse woody material recruitment. Encourage oak and hickory regeneration throughout project area for wildlife.

State Forest Action Plan: Yes

ACEC: Yes

BIO Map2: Yes

State Wildlife Action Plan: Yes

Public Water Supply: No

Current Resource Management Plan: Yes

Additional Detail: The project area is located within the Squannissit Area of Critical Environmental Concern (ACEC). All resource areas will be mapped, flagged, and painted in the field in accordance with filing a MGL Chapter 132 Forest Cutting Plan for this project with the Massachusetts DCR Service Forestry Program along with simultaneous filing of the cutting plan with the local conservation commission. The Massachusetts Forestry BMPs are required by law to mitigate any impact. Impacts will also be minimized by restricting the project to times of year when conditions are favorable for harvesting.

FOREST HEALTH / INVASIVE SPECIES

Forest Health Concern: Yes

Species Affected: Red and white Pine, American Beech, hemlock, oaks

Management Considerations: Risk to Red Pine due to Red Pine scale. Risk to White Pine from White Pine Bast Scale leading to Calipciopsis canker. Beech bark and leaf disease affecting American Beech. Hemlock Woolly Adelgid can be found on hemlocks throughout the project area. Spongy Moth defoliation of Oak species.

Plant Invasive Species Present: Possible

Species Present: None observed

Management Considerations: All BMPs will be followed to reduce risk of invasive species spread

Insect Invasive Species Present: Yes

Species Present: Red pine scale, hemlock wooly adelgid

Management Considerations: Red pine in former plantations currently dying from red pine scale will be removed to convert to a mixed native hardwood and softwood forest type. Previous silvicultural treatments have established native hardwood and pine ready to be released. No economically feasible treatment for hemlocks affected by adelgid.

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INFRASTRUCTURE / RECREATION/ AESTHETICS

Access Road: Brookline Road – State Route 13

Condition: Good

Existing Landing: Yes

Project Access and Landing Site: Existing, historic landing will be utilized. Main access to the project area will occur off Route 13.

Ownership: State owned and maintained

Road Repair/Upgrade: No

Landing Repair/Upgrade: Yes

Existing Skid Trail Network: Yes

Pre-Harvest Repair/Upgrade: Possible

Skid Trail Network Description: Historic skid trails will be utilized where possible. Any new skid trails will be established in accordance with MGL 132 and Massachusetts Forestry BMPs.

Shared Infrastructure: No

Road/Trail Names: None

Management Considerations: Portion of trail will be closed during working hours but otherwise available for passive recreational use.

Infrastructure Present

Infrastructure	Present	Condition
Official Trail	Yes	Good, partially flooded
Illegal Trail	No	N/A
Existing Trail Head	No	N/A
Recreation Facility	No	N/A

Recreation and Aesthetic Concerns/Opportunities: The project area is located adjacent to heavily traveled Route 13, therefore a 50-foot no-cut buffer will be in place along the main road to minimize visual impacts (area needed for log landing excluded). There is one hiking trail that follows an old road bisecting the property. Beaver activity has flooded a portion of the trail and restricts travel. The harvest area will be posted with signage and a public walk will be hosted to increase awareness of program activity.

SILVICULTURE

Acres	Silviculture Type	Silviculture Description
35	Irregular Shelterwood; Variable Density Thinning	Gaps will either be created (Stand 2, up to 1 acre) or further expanded (Stands 1 and 3) to encourage the regeneration process. Outside of these gaps, trees will be variably thinned to remove low vigor, low quality trees and promote growth of the residual forest. Select snags will be retained for wildlife and carbon storage.
26	Commercial Thinning	Stand density will be regulated through thinning in previously unmanaged project area (Stand 4). Poor quality, low vigor, and non-native specimens will be removed to improve growth of larger diameter individuals. Climate-adapted species (e.g. white oaks) will be favored. Remaining trees will have an improved ability to withstand stressors, provide mast and habitat for wildlife, and provide a seed bank for the future.

General Comments on Silviculture Proposed: The expanding gap irregular shelterwood type of silvicultural system is one that has a long regeneration period with a continuous cover of trees. Gaps are made in the canopy to encourage the regeneration process and over time these gaps are expanded creating a mosaic of age

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and size classes across the landscape. Outside of these gaps, trees are thinned to remove low vigor, low quality trees and promote growth of the residual forest. A mix of shelterwood and thinning cuts will help to convert plantations susceptible to disease and pathogens to vigorous native species, while at the same time reserving large mast producing trees and/or snags for wildlife habitat and carbon storage.

PERMIT REQUIREMENTS / OPPORTUNITIES

Restrictions	Description
Seasonal Restrictions: Possible	Dry/frozen conditions.
Equipment Restrictions: No	No restrictions anticipated at this time
Recreation Restrictions: Yes	Close area to recreation during operational hours
Green Docket: No	No permitting requirements needed outside of Chapter 132 Forest Cutting Plan
In-kind Services: Possible	Possible addition of stone or gravel to improve current and future access.

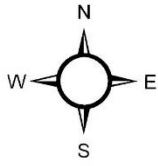
Potential Local Economic Benefits: Provide a source of sustainable, locally harvested forest products and related employment. Strong local markets for firewood exist and can offset the use of fossil fuels for home heating. Employment of local contractors to benefit rural communities and payments to towns from the Forest Products Trust Fund is expected.

Attachments:

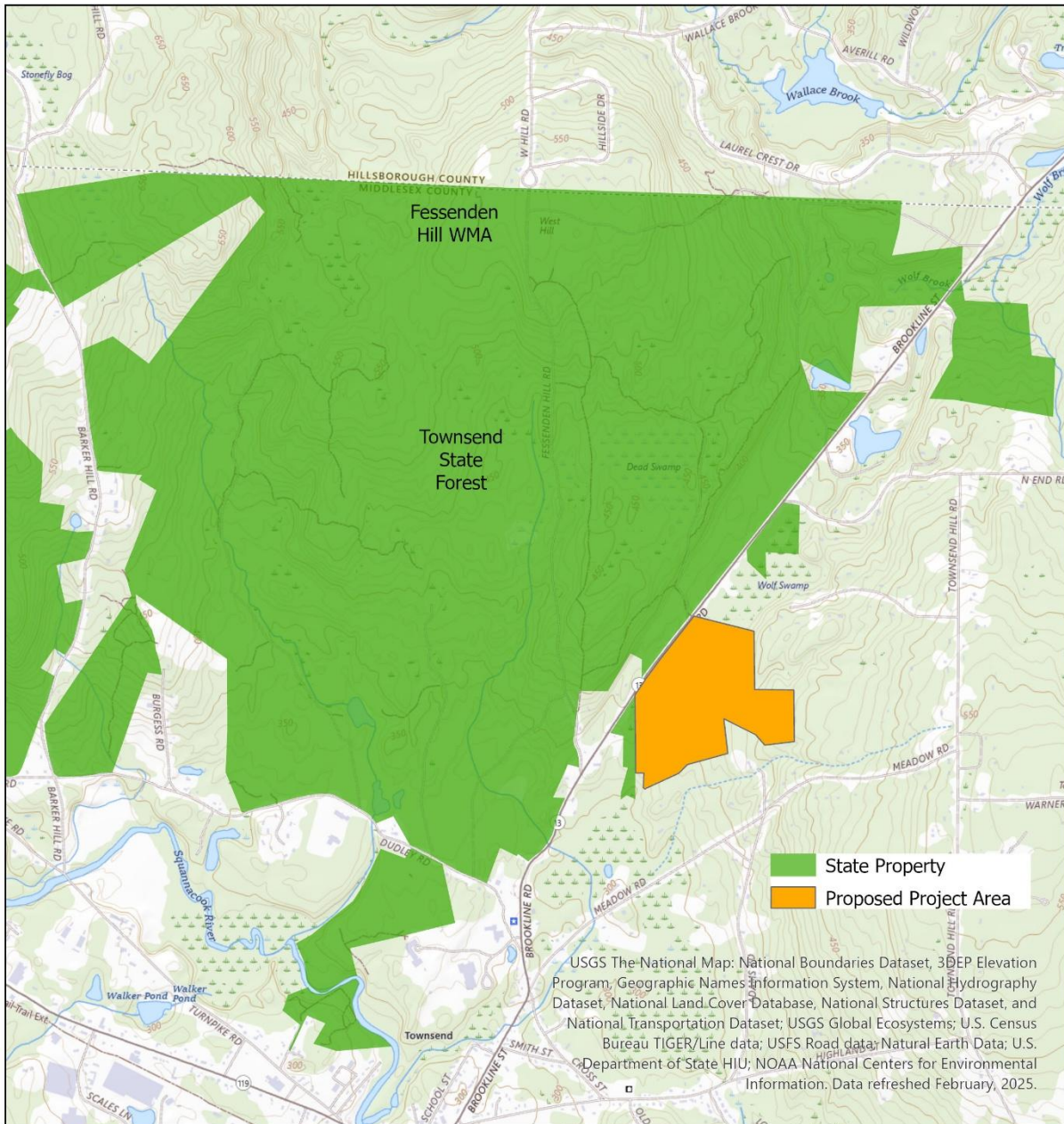
Locus Map

Project Map

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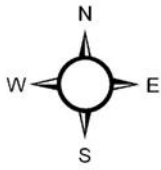
Townsend State Forest Brookline Road 2.0 Locus Map Townsend



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Feet

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