

Section 9: Land Conservation

9.1 Introduction

The Trustees of Reservations works to safeguard the ecological, scenic, and historic integrity of its properties by promoting innovative land conservation options for parcels near or adjacent to existing reservations. The Trustees also works to establish and strengthen greenways and wildlife corridors linking and expanding nearby areas of protected land, not all of which are necessarily owned by The Trustees.

9.2 Description and Evaluation

Moose Hill Farm's 347 acres are surrounded on the north, east, and south by 1,984 mostly forested acres owned by the Massachusetts Audubon Society, which protects additional acreage beyond its borders with several conservation restrictions – including a portion of Moose Hill Farm. The farm is bordered on the northwest by the I-95 interstate highway. Moose Hill Farm borders unprotected, non-highway land at two points – three inholding parcels at the center of the farm totaling 33 acres known as the Gagnon Property, and three joined parcels totaling 11 acres on the east side of Moose Hill Street immediately south of the farm.

Moose Hill Farm's landscape is essentially concentric – an estate core of houses and farm buildings, with extensive hayfields to the west and a cornfield across Moose Hill Street to the east, and forested land covering the remaining outlying land (generally, upland and rocky outcroppings north and west, lowland and wetland to the east and south).

Moose Hill Farm's two most important values are the scenic, historic nature of its agrarian fields and farm buildings surrounded by undeveloped woodland, and the exceptional ecological value of the farm's 347 acres of grassland, woodland, and wetland as part of roughly 2,700 acres of contiguous, protected land in the rapidly developing suburbs less than 15 miles south of Boston. The Massachusetts Natural Heritage Program's BioMap identifies about half of Moose Hill Farm as Core Habitat or Supporting Natural Landscape for rare and endangered species.

The most important open space consideration for Moose Hill Farm is the protection of the Gagnon Property inholding. The protection of the northern, undeveloped half of the 361 Moose Hill Street is also important in terms of safeguarding the aesthetic beauty of the farm.

I-95 on the northwest, while it may be widened at some future point, provides an effective barrier against development from that direction. The surrounding Mass Audubon land is explicitly held and managed for conservation purposes, and much of it may be further protected by conservation restrictions held by a non-profit affiliate of the Henry P. Kendall Foundation. The Kendall Foundation is the central successor entity of

the family and its several non-profits which has owned most of the acreage which makes up the current Mass Audubon Sanctuary, The Trustees' Moose Hill Farm, the Gagnon Property inholding, and the three parcels along Moose Hill Street.

9.2.1 Present Property Configuration and Description

The Sharon Board of Assessors lists six parcels along Moose Hill Street totaling 346.71 acres comprising Moose Hill Farm.

- 1) 396 Moose Hill Street (the largest parcel, includes the farm complex "estate core"), 158.07 acres. Map 108, Block 1. Kendall Foundation conservation restriction.
- 2) 480R Moose Hill Street (the wooded parcel, to the north), 87.71 acres. Map 116, Block 1. Mass Audubon/Town conservation restriction.
- 3) 42 Moose Hill Street (the field and wetlands, across the road), 96.65 acres. Map 108, Block 6. Mass Audubon/Town conservation restriction.
- 4) 354 Moose Hill Street (yellow "Kenwood" rental house, on Moose Hill Street), 1.42 acres. Map 98, Block 3. Kendall Foundation conservation restriction.
- 5) 9 Observatory Road (stucco "Herdsman" rental house on farm "driveway" nearest Moose Hill Street), 1.42 acres. Map 98, Block 4. Kendall Foundation conservation restriction.
- 6) 13 Observatory Road (stucco "Herdsman" rental house on farm "driveway" closer up to barn), 1.44 acres. Map 98, Block 5. Kendall Foundation conservation restriction.

The Massachusetts Audubon Society's and the Town's co-held perpetual conservation restriction on the farm's two undeveloped parcels was recorded December 26 1996 at the Norfolk County Registry of Deeds, Book 11642, Page 543. Provisions are straightforward and allow for continued current uses (passive recreation, agriculture, forest products, paths and unpaved parking lots, signage, etc.).

The Trustees granted a perpetual conservation restriction on the farm's main parcel (including the estate core) and the three rental house parcels to an affiliate of the Kendall Foundation, "The Environmental Preservation Support Trust", recorded March 30 2005 at the Norfolk County Registry of Deeds, Book 22234, Page 6. Again, provisions are straightforward and allow for continued current uses (passive recreation, agriculture, forest products, drives, paths and parking lots, signage, etc.). Septic system and other utilities work is allowed. The Environmental Preservation Support Trust (EPST) must approve any subdivision. TTOR must provide historical assessments, structural documentation, and alternatives and secure EPST review and approval for substantial alteration, demolition, or replacement of structures, and EPST review and approval of plans for new structures.

9.2.2 Management Considerations

The two unprotected areas near Moose Hill Farm – the Gagnon Property and 361 Moose Hill Street – are owned by the Kendall Foundation or its affiliate.

The Kendall Foundation itself owns the Gagnon Property and has expressed an intention to transfer it to The Trustees of Reservations at some future point, pending their satisfaction with our management and care of Moose Hill Farm, which they transferred to The Trustees on March 30, 2005. Communication among staff and the Foundation is ongoing.

361 Moose Hill Street is owned by a Kendall Foundation affiliate, the trustees of Moose Hill Realty Trust (MHRT). MHRT is in the process of selling peripheral lots around the complex of Kendall lands in Sharon to raise money for its charitable purposes. It is possible that a northern sliver of this lot could be donated to The Trustees or restricted by means of a conservation restriction without having a significant impact on the value of the lot. This option should be explored with the MHRT.

Additionally, regular communication with Mass Audubon should be maintained so that management issues on our adjoining properties can be coordinated, if appropriate, and so that The Trustees can learn about any possible changes at Moose Hill Farm's most important neighboring open space.

9.2.3 Roadways and Vehicular Access to the Property

Moose Hill Street provides the only point of vehicular access to the Farm. Staff accesses the property through the driveway at 396 Moose Hill Street. Plans for future access for the general public could include a separate parking area off the 396 Moose Hill Street driveway, a new driveway at 396 Moose Hill Street, a new driveway and unpaved parking area near the cornfield across the street or in the woods north past the Gagnon Property (allowed under the Mass Audubon CR), or a new driveway and parking area on the Gagnon Property if it comes to The Trustees.

9.2.4 Views from the Property

Maintaining the forested borders around Moose Hill Farm is the chief priority, especially along the I-95 corridor to the northwest. It also is important to maintain the views of Great Blue Hill and the Boston skyline from the top of the hayfield west of the farm complex.

9.2.5 Ecological and Landscape Considerations

As mentioned above, Moose Hill Farm's two most important values are the scenic, historic nature of its agrarian fields and farm buildings surrounded by undeveloped woodland, and the exceptional ecological value of the farm's 346 acres of grassland, woodland, and wetland as part of roughly 2,300 acres of contiguous, protected land in the rapidly developing suburbs less than 15 miles south of Boston. The Massachusetts Natural Heritage Program's BioMap identifies about half of Moose Hill Farm as Core Habitat or Supporting Natural Landscape for rare and endangered species.

The most important open space consideration for Moose Hill Farm is the protection of the Gagnon Property inholding and 361 Moose Hill Street; they form the two most significant inholdings in the entire 2,300-acre TTOR/Mass Audubon complex of conservation land.

9.3 Critical Lands Inventory, Assessment, and Recommended Actions

Land conservation considerations near Moose Hill Farm are quite straightforward. The farm is bordered by I-95 or Mass Audubon land, leaving only the Gagnon Property and the Moose Hill Street parcel unprotected.

The Trustees has developed criteria for assessing adjacent and nearby lands that may be important for maintaining a reservation's integrity and special character. These "critical lands" are ranked according to the impact, both positive and negative, they have to existing resources on the reservation and by the potential impact to the reservation if they were to be developed or their land use changed. The critical lands for Moose Hill Farm have been ranked using the following criteria:

Critical: Parcels whose preservation is essential to the protection and integrity of key features **on the reservation**, such as wetland and aquifer recharge areas, hilltops and other unique landforms, scenic roads or road frontages, special vegetative features, rare species habitat or scenic views seen from the reservation. They also include parcels that eliminate inholdings. The 33-acre Gagnon Property owned by the Kendall Foundation, and approximately two acres of 361 Moose Hill Street owned by the Kendall-affiliated Moose Hill Realty Trust, are considered Critical.

Significant: Parcels whose preservation would add significantly **to the reservation**, but whose loss would not detract significantly from the character and quality of the reservation. Abutting lands are either I-95, owned by Mass Audubon, or Critical Lands; hence, there are no Significant parcels at Moose Hill Farm.

Valuable: Parcels whose preservation would add to the scenic, historic or ecological value of the reservation or would contribute to its efficient management, but are **not considered critical or significant** (e.g., contiguous parcels of land without unique features). Abutting lands are either I-95, owned by Mass Audubon, or Critical Lands; hence, there are no Valuable parcels at Moose Hill Farm.

Specific parcels identified as having an impact on Moose Hill Farm are identified below and on Map 13. This assessment is suggested as a guideline to future protection efforts and is not meant to imply other parcels not identified here are of no conservation value (for example, parcels not abutting Moose Hill Farm but abutting Mass Audubon land

further away). As new information and opportunities arise, land protection priorities may change.

Critical

Both the Gagnon Property and the Moose Hill Street parcel are inholdings, entirely surrounded by one of the largest blocks of protected land south of Boston. Both inholdings are critical lands because of their scenic and ecological value as part of a larger complex of protected open space.

Having ownership of these parcels pass out of conservation hands would create permanent inholdings in TTOR/Mass Audubon's 2,300 acres, creating potential management issues and ecological and scenic concerns far into the future. Moose Hill Farm's overarching ecological value is being part of a much larger contiguous block of protected land, and permanent inholdings within that protected block of land diminish its value.

1. **Gagnon Property**, owned by the Kendall Foundation and entirely surrounded by The Trustees' Moose Hill Farm. Most of the Gagnon Property is BioMap Core Habitat (and is locally famous for the spring salamander migration, when the town closes Moose Hill Street for up to three nights and spectators gather to watch salamanders, toads, and efts travel down to the wetlands to breed).

The 33-acre property is in three parcels: 1) 432 Moose Hill Street (Gagnon house), 2 acres, Map 108, Block 3; 2) 432R Moose Hill Street (north of house), 8.72 acres, Map 108, Block 2; and 3) 438 Moose Hill Street (all the rest north of the house), 21.72 acres, Map 108, Block 4.

The property had been at risk of subdivision and development until the Kendall Foundation bought it from the Gagnons in March 2003.

Recommended action:

The Kendall Foundation has indicated its intent to transfer the Gagnon Property to The Trustees at some future point, pending their satisfaction with TTOR management and care of Moose Hill Farm. TTOR's structural resources and historic resources staff should evaluate the Gagnon house and barn for their potential significance and potential re-use.

2. **361 Moose Hill Street**, owned by the Kendall Foundation's affiliate, Moose Hill Realty Trust (MHRT). The Kendall Foundation indicates that this parcel is not currently on their "sell" list.

361 Moose Hill Street (red house at the north, abutting Moose Hill Farm), 4.74 acres, Map 99, Block 10; 2)

Recommended action:

Approach the Kendall Foundation about protecting the northern half of this lot either through the gift of land to The Trustees or by means of a conservation restriction.

Map 13

Moose Hill Area - Critical Lands



Parcels of Interest
Critical

Protected Lands
Trustees properties
Mass. Audubon
Town of Sharon



0 1,000 2,000
Feet

Produced by The Trustees of Reservations, May 4, 2005.

Section 10: Recommended Actions

10.1 Introduction

This section presents a suite of recommended actions that are designed to address the many opportunities and needs associated with Moose Hill Farm, which have been described in Sections 3 - 9. These recommendations were developed in consideration of the planning framework described in Section 1, the vision for the future of Moose Hill Farm, and the specific goals and guidelines that follow.

10.2 Agricultural Program

Many factors work together to suggest that active agriculture be a defining feature of Moose Hill Farm. The factors include:

- A long-standing tradition of farming on this landscape
- A desire by the donors to protect the property's pastoral landscape
- A dearth of agricultural operations in the region; there are very few opportunities for people to experience a working farm.
- An extensive agricultural infrastructure, including buildings well-suited to support a farm operation as well as several pieces of farm equipment that are in good working condition.

Agricultural Goals:

Section 8 introduced six goals that will direct the design and implementation of an agricultural program, including:

1. Offer a diversity of visitors the opportunity to experience a working farm and to understand the importance of agriculture in their lives.
2. Continue the property's historical legacy of agriculture and interpret the role that agriculture played in the history of Moose Hill Farm and the region.
3. Protect the pastoral landscape of the property.
4. Develop a farming scheme that enhances the potential ecological values associated with an agricultural landscape.
5. Strive to make the farm operation financially self-sustaining.
6. Contribute to a regional agricultural community and economy.

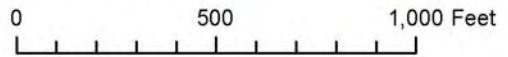
Section 8 also reviewed the various agricultural models that could be applied at Moose Hill Farm, and highlighted a preferred alternative. This alternative, carried out in three phases, would include a grass-fed beef operation, chickens, conservation fields, and expansion into the cultivation of vegetables and flowers that would optimize opportunities for people to get involved in the farm operation.

These elements are conceptually depicted in Maps 14 & 15. Map 16 illustrates the proposed conceptual site plan for the Farm core. The recommendations that follow are tied to these

concept plans. It is important to note that these are preliminary and will likely evolve as plans are refined.

Map 14

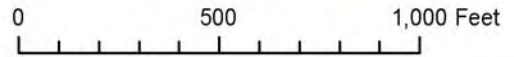
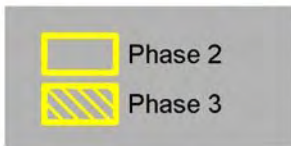
Proposed Fields and Agriculture - Phase 1



Aerial photo from 2005, provided by MassGIS.
Map produced by The Trustees of Reservations, June 2007.

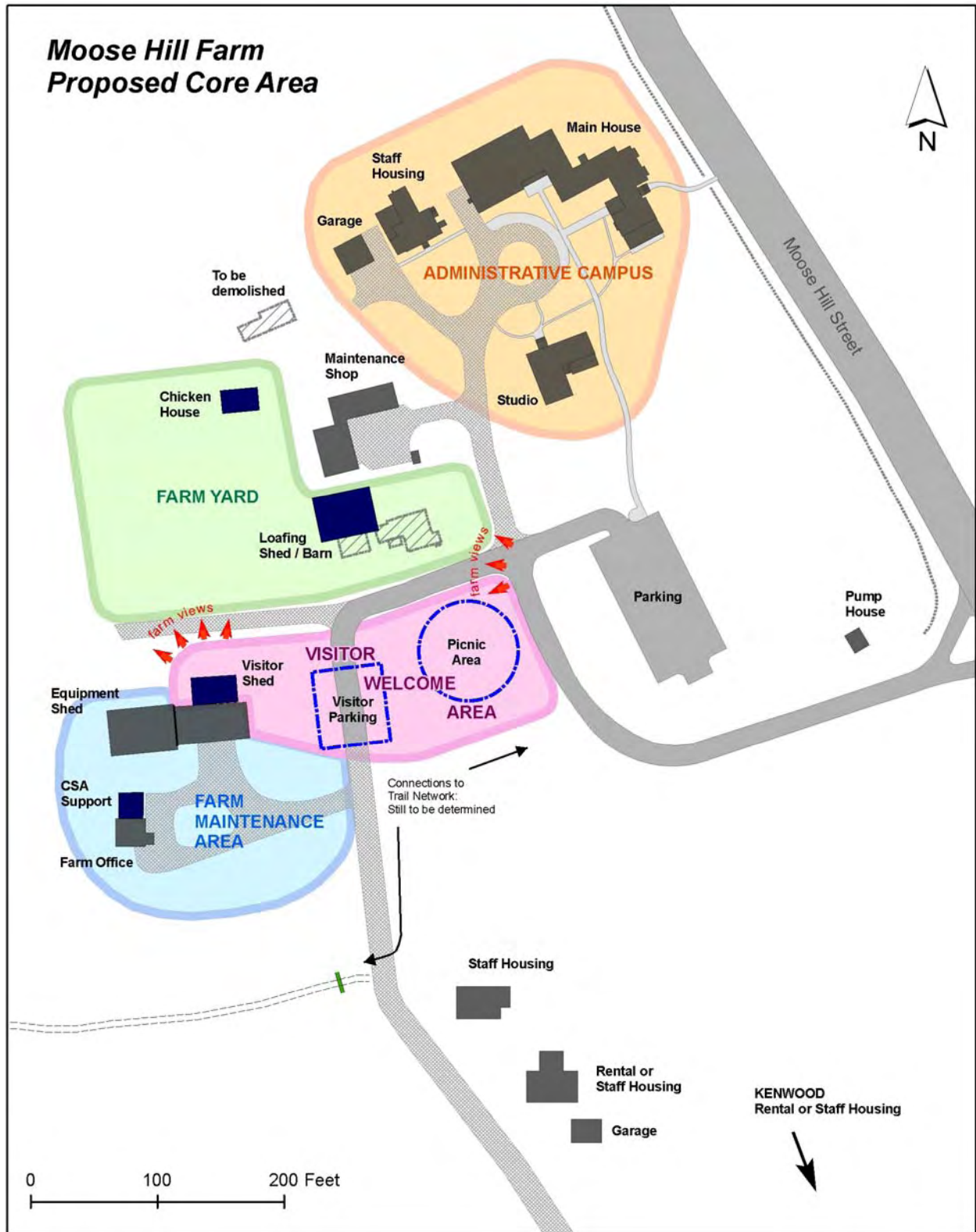
Map 15

Proposed Fields and Agriculture - Phase 2 & 3



Aerial photo from 2005, provided by MassGIS.
Map produced by The Trustees of Reservations, June 2007.

Map 16



Guidelines for Agricultural Management

The following guidelines and recommendations will guide the staff over the next ten years to carry out this concept plan.

- Select heritage (rare) breeds of cattle and chickens, which contributes to efforts to protect genetic diversity in farm animals and provides numerous opportunities for partnerships and interpretation.
- Use organic practices to manage the agricultural operation.
- Maintain a closed herd. A closed herd is one that does not receive any replacement animals from an outside source; replacement heifers and bulls are raised; to prevent in-breeding at Moose Hill Farm, bulls will be occasionally imported. There are many benefits to a closed herd system, including reduced disease and the associated use of antibiotics.
- Do not use growth hormones in the management of the cattle herd.
- Follow Best Management Practices to minimize or prevent negative environmental impacts from agriculture (e.g., do not spread manure in winter).

The expected start-up and annual operating budgets associated with the agricultural operations can be found in Appendices A-D.

Phase One:

During this start-up phase, we will establish a grass-fed beef operation and a small chicken/egg operation at Moose Hill Farm that will set the stage for the property’s visitor experience and engagement programs. During this phase, we will also work to set the stage for managing a portion of the Farm in Phase 2 as cultivated fields, preferably in a way that will optimally engage participants. There are various models that could achieve this, including community-supported agriculture (CSA) or a partnership with another organization, such as the one that exists between The Trustees and the Food Project at Long Hill.

Features of the Moose Hill cattle operation will include:

- Heritage breed cattle. A heritage breed offers many benefits, including numerous interpretive opportunities.
- Rotating the animals through small-sized pastures; this practice optimizes the nutritional value of pasture grasses and helps to keep pests at bay;
- A cow-calf operation where:
 - Females (heifers) are typically kept for replacement breeding stock.
 - Surplus heifers are sold;
 - Male calves are castrated and raised as steers for eventual sale for beef

Recommended Actions for Agriculture

Description/Rationale:

Recommended Actions for Agriculture	Description/Rationale:
1 Establish and manage a grass-fed beef operation consisting of 20-30 head of heritage cattle.	The number of “20-30” is an estimate; the herd may grow based on a number of factors, including pasture capacity and other goals. Specific start-up tasks include: 1) clearing a

		perimeter fenceline and installing permanent fencing; 2) establishing a rotational pasture scheme with portable electric fencing; 3) developing a portable watering system that can move water to cows on pasture; 4) demolishing the existing loafing shed; 5) designing and constructing a new loafing shed; 6) acquiring a livestock trailer; and 7) purchasing cattle.
2	Pasture and/or mow the “conservation field” shown on Map 14 per the prescription described in Natural Resources (below).	This is a recurring task
3	Establish and manage a 40-hen egg laying operation.	Initially, we will focus on egg production using heritage breeds of chickens; during later phases, we may consider direct-marketing poultry meat. Start-up actions include purchasing the chickens, building a new chicken coop, establishing outside enclosures, and acquiring miscellaneous equipment such as feeders.
4	Establish and manage a compost operation that handles agricultural wastes produced at the Farm and which also generates soil amendments for cultivated areas.	A well-managed compost operation accomplishes 2 objectives: 1 st , it allows us to manage the farm’s waste products per best management practices; 2 nd , it has the potential to provide a significant amount of the amendments required for cultivations. In order to meet the 2 nd objective, we would need to import organic waste (e.g., leaves, horse manure) from off-site.
5	Further assess possible models for involving people in the cultivation of vegetables and/or flowers, and prescribe a recommended model for MHF.	This will include consultation with Ward’s Berry Farm, evaluation of CSAs in the region (including Powisset and MH Community Farm), test marketing the demand for a CSA at MHF, and closer investigation of other cultivation models.
6	Develop a detailed plan and associated budget for the cultivation of ~10 acres of MHF and integrate this into the established beef and chicken operations.	Specific steps include: understanding better the market demand for a CSA (or equivalent) in this region; developing a constituency for this type of activity, which will help us build a positive community presence and relationship; investigating other partnership models with organizations that focus on education and participation in agriculture; and assessing the Powisset CSA operation and investigating opportunities for connections and efficiencies.
7	Using a combination of intensive grazing, nitrogen-building crops, and	This will occur over the first four years of the operation and would require two applications of

organic supplements, rehabilitate the 10 acres recommended for cultivation in Phase 2.	organic amendments and contracted labor.
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Phase Two:

For the purposes of site planning and budgeting, this plan assumes that we will establish a CSA operation for managing cultivated areas in Phase 2. However, other models, such as a partnership with another organization, may emerge as the preferred alternative based on research conducted in Phase 1.

	Recommended Actions for Agriculture:	Description/Rationale:
8	Establish and operate a CSA (or another form of participation-oriented agriculture) at MHF.	Appendix C details the tasks and associated costs for establishing a CSA. Major tasks include: 1) hiring a farm manager; 2) demolishing the old green house and constructing and equipping a new greenhouse; 3) developing a new water source to supply adequate irrigation of crops; 4) installing irrigation lines; 5) establishing a farm apprentice program; 6) renovating the Milk Room and Big Shed to support the operation, including establishing a farm office; 7) creating a sheltered food processing area and attaching this to the Milk Room; 8) improving the vehicle access loop that brings public participants to the Big Shed; 9) acquiring all necessary equipment; 10) installing perimeter fencing around cultivated fields; 11) marketing and recruiting participants. Routine management is captured in Table 11.2.

Phase Three:

	Recommended Actions for Agriculture	Description/Rationale:
9	Convert the second growth forest west of the Middle Field to pasture and/or conservation field.	The results of Phases One and Two will inform the eventual prescription for this area.

10.3 Natural Resources

Moose Hill Farm supports a diverse assemblage of habitats having varying management needs. Grasslands require annual management, while early successional habitats such as old field, shrub, and rocky outcrop habitats, must be cleared every few years to maintain their distinctive habitat characteristics. The distribution of marsh and shrub swamp in the large wetland on the eastern half of the reservation will likely change over time, and may require management to optimize its habitat value. Forests on the property generally require little or no management, though regeneration may be threatened by the abundance of deer browsing in the area. Invasive plants pose a significant threat to all plant communities, particularly wetlands and grasslands.

Establishing an agricultural program at Moose Hill Farm will challenge The Trustees to identify innovative approaches to accommodate the needs of grassland wildlife with agricultural operations. The Trustees' organizational guidelines for managing grasslands provide guidance and options for resolving potential conflicts with agricultural productivity.

Goals:

- Optimize the ecological values of grassland habitat at Moose Hill Farm.
- Minimize and/or eliminate threats, such as invasive plants, to the reservation's significant ecological resources.
- Protect known rare species populations and their critical habitat.
- Gather additional baseline data on significant ecological resources that are currently not well understood (e.g., large wetland system, rare species) to help inform future management.
- Interpret the ecological significance of Moose Hill and its stewardship for visitors and other audiences.

Guidelines:

- Follow The Trustees' guidelines for ecological management of grasslands, forests, and wetlands.
- Comply with state regulations, town bylaws and The Trustees' guidelines when working in or around wetlands.
- Where feasible, utilize non-chemical methods of invasive plant control (e.g., manual removal).
- Permit only licensed applicators to apply herbicides on the property. Note that the MAS-held conservation restriction prohibits the use of herbicides "except to control species harmful to human beings". The Trustees should consult with MAS prior to undertaking any invasive species management that utilizes herbicides.
- Protect rare species and their habitats from being compromised by property management activities.
- Consider future (potential) impacts of beavers when locating trails.
- Cooperate with staff from MAS on natural resource investigations and management.
- Manage the designed landscape associated with Moose Hill Farm using organic methods and work to eliminate non-native invasive plants associated with any formal landscape elements.

	Recommended Actions	Description/Rationale:
10	Initiate an effort to control problematic invasive plant species on the property, focusing on invasive plants located in the large wetland, grassland edges, successional habitats, and rock outcrop communities.	This recommendation will provide an initial push to control <i>Phragmites</i> and purple loosestrife in the property's wetlands, and swallow-wort, a highly aggressive invasive plant, which should be controlled while the infestations on the property are still small. This recommendation will also eliminate the few invasives on the rocky outcrops, thus preventing a larger problem. Subsequent to this initial push, regular monitoring and control will be needed to keep problems associated with invasive species at bay. Refer to Section 4 for invasive plant removal priorities.
11	Inform the utility company of the presence of the Endangered plant species, and request information concerning the management regime used to maintain the utility easement. Request that the utility company alert The Trustees of any change in management regime.	Management of the utility corridor should be better understood to ensure that the rare plant population and other associated species persist over time. Changes in management of the utility corridor by the gas line and powerline companies (e.g., change in timing of mowing) could adversely impact the rare plant population along the utility corridor.
12	Monitor the state-listed Endangered plant population and other rare plant populations every 3-5 years.	<p>The state-listed Endangered plant species found at MHF is one of only nine populations of this plant species known to exist in New England, and the only population known to exist in Norfolk County. The successional habitat supporting the Endangered plant population is managed by the utility company. It will be important to periodically monitor this population, especially if there is any change in management regime. Other rare plants on the property include rock spikemoss and butternut (both Watch-listed). The location of rock spikemoss occurrences should be located using GPS.</p> <p>The site conditions needed by each of these rare and uncommon plant species should be better understood in order to maintain their populations over time.</p>
13	Survey milkweed species along powerline corridor for the presence of purple milkweed (<i>Asclepias purpurascens</i>).	Purple milkweed is a state-listed Endangered plant species that has been recorded in the town of Sharon.
14	Conduct a Lepidoptera survey to confirm the status of the oak hairstreak and to determine whether other rare moths may be present (e.g., orange sallow moth). The survey should include various	The larval stage of the state-listed oak hairstreak (Special Concern) feeds on oak and may prefer primary oak forest as habitat. This butterfly was last documented in 1992. The survey may detect other rare Lepidoptera such as the orange sallow moth, which is found in similar habitat where false foxglove occurs (larval food source).

	community types that may support rare invertebrates (e.g., Acidic Rock Outcrop).	Expanding the survey to include the rock outcrop community may detect other associated species.
15	Survey vernal pools for rare species.	Several rare species associated with vernal pools have been documented near the Moose Hill area, including blue-spotted salamander and four-toed salamander (both Special Concern), and marbled salamander (Threatened). Spotted turtle, recently de-listed, is also likely to occur either on Trustees or Mass Audubon land.
16	Maintain the Rock Outcrop communities to control succession and to perpetuate their distinctive plant community composition.	Rocky Outcrop communities at Moose Hill Farm support a distinctive community of plant species including the Watch-listed species, rock spikemoss. Plant community succession and fire suppression are among the threats to the Rock Outcrop community. In addition, the value of this community type as a scenic destination often results in trampling of its fragile flora by visitors. As a result, this habitat has declined in abundance and quality across the region.
17	Map the general distribution of wetland vegetation communities in the large wetland located on the east side of Moose Hill Farm. Inventory wetland and aquatic plant species in the major wetland communities not already identified by previous botanical surveys.	Management of this exemplary wetland system requires a better knowledge of its plant communities and their distribution. This mapping and inventory exercise will provide a good baseline for evaluating future change of this wetland whether or not water levels are manipulated for management purposes.
18	Conduct a wildlife inventory of the large wetland system, including mammals, birds, amphibians, reptiles, odonates, etc.	A baseline survey of wildlife species using the wetland complex throughout the year will complement plant community/species distribution data to help inform future management of this system. Future management may entail water level manipulation to enhance wildlife habitats, invasive plant control, etc.
19	Collaborate with Mass Audubon in coordinating volunteers to seasonally close Moose Hill Street to vehicular traffic during peak amphibian migration.	Mass Audubon has coordinated volunteers to close Moose Hill Street to vehicular traffic during peak amphibian migration in order to minimize mortality. Since a major migration path is located on Moose Hill Farm, Trustees staff should assume some responsibility in coordinating this effort.
20	Establish and administer a new policy that allows bow hunting for deer at Moose Hill Farm.	According to Mass Wildlife, the density of deer in Southeastern Massachusetts far exceeds the prescribed level; easy observation of dozens of deer at any one time at Moose Hill Farm supports this data. There are many ecological, health, and safety issues associated with overpopulated deer, including overbrowsing of vegetation, increased incidence of Lyme

		<p>disease, and automobile accidents. Currently, hunting is prohibited at Moose Hill Farm. A limited hunt should reduce these unwanted impacts and will also illustrate the complexities of natural areas stewardship and their solutions. Furthermore, a hunt allows The Trustees to engage participating hunters in its conservation work, and may reduce illegal poaching on the property.</p> <p>Hunting at Moose Hill Farm will be managed at the discretion of the superintendent and will comply with the following guidelines: 1) hunting will be limited to bow hunting only during the archery and shotgun seasons; 2) hunting will be limited to areas away from trails and areas frequented by visitors; 3) only those hunters given permission to hunt the reservation by the Superintendent will be allowed. Hunters that fail to follow the state regulations and The Trustees' rules will be prohibited from hunting the reservation.</p>
21	Erect nest boxes in and around hayfields and old field patches for cavity nesting birds. Map the location and monitor the use of nest boxes to ensure their use by target species (e.g., bluebirds).	Cavity nesting species, such as bluebirds (Watch-list) and tree swallows, would benefit from the installation of nest boxes at Moose Hill Farm. Monitoring is a critical part of a nest box program to ensure that non-native birds do not nest on the property and that the boxes are maintained in good condition.
22	Conduct annual monitoring of bird nesting boxes.	See above.
23	Conduct a nocturnal bird survey.	Limited field data is currently available concerning the presence of nocturnal bird species at Moose Hill Farm. The presence of certain species (e.g., American woodcock) may dictate future management (e.g., leaving low, wet thicket for cover).
24	Replace non-native invasive "landscape" plantings with non-invasive (and where possible, native) species.	Self-explanatory

10.3.1 Fields and Grassland Habitat

Grasslands are a significant landscape feature at Moose Hill Farm, comprising over 10% (42 acres) of the reservation's total acreage. Historically, these fields have been hayed and pastured; today they also provide habitat for a variety of grassland wildlife species, including grassland-dependent birds. Current management for hay production and fragmentation by hedgerows limits this habitat potential. Regionally, grasslands are a declining community type due to forest regeneration, development, and the lack of management to benefit grassland wildlife. Moose Hill Farm has the potential to support a mosaic of grassland habitats and serve as regionally important habitat for grassland wildlife. It is important to note, however, that although grassland

birds currently nest in the large field complex west of the estate core (i.e., Middle Field), it is not certain whether the 14-acre area managed for grassland birds will be utilized as nesting habitat.

Pasturing and/or mowing the conservation field on a rotating, sectional basis will diversify the field habitat, enhancing its value for other grassland wildlife including invertebrates. Future expansion of Moose Hill’s grasslands by clearing woodlands west of the existing fields (~7.5 acres) will further increase the quality of grassland habitat and will provide greater flexibility in ecological and agricultural management on the property.

Small sections of the overall grassland complex at Moose Hill Farm can also be managed to benefit grassland wildlife and overall plant species diversity. For example, small strips of field elsewhere around the estate core can be mowed annually late in the season to promote forb and graminoid diversity that is important for invertebrates, such as butterflies, moths, and other native pollinators. Other areas could potentially be re-seeded with native grass species.

Grassland management at Moose Hill Farm includes the following routine practices (captured in Table 11.2) and several specific recommended actions, shown below. Guidelines include:

- Delay cutting or pasturing of the contiguous 14-acre patch of grassland identified as “conservation field” to August 1st or after to allow grassland-dependent birds to fledge young. Active management may occur sooner than August 1st if nesting grassland birds are absent or if young have fledged and the field is not enrolled in a habitat improvement grant program (e.g., WHIP).
- Design a rotating mowing and/or pasturing schedule for the conservation field that leaves designated areas unmanaged until early fall to provide habitat for moths and butterflies.
- Follow the Trustees’ grassland management guidelines for “non-agricultural grasslands being maintained by mowing” (e.g., mowing height, mowing pattern, etc.).
- Maintain mixed vegetation structure including grasses, forbs, shrubs, etc. in the 2-acre “old field.”
- Manage pastures adjacent to the conservation field on a rotational grazing schedule that allows plants to recover between grazing periods, maintains plant species diversity, and provides cover for grassland birds.
- Overseed conservation field with hay grasses if necessary.
- Monitor conservation field, old field habitat, and pasture for woody growth and invasive plants and control as necessary.

	Recommended Action:	Description/Rationale:
25	Remove the two hedgerows that bisect North, Middle, and South Fields and remove the hedgerow that abuts the 2-acre old field.	Clearing these hedgerows will improve the connectivity of the fields, promoting their use by grassland nesting birds.
26	Conduct an annual census of breeding grassland birds.	An annual survey of grassland birds during the breeding season will help inform future management of the hayfields at the property. A follow-up survey later in the nesting season will determine whether the core nesting area can be

		mowed before August 1 without affecting breeding success.
27	Rehabilitate the 2-acre early successional habitat (old field) located west of the Middle Field to provide habitat diversity, and remove the hedgerow that divides this field from the Middle Field.	Old field habitat is a dwindling community type in the region due to forest regeneration over the last half century and this community's need for periodic management. Managing old field habitat on the property will provide habitat for associated species (e.g., indigo bunting, blue-winged warbler), and increase community and species diversity on the property. The early successional patches should be mowed (or grazed) at a minimum of every three years to maintain their structural character. Removing the overgrown hedgerows between the old field and the adjacent fields will increase the functional area of grassland habitat for area-dependent grassland wildlife. Note: if grassland expansion occurs in the area west of Middle Field, the 2-acre "old field" should either continue to be managed to promote this community type, or another area be identified to support this habitat.
28	Re-locate the existing trail through the conservation field to minimize disturbance to grassland nesting birds.	This trail currently passes through the conservation field and will result in disturbance to grassland birds during the nesting season. (Map 17 shows the proposed trail design.)
29	Convert turf overlying the septic leach field to a meadow.	This will create natural habitat and will reduce the demands of routine turf maintenance. These areas may be managed in later stages of implementation as part of the cultivation operation, e.g., cut flowers.

10.4 Cultural Resources

Section Three describes the land use history and associated cultural resources at Moose Hill Farm. Extant cultural features are an important element of the landscape; they provide evidence and help tell the story of how people have interacted with this land over the years. The following recommendations help us to round out our knowledge of Moose Hill Farm's history and will ensure that we are providing the proper care of the site's important cultural features. Together, this sound knowledge and good resource protection enables us to interpret the history of this landscape for our visitors.

Guidelines:

- Every effort should be made to avoid disturbing or removing stone wall lines in the course of property improvements.

	Recommended Action:	Description/Rationale:
30	Remove accumulated debris in the cellar hole of the farmstead on Old Summit Street.	Removing building and other debris will set the stage for interpretation of this site.
31	Record the farmstead site on Old Summit Street with the Massachusetts Historical Commission Historic Archaeological Sites Inventory.	This as-yet-unnamed site is a remarkably preserved, intact farm complex. The house foundation is unusually high quality masonry and adjacent terracing is an excellent example of topographical manipulation to maximize yard room. All site components appear quite stable at present.
32	Conduct a thorough architectural examination and recording of the Bullard-Flanders House (aka “Kenwood”) and its lot.	The Bullard-Flanders House is the oldest standing structure on the property. Despite assorted additions, the house core is a classic 19th century center-entrance Cape in its original setting. Its siting and proportions are subtle elements contributing to the overall ‘historic’ impression.
33	Look for interior structural dating evidence in the Doll House (Studio), in an effort to associate or definitely dissociate this building with 19th century occupation.	The Doll House/Studio appears to be indicated, in its present form and location, on a 1914 plan of Moose Hill Farm. As such it is the second oldest extant farm building, although its later re-siding to match the main house discourages the viewer from seeing its age.
34	Conduct oral histories or similar interviews with Herb Gagnon and other 20 th c. owners/occupants and continue to round out knowledge about the history of Moose Hill Farm.	In addition to oral histories, other projects include 1) contacting Doug Southard, in charge of archiving project at Sharon Historical Society re: possible relevant society holdings; and 2) completing and confirming Smith & Kendall genealogical research.

10.4 The Visitor Experience

The Trustees’ recently completed 10-year strategic plan (*Trustees 2017*) calls for the organization to accelerate its efforts to preserve the places and experiences that we care about. Doing so will require that we engage many, many more people in our conservation work. Our properties, including Moose Hill Farm, offer terrific opportunities to engage people in our work.

Goals:

In addition to the broad strategic initiative of engaging and enlisting more people in conservation, several goals will drive our visitor services and educational programming at Moose Hill Farm:

- Strengthen and expand today’s conservationists and instill the seeds of a conservation ethic in the next generation.
- Provide appropriate and enjoyable natural area based recreational experiences.
- Provide opportunities for visitors to participate in the stewardship of the property (Section 11 identifies many opportunities for volunteer participation).
- Where possible, provide universal access opportunities in order to make Moose Hill Farm accessible to visitors of all abilities.
- Work to complement the recreational and educational offerings of Moose Hill Sanctuary or agricultural operations in the region.
- Encourage our visitors to become members of The Trustees.

In addition to these goals, several factors will shape the visitor experience at Moose Hill Farm, including:

- the agricultural program
- the property’s natural and cultural features
- The Trustees’ administrative/campus activities

Based on these goals and factors, we anticipate that the visitor experience at Moose Hill Farm will include the following elements:

- Casual and structured interaction with the agricultural program
- Trail-based recreation such as hiking, nature study, snowshoeing, cross-country skiing, and limited use by dog walkers
- Picnicking and family outings
- Structured programming with and without partners

10.5.1 Recreational Use

While we anticipate that the agricultural program will largely shape visitor patterns at Moose Hill Farm, we also expect many visitors will want to explore the property’s natural and cultural features. Property regulations will ensure a positive visitor experience, protect the site’s important features, and minimize conflicts with the agricultural program. Proposed regulations are similar to those that are described as “interim” in Section Six. Changes from the interim are detailed in the following recommended actions.

1. Alcoholic beverages, fires, camping and littering are prohibited.
2. Motorized vehicles are prohibited except for purposes related to its management.
3. Disturbing, removing, defacing, cutting or otherwise causing damage to a natural feature, sign, poster, barrier, vegetation or other property on the farm is prohibited.
4. Conduct that disturbs the tranquility of the farm or its enjoyment by others is prohibited.
5. Leashed dogs are permitted only on designated trails and with a green dog permit.
6. Horseback riding is prohibited.
7. Hunting is prohibited except with prior written permission of the Superintendent.
8. Bicycling on trails is prohibited.
9. The farm is open from sunrise to sunset. Entering or remaining on the farm between sunset and sunrise is prohibited.

	Recommended Actions:	Description/Rationale:
35	Plan and host a "Grand Opening" event in which Moose Hill Farm is formally opened to the public.	Such an event will provide visitors with a formal introduction to the property and inform them of the agricultural activities planned for the Farm.
36	Institute and administer a limited "green dogs" program at Moose Hill Farm.	Dogs will be allowed on designated trails at Moose Hill Farm (see Map 17), thus addressing the local demand for dog-approved trails. A "green dogs" program will require that dog walkers be members of the organization and agree to a code of conduct.
37	Establish a fee structure for the property.	An entrance fee will help us make contact with our visitors and will provide them with incentives to become members. By establishing a fee structure that is similar to that of Moose Hill Sanctuary, we also remove any incentive for visitors to come to either property simply based on cost. The suggested fee structure is \$4 for non-members; free admission for members and children 12 and under.

10.5.2 Access and Circulation

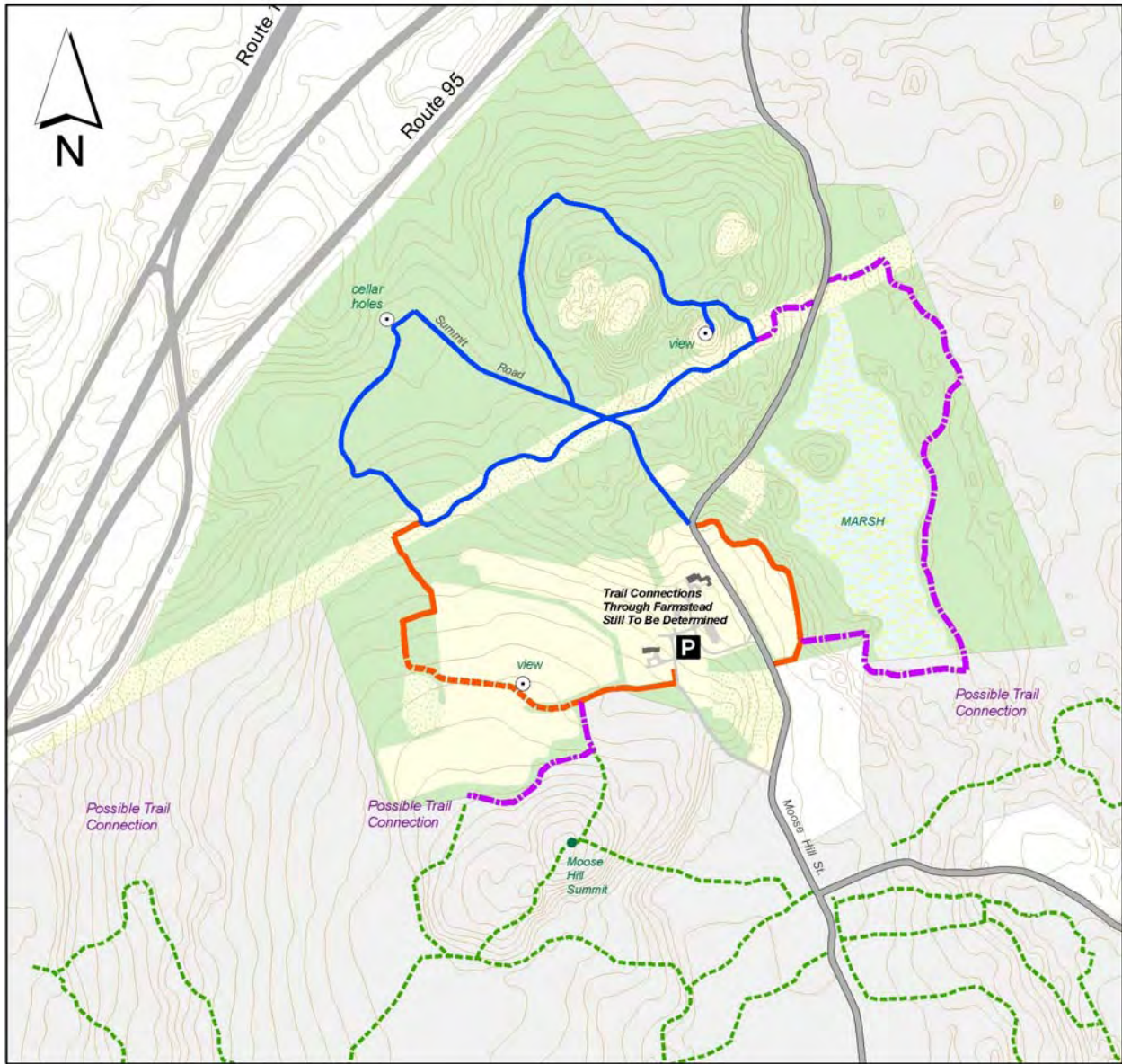
The Trustees works to ensure that all of its reservations can be safely and easily accessed and navigated by visitors. Since acquiring the property in 2005, The Trustees has established a basic circulation network that includes an entrance sign, parking lot, and one major trail loop. The following recommendations build on the existing features, which are displayed in Map 2.

	Recommended Action:	Description/Rationale:
38	Include current information about Moose Hill Farm in The Trustees' property guide and on the Web site.	Since Moose Hill Farm is a new property, information has not yet been made available to prospective visitors or Trustees' members.
39	Establish a 15-car visitor parking lot.	See Map 16. A public parking lot will help separate visitors from the administrative core area and will orient visitors to the farm operations and visitor greeting area.
40	Revise and extend the current trail system.	See Map 17. The expanded trail system will allow visitors to explore the property's varied landscape, and will provide limited connections to the Moose Hill Sanctuary trail system.
41	Update and produce a trail map and property brochure that reflects the	




	growing agricultural program and expanded trail system.	
42	Create a viewing pull-out along the East Field on Moose Hill Street.	Grazing cattle in the East Field will be an attraction for people driving on Moose Hill Street. A designated pull-off will provide people with a safe place to stop and view the pastoral scene.
43	Design and create the CSA access and pick-up loop.	See Map 16.

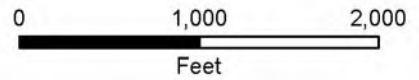
Map 17

Moose Hill Farm - Proposed Trails



-  Existing Trails
-  Trail Re-Route
-  Proposed New Trails
-  Proposed Dogs Allowed

-  Proposed Parking Area
-  Point of Interest
-  Mass Audubon Trails



Map produced by
The Trustees of Reservations, June 2007.

10.5.3 Visitor Services

Map 16 depicts the recommended reconfiguration of the Farm Core. This concept sketches out several actions that will help welcome visitors as they arrive on the property and orient them to the agricultural landscape, the trail system, and the property as a whole. To understand the financial impacts of this concept, we have detailed several recommendations below and in the implementation program, but this schematic plan will certainly evolve based on further site design, which is called for in Recommendation 51.

	Recommended Action:	Description/Rationale:
44	Reconfigure the north façade of the Big Shed by adding a ~400 sf visitor “shed” that can visually and physically welcome people to the farm core.	This welcome center would orient visitors to the farm operation and the property in general, could function as a small classroom, and would include a handicapped-accessible composting toilet.
45	Design trails in and around the farm core to optimize universal access.	A paved roadway that leads from the proposed parking lot to the visitor welcome area sets the stage for good universal access. A trail should be designed that brings people with varying degrees of physical abilities and parents with children in strollers in close proximity to the farm operation.
46	Establish a wheelchair accessible picnic area in close proximity to the agricultural operation.	See the US Forest Service design guidelines for this and the previous recommendation at http://www.acmetreadway.net/articles/FSORAG.pdf

10.5.4 Education & Interpretation

	Recommended Action:	Description/Rationale:
47	Establish a volunteer docent program that would greet visitors and interpret the agricultural program during peak hours.	Based out of visitor welcome area.
48	Establish a relationship with Norfolk County Agricultural High School (aka Norfolk Aggie) to involve their students in the management of the farm operation.	Initial inquiries and our experience at Appleton Farms suggest that there is strong partnership potential to engage these young adults in the stewardship of Moose Hill Farm.
49	Establish a 4-H program that is based at Moose Hill Farm.	
50	Work with Moose Hill Sanctuary staff to explore program collaboration opportunities that would advance the mission of both organizations.	
51	Host an annual event at the Farm	Targeting events toward families with children

	that is designed primarily for families with young children.	helps deliver The Trustees' message to the next generation of conservationists.
52	Establish interpretive displays in the visitor welcome area.	
53	Update and expand the “Quest” to reflect any major changes in management and/or trail design.	

10.6 Structural Resources

Section Five described the buildings and infrastructure found at Moose Hill Farm. These structural resources are typically in very good condition and provide the organization with an excellent platform on which to carry out many of the recommended actions listed above. That said there are many changes, repairs, or additions that need to be made to the site’s structural resources in order to carry out all of the recommendations in this plan. Many of these recommendations have been made in previous sections **but are repeated here** in order to consolidate all structural resource recommendations. Renewal projects that are scheduled to happen in the next 10 years are also captured here.

Goals:

- Eliminate deferred maintenance.
- Preserve the existing character of the farmstead.
- Optimally use and adapt existing structures to serve both the agricultural and organizational “campus” operations.
- Demonstrate and interpret sustainable practices in maintaining structural resources.

Guidelines:

- Explore opportunities to generate and use renewable energy sources at Moose Hill Farm.
- Integrate principles of sustainability in all aspects of building design, renovation, and maintenance.

General

	Recommended Actions	Description/Rationale
54	Enlist a landscape designer to refine plans for the re-design of the Farm Core.	Many of the recommendations in this plan are tied to a conceptual framework for buildings and circulation in and around the farm core. This concept needs to be refined.
55	Paint all buildings.	Over the next 10 years, all of the buildings at Moose Hill Farm will need to be painted as part of a sound renewal program.

Main House & Studio

	Recommended Actions	Description/Rationale
56	Upgrade the heating system in the lobby of the main house.	Presently, the lobby area is inadequately heated, creating uncomfortable working conditions for staff.
57	Renovate the pool area and garage to expand offices and provide storage.	This anticipates growth of the organization and a growing demand for office space, and is in keeping with the original plan for the Moose Hill Campus.

Chauffeur's Cottage

	Recommended Actions	Description/Rationale
	No renewal scheduled	

Gardener's Cottage and Garage

	Recommended Actions	Description/Rationale
58	Demolish the Gardener's Cottage and Garage.	Two factors support this recommendation, including: 1) the cost of upgrading these facilities to meet recommended programmatic needs is prohibitive; 2) the location of these buildings obstructs the viewshed into the farm yard.

Maintenance Shop & Garage

	Recommended Actions	Description/Rationale
	No renewal scheduled	

Loafing Shed & Chicken Houses

	Recommended Actions	Description/Rationale
59	Demolish the loafing shed and replace with a larger, better sited structure.	See recommendation # 1.
60	Demolish the existing chicken coops and build a new structure.	See recommendation # 3.

Big Shed & Wood Shed

	Recommended Actions	Description/Rationale
61	Reconfigure the interior of the Big Shed to optimally support farm operations.	See recommendation # 8.
	Reconfigure the north façade of the Big Shed by adding a 400 sf visitor "shed" that can visually and physically welcome people to the farm core.	See recommendation # 44. This should include a universally accessible, unisex composting toilet.

Milk Room and Greenhouse

	Recommended Actions	Description/Rationale
62	Renovate the milk room to support the cultivation (CSA) operation.	See recommendation # 8; this would include establishing a farm office, and removing the existing cinderblock bulkhead/entrance. Renovation should consider the cultural significance of this structure -- the last remaining building of the massive barn complex that dominated Moose Hill Farm in the mid-20th century.
63	Create a sheltered food processing area (e.g., a washroom) and attach to the Milk Room.	See recommendation # 8.
64	Demolish the existing greenhouse.	

Herdsmen 1, Herdman 2, and Kenwood

	Recommended Actions	Description/Rationale
65	De-lead Herdman 2.	
66	Replace the furnace at Kenwood.	

Infrastructure, Roads and Walkway Associated with the Buildings

	Recommended Actions	Description/Rationale
	Provide parking for 15 cars along the access road that leads to the Big Shed.	See recommendation # 39.
67	Renew all main access road surfaces at the property.	This includes the main drive and the section of Fire Tower Road from Moose Hill Street to the gate. As part of this project, we will work to reduce the amount of impervious asphalt. At the same time, these renewal projects should intercept water that drains off the hill before it reaches buildings where there have been drainage problems. This work should be delayed for a reasonable period while new visitor circulation patterns establish themselves and we work to refine the site plan for the farm core.

Other Site Infrastructure

	Recommended Actions	Description/Rationale
68	Continue to clear and re-point the stone walls that line both sides of Moose Hill Street.	This will be a recurring task that occurs over the life of this plan.

69	Fill in old shallow well.	While this shallow well is currently covered and therefore safe, filling it will preclude any long-term maintenance needs.
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Utilities

The Trustees' current strategic plan, *Trustees 2017*, outlines several strategies and actions that would reduce the organization's net consumption of non-renewable energy. The recommendations below position The Trustees to achieve a "carbon neutral" footprint at Moose Hill Farm in the next ten years. That is, by applying a suite of conservation tactics and producing renewable energy on site, The Trustees will work to reduce Moose Hill Farm's net consumption of energy to zero.

	Recommended Actions	Description/Rationale
70	Conduct an energy audit and outline a program for reducing MHF's net consumption of energy to zero.	This recommendation can take advantage of several programs that are available through utility programs that provide free audits but will also require a contracted audit that would also produce a plan of action. Audits should address both conservation opportunities and alternatives for generating renewable energy.
71	Implement recommendations made in the audit (above) that will reduce MHF's net carbon emissions to zero.	Early investigations suggest that MHF is well-suited for a small-scale 10kw turbine, solar panels, and improved energy conservation. Other options include enrolling the agricultural fields in a program that seeks to build topsoil and sequester carbon. (See http://www.carbonfarmersofamerica.com)
72	Expand the water supply infrastructure to meet all of the needs of Moose Hill Farm.	Cultivation of vegetables in Phase 2 of the agricultural program will require additional water, likely provided via a new, deep well in combination with either a farm pond or closed above-ground storage.

10.7 General Property Management and Administration

	Recommended Action:	Description/Rationale:
73	Create a local property committee for the Walpole/Sharon management unit.	

74	Further collaborate with MAS to address shared management issues and opportunities.	Areas of potential collaboration include establishing complementary use regulations; programming; and management and stewardship activities.
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Section 11: Implementation

11.1 Introduction

In the preceding sections, the significant resources, visitor experience, and current management regime at Moose Hill Farm were identified and assessed. Section Ten contains a list of recommended actions that were designed to ensure the continued protection of the property's scenic, natural, cultural and historic features in addition to a high quality visitor experience. This implementation section:

- prescribes a routine management program that is designed to ensure the most efficient and responsible allocation of staff and finances, protect significant resources, and ensure a high quality visitor experience; and
- outlines an implementation schedule for new recommended actions.

Together, the prescribed routine management program and the implementation schedule of new actions will guide staff work plans, volunteer efforts, annual capital and operational budgeting, and fundraising strategies.

11.2 Prescribed Routine Management Program

Section 7.2 described the current management program for the property and made an initial assessment of whether or not these tasks represent an appropriate investment of staff and financial resources. It is important to remember that Section 7 described the routine management of the program prior to Moose Hill's opening as a public reservation or its becoming home to one of The Trustees' three major administrative campuses. That said, this information provides a useful starting point in developing a prescribed program for routine management that anticipates the recurring tasks that will be needed to support the new aspects of Moose Hill Farm management, including an agricultural program, visitor services, and hosting an administrative center. This prescribed program of routine management is presented in Table 2.

This program is intended to guide the staff in developing annual work plans and budgets. In general, there are a number of solutions for building capacity, which include:

1. engaging volunteers [there are 21 tasks that volunteers could potentially help with including several opportunities associated with the management of the cultivation operation];
2. securing additional operating funds for staffing, contractual work, or other out-of-pocket expenses; or
3. reallocation of staff resources within and/or beyond the management unit.

This management plan does not prescribe specific solutions for building capacity. It is expected that the Superintendent and the Regional Director will analyze the routine management program for each property within a management unit and find the appropriate solution to solve deficiencies in capacity.

An acceptable performance level has been assigned to each of the tasks:

Adequate: The task should be completed at a level that does not hinder resource protection or the visitor experience.

Strong: The task is completed in a manner/at a frequency that represents the ideal.

The Trustees recognizes that although it ultimately strives to be “strong” in all of its property and visitor management actions, given limited staffing and financial resources, there are some actions where an “adequate” ranking is most appropriate. To set the expectation that staff can and will achieve a “strong” ranking in every task is unrealistic and does not demonstrate the exemplary stewardship for which the organization is known. Staff also recognizes that seasonal weather fluctuations, critical unplanned events, and a multitude of other factors may also influence several aspects of routine maintenance.

Summary of Routine Management Needs and a Summary of the Recommended Staffing Program.

Table 1 shows that by the end of Phase 2, with a full agricultural operation in place, the routine management of Moose Hill Farm will require approximate 8840 hours per year, or 4.25 FTEs. This does not consider the administrative or non-Moose Hill Farm demands on the staff, such as supporting the other properties in the region, attending organizational meetings, training, etc.

Table 2 illustrates that there are many tasks (21 in total) that are well-suited for volunteers. Thus, the recommended staffing program for Moose Hill Farm over the 7-year program of Phases One and Two would be:

Table 1

Fiscal Year	Staffing
Current (FY08)	1.1 FTE (Property Manager + seasonal staff)
FY09	1.3 FTEs (Property Manager, ¼ Sup’t; plus seasonals)
Phase One (FY10 – FY11) (with beef and chickens)	2 FTE (Property Manager, ¼ Sup’t; seasonals, ½ FTE Farmer;)
Phase Two (FY12 and beyond) (agriculture expands to include cultivation)	4.25 FTE: Previous staffing plus staff to manage a cultivation program

Table 2 Prescribed Routine Management

Task	Action Type*	Acceptable Performance Level (APL)	Acceptable Frequency	Season	Staff	Volunteer Opp?	Total hours needed to reach APL	Add'l funds needed to reach APL ¹	Notes
Grounds Maintenance									
Mow Lawns	DL	Strong	Weekly	S, Su, F	PM	N	220		80 hours of hand mowing plus 140 hours of tractor mowing. This is 140 hours less per year than what has been done in the past and reflects the efficiency of new equipment, a reduction in total lawn area, and the expectation that some areas may not be mowed intensively.
Fertilize and lime lawns	DL	Strong	Annually	F	PM	N	32		This reflects increased time associated with organic turf management practices, such as topdressing with compost.
Leaf pick-up	DL	Adequate	Monthly	F	PM	Y	64		Frequency will be variable. Some areas may require more regular attention, while other areas can be left for periodic clean-up.

¹ These are additional funds needed to reach the Acceptable Performance Level which have not been included in the existing operating budgets.

Task	Action Type*	Acceptable Performance Level (APL)	Acceptable Frequency	Season	Staff	Volunteer Opp?	Total hours needed to reach APL	Add'l funds needed to reach APL ¹	Notes
Flower bed prep, planting, maintenance, and closing	DL	Strong	Weekly	S, Su, F	PM	Y	100		
Mow wildflower fields	DL	Strong	Annually	F	PM	N	8		This should happen late summer or fall.
Tree and shrub pruning	DL	Adequate	Annually	S, F, W	PM	Y	80		Season will vary depending on species' pruning requirements. Includes all fruit trees and size-managed trees.
Debris pick-up around entrance to Main House and Visitor Welcome Area	DL	Strong	Bi-weekly	S, Su, F	PM	N	52		Includes periodic clean-up of entrance drive; assumes an average of 1-hour per week.
Snow plowing/removal from parking lots, driveway and walkways	GM	Strong	As needed	W	PM	N	140		Anticipates the addition of the 15-car visitor parking lot. Assumes 8 plowable snow events and includes sanding/salting of drives and walkways.
Clearing of waterways	GM	Strong	Quarterly	All	PM	Y	16		
Brush burning	GM	Adequate	Annually	W	PM	N	30		
Clearing brush from stone walls along Moose Hill Street	GM	Adequate	Annually	F, W	PM	Y	24		
Building Maintenance									
Inspect all buildings.	SR	Strong	Annually		PM	N	8		This inspection should look at all major systems; information from these inspections should inform

Task	Action Type*	Acceptable Performance Level (APL)	Acceptable Frequency	Season	Staff	Volunteer Opp?	Total hours needed to reach APL	Add'l funds needed to reach APL¹	Notes
									budgeting and work planning priorities.
Opening and inspection of main building	GM	Strong	Daily	All	PM	N	65		Assumes 15 minutes/day
Monitoring outside systems – water, electrical	SR	Strong	Weekly	All	PM	N	8		This is largely being done concurrent with other tasks; additional hours reflect some incremental need.
Carry out minor repairs and other tasks to support the administrative center.	SR	Strong	Weekly	All	PM	N	75		Frequency is variable. Examples of tasks are helping staff set-up furniture, moving items, etc.
Communicate regularly with tenants and tend to their requests.	SR	Strong	Monthly	All	PM	N	50		Frequency is variable; this reflects an average. Examples of tasks include small maintenance items that can be easily fixed or contacting appropriate contractors to make larger repairs.
Clean out gutters, repair if needed; in winter watch for signs of ice damming, protect roof from heavy snow loads.	SR	Strong	Bi-annually	S, F, W	PM	N	6	1000	This should be contracted out. Staff hours will be spent on regularly inspecting and managing contractors. Assumes \$500 per visit 2x/year
Have chimneys cleaned regularly; check mortar joints for excessive wear and deterioration.	SR	Strong	Annually	F	PM	N	2	200	This should be contracted out. Staff hours are for working with contractors
Provide housekeeping services for main house, studio, and visitor	SR	Strong	Weekly	All	PM	N		7800	This is already contracted out; existing contract should be expanded to

Task	Action Type*	Acceptable Performance Level (APL)	Acceptable Frequency	Season	Staff	Volunteer Opp?	Total hours needed to reach APL	Add'l funds needed to reach APL¹	Notes
welcome area.									include seasonal deep cleaning of these interiors, and eventually, visitor welcome area. (\$150x52 weeks=\$7800)
Carry out minor repairs on buildings (interior and exterior)	SR	Strong	Weekly	All	PM	N	80	1000	Examples include touch-up painting, minor plumbing repairs, etc. Frequency is variable, and includes all buildings on the property
Prior to heating season, make sure all weather-stripping, storm windows and doors, and insulation, is properly installed. All storm combinations are to be positioned properly to guard against unwanted water infiltration.	SR	Strong	Annually	F	PM	N	8		
Maintain heating systems. All filters should be replaced as recommended.	SR			S,F			8		Contracts are already in place on 7 systems.
Check all smoke detectors to make sure they are active. Make sure access to electric panels and sub-panels remain unobstructed.	SR			All			4		Main building and studio is monitored by HSM for smokes and fire; Kenwood monitored by ADT; rental and staff house batteries changed annually
Carry out minor repairs of stone walls along Moose Hill Street	SR	Adequate	Annually	F	PM	N	8	2500	Masonry should be a line item in the annual budget for MHF; minor damage on farm walls repaired by staff. Assumes that we hire a mason and crew 2-3

Task	Action Type*	Acceptable Performance Level (APL)	Acceptable Frequency	Season	Staff	Volunteer Opp?	Total hours needed to reach APL	Add'l funds needed to reach APL ¹	Notes
									days/year
Grass-fed Beef Management ²								33084	
Rotate cattle through pasture system.	AG	Strong	Weekly	S, Su, F	PM	N	310		This includes both typical rotational schedule as well as intensive grazing to “finish” the cattle before being taken to the slaughterhouse. Assumes 1 hour/day to move cattle and 70 hours/year for moving portable fencing (35 weeks x 2 hours/wk)
Bring water to pastures.	AG	Strong	Daily	S, Su, F	PM	N	240		Assumes 1 hour/day
Provide hay and water during winter.	AG	Strong	Daily	W	PM	N	140	6488	Appendix D proposes a stand-alone haying enterprise that will provide hay for the animal operations at Powisset Farm, Moose Hill Farm, and Weir River Farm. This in-house enterprise will also ensure that the grasslands at many of The Trustees’ southeast properties are managed to the desired conservation and feed quality prescriptions. While this is not an operation that is

² Operating costs associated with beef are in Appendix A.

Task	Action Type*	Acceptable Performance Level (APL)	Acceptable Frequency	Season	Staff	Volunteer Opp?	Total hours needed to reach APL	Add'l funds needed to reach APL ¹	Notes
									exclusive to Moose Hill Farm, Moose Hill will share in its ongoing expense, which is reflected in the beef operating budget. This should include the task of acquiring the hay. Assumes 104 bales total: 3 bales/trip @ 2 hours x 70 trips.
Monitor cows and bring in calves during calving season.	AG	Strong	Daily	S, Su	PM	N	34		Includes tagging calves
Manage breeding program.	AG	Strong		Su	PM	N	40		
Maintain herd health.	AG	Strong	As needed	All	PM	N	50		Typically, staff take care of routine medical needs; a vet is brought in for major emergencies.
Round-up and take selected animals to market.	AG	Strong	3x/year		PM	N	24		This takes a full day, including travel (depending on the location of slaughterhouse).
Secure outlets for beef products.	AG	Strong	Annually		PM	N	24		
Pick-up packaged beef at slaughterhouse.	AG	Strong	3x/year		PM	N	9		Assumes 3 hours per trip.
Prepare and label beef products for sale.	AG	Strong	3x/year		PM	Y	24		

Task	Action Type*	Acceptable Performance Level (APL)	Acceptable Frequency	Season	Staff	Volunteer Opp?	Total hours needed to reach APL	Add'l funds needed to reach APL ¹	Notes
Mow the conservation field.	AG	Strong	Annually	F	PM	N	8		
Maintain fence and keep fence lines clear.	AG	Strong			PM	Y	40		Assumes that fence has been set up to accept tractor on the woods side.
Mow pastures periodically to complement grazing pressure and maintain grass quality.	AG		Annually	S	PM	N	40		May require more time during start-up; time should decrease as pasturing program is refined.
Chickens ³								3288	
Feed chickens and collect eggs.	AG	Strong	Daily	All	PM	Y	104		Total need = one hour/day or ~350 hours/year. This work can be done 5 of the 7 days per week as part of maintaining barnyard hours (see Visitor Services). Thus, additional hours noted here are only for 2 days/week coverage (2 days x 1 hour/day x 52 weeks = 104 hours).
Market and sell eggs.	AG	Strong	Weekly	All	PM	Y	150		3 hrs/wk x 52 = approx. 150 hours
Manage a compost operation									
Move waste to compost area.	AG	Strong	Weekly	W	PM	N	104		

³ Operating costs associated with chickens are in Appendix B.

Task	Action Type*	Acceptable Performance Level (APL)	Acceptable Frequency	Season	Staff	Volunteer Opp?	Total hours needed to reach APL	Add'l funds needed to reach APL ¹	Notes
Turn compost.	AG	Strong	Weekly	S, F, W	PM	N	50		Frequency is variable: new compost must be turned daily; as it gets older, turning requirement is less. Assumes a weekly schedule with an average of one hour/week.
Accept deliveries of organic waste from off-site.	AG	Adequate	Weekly	F, W	PM	N	25		Assumes an hour for each delivery for half the year
Managing the Cultivation Operation ⁴	AG	Strong	Daily	All	FM	Y	5080	106156	This is based on labor needs of other CSAs (one FT Farmer, 2 Seasonal Apprentices, 1 PT Seasonal laborer)
Natural Resource Management									
Control invasive species	NR	Strong	Annually	S, Su, F	RE	Y	8	\$200	In addition to the initial push to control phragmites and swallowwort staff or volunteers will need to regularly monitor and stay-ahead of any problems with invasives. This assumes ~ 8 hours year plus \$200 annually for herbicide and/or equipment. Volunteers can play a role in pulling and monitoring.
Monitor the state-listed Endangered plant population and other rare	NR	Strong		Su	RE	Y	6		Staff time (3 hr) for field monitoring and for completing rare plant

⁴ Operation costs associated with the cultivation operation are in Appendix C.

Task	Action Type*	Acceptable Performance Level (APL)	Acceptable Frequency	Season	Staff	Volunteer Opp?	Total hours needed to reach APL	Add'l funds needed to reach APL¹	Notes
plant populations every 3-5 years.									monitoring form. Additional 3 hrs for Phase 1 to locate rock spikemoss plant using GPS. Potential volunteer opportunity (NEWFS).
Maintain the rock outcrop communities to control succession and to perpetuate this distinctive community.	NR	Adequate	Annually	Su	RE	Y	20	\$50	Estimate 4 hr per year for RE to develop project scope (tag trees/shrubs) and assist staff in outcrop clearing, girdling, and/or herbiciding. Assume 16 hr/yr of staff time (1 day/yr for two staff) for management of specific outcrop project sites. Good opportunity for volunteer work days. Estimate \$150 per phase for tools, gloves, refreshments, etc. if volunteers assist.
Conduct wildlife inventories and track observations.	NR	Adequate	Annually	All	RE	Y	8		Estimate 8 hr/yr of seasonal observations by RE to be supplemented by other actions (e.g., recommendation #6) and observations by visitors (e.g., post "wildlife observations form" in kiosk to encourage visitors to report wildlife sightings). RE will maintain an ongoing database of wetland wildlife observations. Odonate and other insect

Task	Action Type*	Acceptable Performance Level (APL)	Acceptable Frequency	Season	Staff	Volunteer Opp?	Total hours needed to reach APL	Add'l funds needed to reach APL ¹	Notes
									surveys may be completed by volunteers, local experts, "biodiversity days" surveys.
Work with MAS to coordinate volunteers to seasonally close Moose Hill Street to vehicular traffic during peak amphibian migration.	NR	Strong	Annually	S	PM	N	2		Assume 2 hrs of staff time per year to coordinate road closure for spring amphibian migration.
Administer an annual controlled bow hunt of deer.	NR	Strong	Annually	F	RE	N	8		Start-up of this program is captured in Recommendation #20.
Monitor and maintain bird nesting boxes.	NR	Strong	Bi-annually	S, Su	RE	Y	8	\$50	Average investment/year for monitoring, cleaning out boxes after nesting and in early spring, and occasional box replacement. Excellent volunteer opportunity.
Conduct census of grassland birds.	NR	Strong	Annually	S	RE	Y	3		Estimate 3 hr/yr for staff or volunteer to conduct survey of type and numbers of nesting grassland birds, including brief report.
Visitor Services									
Trail maintenance	VM	Strong	Monthly	All	PM	Y	65		Assumes 4 hours/month plus a 4-hour volunteer work session quarterly.
Prepare and post current materials on bulletin board.	VM	Strong	Weekly	All	PM	Y	40		

Task	Action Type*	Acceptable Performance Level (APL)	Acceptable Frequency	Season	Staff	Volunteer Opp?	Total hours needed to reach APL	Add'l funds needed to reach APL¹	Notes
Administer a green dogs program.	VM	Strong	Ongoing	All	PM	N	50	1000	Does not include centralized effort by Membership
Maintain Moose Hill page on web site.	E/O	Strong	Quarterly	All	E/O	N	8		Assumes 2 hours/update
Maintain public "barnyard" hours.	E/O	Strong	Daily	All	Sup't	Y	500		Assumes that the barnyard is covered by staff or volunteer 2 hours/day, 5 days/week year-round. During this time, other barnyard chores, such as caring for the chickens can be performed (this is reflected in the chicken management section, above).
Keep information and interpretive displays in Visitor Welcome Center current.	E/O	Strong	Weekly	All	PM	N	40		
Administer a volunteer/intern program with Norfolk Aggie.	AG	Strong	Monthly	All	S	N	100		
Administer a 4-H program.	VM	Strong	Weekly	All	S	Y	200		Assumes that this includes some programming with 4-H participants.
Hold an annual "signature" event.	VM	Strong	Annually	Su	S	Y	40	1000	
Meet regularly with MAS staff to address shared issues and opportunities.	GM	Strong	Biannual	Su,W	S	N	8		Assumes at least 2 meetings/year

Task	Action Type*	Acceptable Performance Level (APL)	Acceptable Frequency	Season	Staff	Volunteer Opp?	Total hours needed to reach APL	Add'l funds needed to reach APL¹	Notes
Meet regularly with the Walpole/Sharon properties committee.	GM	Strong	Quarterly	All	S, PM	Y	32		Assumes 4 hours/meeting for each staff member
			GRAND TOTAL ANNUAL HOURS AND FUNDING NEEDED TO CARRY OUT ROUTINE MANAGEMENT				8,724	163,816	

***Action Type Codes:**

- SC- Scenic Resource Management
- NR- Natural Resource Management
- SR- Structural Resource Management
- HR- Historic and Cultural Resource Management
- DL- Designed Landscape Management
- VM- Visitor Management
- GM- General Property Management
- AG- Agricultural Enterprise
- E/I- Education and Interpretation
- LC- Land Conservation

11.3 Implementing Recommended Actions

Section ten of this report describes the recommended new actions needed to meet the goals and objectives for protecting Moose Hill Farm's natural, scenic and cultural resources while at the same time providing visitors with a high quality experience. Financial and human resources permitting, these actions will be implemented over a ten-year period, broken into three phases.

The Implementation Table that follows lists all of the recommended actions and their assigned phase, and identifies the human and financial resources that will be needed to implement the action steps. Several other guidelines were used to construct the implementation table, including:

1. Only items requiring new financial resources have been assigned a cost; costs are shown in 2007 dollars.
2. Each recommended action was assigned a priority rating, defined here:

Critical actions will address:

- urgent safety issues
- threats that are causing serious damage to the to the Beach's significant resources.
- issues that are seriously degrading the visitor experience
- regulatory requirements.

Needed actions will address:

- threats to the Beach's resources that are not causing an imminent threat to their integrity
- key Trustees' initiatives (such as expanded educational and interpretive programming)
- basic improvements to visitor services

Desired actions will address:

- enhancements that optimize the visitor's experience or the Beach's resources.

3. Typically, these priority rankings coincide with phases 1, 2, and 3. However, there are many instances where "needed" or "desired" actions can be addressed earlier in the process. Some of these actions may be "quick and cheap" fixes that advance our goals with little effort; some may be done sooner because of funding or volunteer opportunities.
4. The costs for implementing some major recommendations are unknown. Therefore the estimated total for implementing this plan will undoubtedly be higher than indicated here.

Table 3: Summary of Implementation Costs

<u>Phase</u>	<u>New Costs</u>	<u>Staff Hours</u>
1	\$245,045	1,164
2	\$340,300	2,766
3	\$575,900	218
Total	\$1,161,245	4,148

11.4 Plan Monitoring and Review

This management plan will inform the development of annual work plans for the staff that are responsible for managing Moose Hill Farm. The staff will review the progress on recommendations annually, and will summarize progress and revisions; this summary will be appended to the management plan annually.

Implementation of Recommended Actions																					
Type	Phase	Rank	Staff																		
HR- Historic & Cultural Resource Management	Phase 1: FY2008- FY201	C- Critical	S- Superintendent																		
SC- Scenic Resource Management		N- Needed	PM - Property Manager																		
NR- Natural Resource Management	Phase 2: FY2012- FY14	D- Desired	RD - Regional Director																		
VM- Visitor Management			RE- Regional Ecologist																		
E/O- Education and Outreach	Phase 3: FY2015- FY2017																				
AG - Agricultural Resource Management																					
GM- General Property Management																					
LC- Land Conservation																					
ADV - ADVANCEMENT																					
VC - VOLUNTEER COORDINATOR																					
Number	Type	Recommended Action	Phase	Rank	Staff 1	Staff 2	Phase 1 Staff Time	Phase 2 Staff Time	Phase 3 Staff Time	Total Staff Hours	Volunteer Opp?	Phase 1 Costs	Phase 2 Costs	Phase 3 Costs	Total Plan Costs	Targeted Budget Type	Start-up	Operating	Supp.	Capital	Notes
1	AG	Establish and manage a grass-fed beef operation consisting of 20-30 head of heritage cattle	1	N	PM		200			200	N	\$100,000			\$100,000	Start-up					See Appendix A for a start-up budget for the grass-fed beef operation. Specific start-up costs include: 1) clearing a perimeter fenceline and installing permanent fencing; 2) establishing a rotational pasture scheme with portable electric fencing; 3) developing a portable watering system that can move water to cows on pasture; 4) demolishing the existing loafing shed; 5) designing and constructing a new loafing shed; 6) acquiring a livestock trailer; and 7) purchasing cattle. Assumes this work will occur in FY08. Routine tasks associated with the beef operation are outlined in Table 11.2 (Prescribed Routine Management) The operating budget for the beef operation is reflected in the routine management section and is detailed separately in Appendix A.
2	AG	Pasture and/or mow the "conservation field" shown on Map 14 per the prescription described in Natural Resources	ongoing	N	PM					0	N				\$0						This is a routine task; staff requirements are shown in Table 11.2.
3	AG	Establish and manage a 40-hen egg laying operation	1	N	PM		40			40	Y	\$12,000			\$12,000	Start-up	Ref start-up budget				See Appendix B for the start-up costs for the chicken operation. Start-up steps include purchasing 40 hens, building a new chicken coop, and acquiring miscellaneous equipment. Building the chicken coop and raising chicks may be excellent volunteer opportunities. Routine tasks and the associated operating budget are outlined in Table 11.2 (Prescribed Routine Management) and Appendix B.
4	AG	Establish and manage a compost operation that handles agricultural wastes produced at the Farm and which also generates soil amendments for cultivated areas.	1,2	N	PM		8	8		16	N				\$0						This assumes designing and operation and that can handle deliveries of material from outside sources, and that we have the space to handle this operation. Routine management of the compost is addressed in Table 11.2. Cost of \$25,000 is a very rough estimate to design a system that includes a cement pad to prevent any organic run-off. This cost has been captured in the recommendation for a CSA (below).
5	AG	Further assess possible models for involving people in the cultivation of vegetables and/or flowers and prescribe a recommended model for MHE.	1	N	S	RD	80			80	N				\$0						Hours are for various meetings with internal staff and prospective partners.

Number	Type	Recommended Action	Phase	Rank	Staff 1	Staff 2	Phase 1 Staff Time	Phase 2 Staff Time	Phase 3 Staff Time	Total Staff Hours	Volunteer Opp?	Phase 1 Costs	Phase 2 Costs	Phase 3 Costs	Total Plan Costs	Targeted Budget Type	Start-up	Operating	Supp.	Capital	Notes	
6	AG	Develop a detailed plan and associated budget for the cultivation of ~10 acres of MHF and integrate this into the established beef and chicken operations.	1	N	PM	S	80			80	N				\$0							
7	AG	Using a combination of intensive grazing, nitrogen-building crops, and organic supplements, rehabilitate the 10 acres recommended for cultivation in Phase 2.	1	N	PM					0	N				\$0	Start-up						This task would be contracted out (estimated cost = \$10,000) plus \$5,000 for two applications of organic amendments. These costs are captured in Recommendation #8, below as part of the CSA start-up.
8	AG	Establish and manage a CSA (or another form of participation-oriented agriculture) at MHF	2	N		FM		2040		2040	N		\$161,000		\$161,000	Start-up						Appendix C details the start-up tasks and their associated costs. Examples of start-up items include: 1) Construct and equip a greenhouse; 2) develop a new water source to provide irrigation water; 3) install irrigation lines; 4) purchase needed equipment; 5) install electric fencing for the perimeter of the cultivated area; 6) create a vegetable processing and distribution area in the Big Shed; and 7) Renovation of the Big Shed and Milk Room; W26 See Appendix C for an estimated budget that shows CSA annual operating expenses and income. Major recurring expenses include staffing (1 FT Farm Manager and seasonal labor), seeds, plants, equipment, etc.
9	AG	Convert the second growth forest west of the Middle Field to pasture and/or conservation field	3	D	PM	RE			8	8	N			\$70,000	\$70,000	C						This is based on work done recently at Weir River Farm, Weir Hill, and Old Town Hill. Price would vary depending on objective, i.e., high quality grassland versus rough but mowable pasture.
10	NR	Initiate an effort to control problematic invasive plant species on the property, focusing on invasive plants located in the large wetland, grassland edges, successional habitats, and rock outcrop communities.	1,2	C	RE		110	48		158	Y	\$4,000			\$4,000				\$800			Control of Phragmites in the large wetland will be completed during summer 2007 through a LIP grant (total project cost \$3,160). Estimate 16 hr/yr for control of swallowwort using herbicides and removal of woody invasives with hand tools and herbicides. Estimate ~\$200 for herbicide (Roundup or Garlon 3A) and three weed wrenches at \$200/apiece.
11	NR	Inform the utility company of the presence of the Endangered plant species, and request information concerning the management regime used to maintain the utility easement. Request that the utility company alert The Trustees of any change in management regime.	1	C	RE		1	1		2	N				\$0							Staff time for contact with utility company and periodic updates.
12	NR	Monitor the state-listed Endangered plant population and other rare plant populations every 3-5 years	ongoing	C	RE					0	Y				\$0							Staff time is captured in the Routine Management Table, Table 11.2
13	NR	Survey milkweed species along powerline corridor for the presence of purple milkweed (<i>Asclepias purpurascens</i>).	3	D	RE			3	1	4	Y				\$0							Estimate 6 hrs for milkweed surveys by RE. Potential volunteers opportunity.
14	NR	Conduct a Lepidoptera survey to confirm the status of the oak hairstreak and to determine whether other rare moths may be present (e.g., orange swallow moth). The survey should include various community types that may support rare invertebrates (e.g., Acidic Rock Outcrop).	2	D	RE			8	3	11	N		\$5,000		\$5,000					\$5,000		Estimate 8 hrs for coordination butterfly/moth survey with consultant and \$5000 for lep survey (Mark Mello estimated between \$2,000 and \$5,000).
15	NR	Survey vernal pools for rare species.	3	D	RE				3	3	Y				\$0							Staff time (25 hr) for field search, trapping (deploy/retrieve), and MDFW scientific collecting permit. No associated costs as traps available. Potential opportunity for volunteer to assist.
16	NR	Maintain the Rock Outcrop communities to control succession and to perpetuate their distinctive plant community composition.	ongoing	N	RE	PM				0	Y				\$0			Op				Staff time and costs for this recurring task are shown in Table 11.2

Number	Type	Recommended Action	Phase	Rank	Staff 1	Staff 2	Phase 1 Staff Time	Phase 2 Staff Time	Phase 3 Staff Time	Total Staff Hours	Volunteer Opp?	Phase 1 Costs	Phase 2 Costs	Phase 3 Costs	Total Plan Costs	Targeted Budget Type	Start-up	Operating	Supp.	Capital	Notes	
17	NR	Map the general distribution of wetland vegetation communities in the large wetland located on the east side of Moose Hill Farm. Inventory wetland and aquatic plant species in the major wetland communities not already identified by previous botanical surveys	2	D	RE				25	25	Y				\$0							Estimate 16 hr for wetland community mapping and cursory botanical inventory, and 3 hours to coordinate with GIS to develop map. Good opportunity for volunteer to assist in mapping wetland environments by canoe.
18	NR	Conduct a wildlife inventory of the large wetland system, including mammals, birds, amphibians, reptiles, odonates, etc.	ongoing	D	RE					0	Y				\$0							
19	NR	Collaborate with Mass Audubon in coordinating volunteers to seasonally close Moose Hill Street to vehicular traffic during peak amphibian migration.	ongoing	D	RE	S				0	N				\$0							Staff time is captured in Table 11.2.
20	NR	Establish and administer a new policy that allows bow hunting for deer at Moose Hill Farm.	1	N	S	RE	34			34	N				\$0							Assumes approximately 40 hours of staff time to craft and unveil this new policy and to recruit and screen a first batch of qualified hunters to establish the program Routine administration of a hunt in subsequent phases is captured in Table 11.2. Prescribed Routine Maintenance.
21	NR	Erect nest boxes in and around hayfields and old field patches for cavity nesting birds. Map the location and monitor the use of nest boxes to ensure their use by target species (e.g., bluebirds)	2	D	RE	PM		20		20	Y		\$250		\$250				\$250			Assumes 12 nest boxes and \$250 for lumber and hardware to construct boxes (bluebird nest box at www.audubonworkshop.com). Staff time for nest box construction (20 hr). Excellent volunteer opportunity.
22	NR	Conduct annual monitoring of bird nesting boxes.	ongoing	D	RE	PM				0	Y				\$0							Time and costs captured in Table 11.2
23	NR	Conduct a nocturnal bird survey.	1,3	D	RE		8		12	20	Y				\$0							Staff time includes: 12 hrs for 2 surveys (6 hrs/visit including travel), and 2 hrs per survey for reporting results. Possible volunteer opportunity.
24	NR	Replace non-native invasive "landscape" plantings with non-invasive (and where possible, native) species	1,2	N	PM		24	24		48	Y	\$3,000	\$3,000		\$6,000							
25	NR	Remove the two hedgerows that bisect North, Middle, and South Fields.	2	N	PM	RE		240	8	248	Y		\$10,750		\$10,750			\$750				Estimate 1.5 acres of clearing @ \$6500/acre = ~\$9,750. Initial and follow-up herbicide treatments ~\$1,000. Assume 240 hrs of staff time for completing grant application, wetlands delineation and permitting, project oversight, ground prep for seeding, monitoring and weed control. Estimate ~\$750 from supplemental budget for permitting fees, seed mix, travel expenses, etc. This work can be funded through a grant.
26	NR	Conduct an annual census of breeding grassland birds.	ongoing	C	RE					0	Y				\$0							Staff or volunteer time captured in Table 11.2
27	NR	Rehabilitate the 2-acre early successional habitat (old field) located west of the Middle Field to provide habitat diversity, and remove the hedgerow that divides this field from the Middle Field.	2	D	RE	S		150		150	Y			\$4,100	\$4,100				\$100			Estimate \$1,100/acre for old field clearing (2 acres = \$2,200) and ~\$1900 for herbicide treatments. Assume 150 hrs of staff time for completing grant application, project oversight, monitoring and weed control. Estimate ~\$100 from supplemental budget for seed mix, etc. This work would be funded through a grant (e.g., LIP or other). Project to be done at the same time as the hedgerow removal (see Recommendation 25). Routine follow-up maintenance will be needed.
28	NR	Re-locate the existing trail through the conservation field to minimize disturbance to grassland nesting birds.	1	C	S	RE				0	N				\$0							
29	NR	Convert turf overlying the septic leach field to a meadow.	1	D	S	RE	9			9	Y	\$1,545			\$1,545				\$1,545			Assume 1 acre planted with Ernst Showy Northeast Native wildflower seed mix by staff (6 hrs). Estimated cost for slice seeder rental (\$100), herbicide (RoundUp or other at \$125/2.5 gal), and seed mix (15 lb/ac @ \$88/lb = \$1,320). Estimate 3 hrs for project coordination.

Number	Type	Recommended Action	Phase	Rank	Staff 1	Staff 2	Phase 1 Staff Time	Phase 2 Staff Time	Phase 3 Staff Time	Total Staff Hours	Volunteer Opp?	Phase 1 Costs	Phase 2 Costs	Phase 3 Costs	Total Plan Costs	Targeted Budget Type	Start-up	Operating	Supp.	Capital	Notes
30	HR	Remove accumulated debris in the cellar hole of the farmstead on Old Summit Street.	3	D	PM				60	60	N			\$1,500	\$1,500	O					This would happen over the period of a year or two; costs are to pay for "tipping"
31	HR	Record the farmstead site on Old Summit Street with the Massachusetts Historical Commission Historic Archaeological Sites Inventory.	3	D	PM	HR			2	2	Y			\$300	\$300	O					Costs are to pay a consultant to fill out the form and file; a volunteer may be able to do this; staff time is for supervision.
32	HR	Conduct a thorough architectural examination and recording of the Bullard-Flanders House (aka "Kenwood") and its lot.	3	D	HR	SR			4	4	Y				\$0						This will only be done if we can get a volunteer to do it; no management or interpretation is being recommended that would be informed by this information, but this information would round out our knowledge about this building.
33	HR	Look for interior structural dating evidence in the Doll House (Studio), in an effort to associate or definitely dissociate this building with 19th century occupation.	3	D	HR	SR			2	2	Y				\$0						This will only be done if we can get a volunteer to do it; no management or interpretation is being recommended that would be informed by this information, but this information would round out our knowledge about this building.
34	HR	Conduct oral histories or similar interviews with Herb Gagnon and other 20th c. owners/occupants and continue to round out knowledge about the history of Moose Hill Farm.	3	D	HR	PM			16	16	Y				\$0						These are good volunteer projects; staff time is for scoping specific projects and volunteer supervision.
35	VM	Plan and host a "Grand Opening" event in which Moose Hill Farm is formally opened to the public.	1	N	PM	S	80			80	Y	\$2,500			\$2,500	Start-up					Costs are for invitations, food, tent; time is for developing the event and is based on experience opening other properties.
36	VM	Institute and administer a "green dogs" program at Moose Hill Farm.	1	N	PM	ADV	80			80	Y	\$2,500			\$2,500	Start-up					Costs for printing brochures and producing signs; staff time is for developing the program. Ongoing administration is captured in Table 11.2
37	VM	Establish a fee structure for the property	1	N	RD	ADV	8			8	N				\$0						
38	VM	Include current information about Moose Hill Farm in The Trustees' property guide and on the Web site.	1	N	E/O	PM	4			4	N				\$0						
39	VM	Establish a 15-car visitor parking lot	1	N	PM	SR	8			8	N	\$12,000			\$12,000	Start-up					This will be contracted out; time is for recruitment and supervision of contractor.
40	VM	Revise and extend the current trail system.	1	N	PM	E/O	80			80	Y	\$1,500			\$1,500	Start-up					Costs are for materials (e.g., benches) and signs
41	VM	Update and produce a trail map and property brochure that reflects the growing agricultural program and expanded trail system.	1,3	N	E/O	GIS	20		20	40	N	\$2,000		\$2,000	\$4,000						This schedule shows that we will need two updates over the life of this plan to reflect the evolution of the farm operations, visitor services, and expanding trail system.
42	VM	Create a viewing pull-out along the East Field on Moose Hill Street.	2	N	PM			24		24	N		\$2,000		\$2,000		\$2,000				This pull-out takes advantage of curbcuts that are already in place, but we will still consult with the Town re and issues associated with scenic road designation. Cost is an estimate that allows for modest masonry work and other improvements.
43	VM	Recondition the vehicle circulation area in the back of the main barn.	3	N	SR	PM				0	N			\$25,000	\$25,000						This area serves as the farm maintenance yard, and should be re-surfaced with porous material.
44	VM	Reconfigure the north façade of the Big Shed by adding a ~400 sf visitor "shed" that can visually and physically welcome visitors to the Farm Core.	1	N	SR	PM	30			30	Y	\$35,000			\$35,000						The costs here include: a 20'x20' structure that can serve as a welcome area, provide small sheltered "classroom" space and house modest interpretive displays (estimated cost is based on \$50 per sf cost); a composting toilet (\$15,000) (lower cost green options may be available)
45	VM	Design and construct trails in and around the farm core to optimize universal access.	2	N						0	N		\$3,000		\$3,000						Estimate assuming fairly easy task.
46	VM	Establish a wheelchair accessible picnic area in close proximity to the agricultural operation	2	D							Y		\$2,500		\$2,500						See http://www.acmetreadway.net/articles/FSORAG.pdf for design specs
47	E/I	Establish a volunteer docent program that would greet visitors and interpret the agricultural program during peak hours.	2	N	VC	PM	40			40	N		\$300		\$300						Costs and time noted here are just to establish the program; routine oversight and recurring costs are captured in Table 11.2
48	E/O	Establish a relationship with Norfolk County Agricultural High School (aka Norfolk Aggie) to involve their students in the management of the farm operation.	2	N	FM	PM		16		16	Y				\$0						Time is to establish the program only; ongoing supervision is captured in routine maintenance
49	E/O	Establish a 4-H program that is based at Moose Hill Farm.	2	N	FM	VC		40		40	Y				\$0						Time is to establish the program only; ongoing administration is captured in routine maintenance

Number	Type	Recommended Action	Phase	Rank	Staff 1	Staff 2	Phase 1 Staff Time	Phase 2 Staff Time	Phase 3 Staff Time	Total Staff Hours	Volunteer Opp?	Phase 1 Costs	Phase 2 Costs	Phase 3 Costs	Total Plan Costs	Targeted Budget Type	Start-up	Operating	Supp.	Capital	Notes	
50	E/O	Work with Moose Hill Sanctuary staff to explore program collaboration opportunities that would advance the mission of both organizations.	1	N	E/O					0	N				\$0							
51	E/O	Host an annual event at the Farm that is designed primarily for families with young children.	ongoing	N	PM	EO				0	Y				\$0	0						Staff time and costs are captured in Table 11.2
52	E/O	Establish interpretive displays in the visitor welcome area.	2	N	E/O	PM		40		40	Y		\$3,000		\$3,000							
53	E/O	Update and expand the "Quest" to reflect any major changes in management and/or trail design.	2	D	E/O	PM				0	Y		\$2,000		\$2,000							
54	SR	Engage a landscape designer to refine plans for the redesign of the Farm Core	1	N	SR	S	24			24	Y	\$5,000			\$5,000							
55	SR	Paint all buildings	1,2,3	N	PM	SR	30	30	30	90	N	\$23,000	\$23,000	\$23,000	\$69,000							Over the next 10 years, all of the buildings at MHF will need to be painted as part of a sound renewal program. The total cost for this work is estimated @ \$70,000; thus, the cost per phase is approximately \$23,000.
56	SR	Upgrade the heating system in the lobby of the main house.	1	C						0	N	\$3,000			\$3,000							Already covered in FY08 capital budget.
57	SR	Renovate the pool area and garage at the Main House to expand offices and provide storage	3	N						0	N			\$360,000	\$360,000							At \$120/sf, 3000 sf will cost ~\$360,000. This factors in green practices.
58	SR	Demolish the gardener's cottage and garage	2	N	PM	SR		5		5	N		\$25,000		\$25,000							This is contracted work.
59	SR	Demolish the loafing shed and replace with a larger, better sited structure.	1	N	PM	SR				0	N				\$0							Costs (\$1500 for demolition and \$40,000 for new construction) and time are captured in the Beef start-up figure (see Appendix A and Recommendation #1)
60	SR	Demolish the existing chicken coops and build a new structure.	1	N	PM	SR				0	Y				\$0							Costs (\$10,000 for new construction; insignificant for demolition) and time are captured in the Chicken start-up budget (Appendix B and Recommendation #3).
61	SR	Reconfigure the interior of the Big Shed to optimally support farm operations	1	N	PM	SR	40			40	Y	\$5,000			\$5,000							Costs are for materials; work to be done in-house
62	SR	Renovate the Milk Room to support the cultivation (CSA) operation.	2	N	PM	SR		10		10	Y				\$0							Based on a \$20 per sf cost for 250 sf structure plus costs of removal of bulkhead and façade repair. Improvements would include a CSA office. Costs are captured in Recommendation #8.
63	SR	Create a sheltered food processing area (e.g., a washroom) and attach to the Milk Room	2	N	PM	SR		10		10	Y		\$5,000		\$5,000							New construction costs: 50 sf x \$100 per sf
64	SR	Demolish the greenhouse	2	N	PM	SR		5		5	Y		\$2,500		\$2,500							
65	SR	De-lead Herdsman 2	3							0	N			\$40,000	\$40,000							This delay assumes no tenant turnover for at least 7 years.
66	SR	Replace the furnace at Kenwood	1	N	PM	SR	4			4	N	\$8,000			\$8,000							The timing and specifics of this recommendation will be refined based on the results of a free energy audit conducted by the local utility company. This audit can validate the condition of the furnace.
67	SR	Renew all main access road surfaces at the property.	2	N	PM	SR		20		20	N		\$42,000		\$42,000							This includes the main drive and the section of Fire Tower Road from Moose Hill Street to the gate. As part of this project, we will work to reduce the amount of impervious asphalt. At the same time, these renewal projects should intercept water that drains off the hill before it reaches buildings where there have been drainage problems. This work should be delayed for a reasonable period while new visitor circulation patterns establish themselves and we work to refine the site plan for the farm core.
68	SR	Continue to clear and re-point the stone walls that line both sides of Moose Hill Street.	1,2,3	N	PM					0	N				\$0							Time and costs are captured in Table 11.2
69	SR	Fill in old shallow well	1	D	PM		8			8	Y				\$0							

Number	Type	Recommended Action	Phase	Rank	Staff 1	Staff 2	Phase 1 Staff Time	Phase 2 Staff Time	Phase 3 Staff Time	Total Staff Hours	Volunteer Opp?	Phase 1 Costs	Phase 2 Costs	Phase 3 Costs	Total Plan Costs	Targeted Budget Type	Start-up	Operating	Supp.	Capital	Notes	
70	SR	Conduct an energy audit and outline a program for reducing MHF's net consumption of energy to zero.	1	N	PM	SR	50			50	N	\$5,000			\$5,000							This recommendation can take advantage of several programs that are available through utility programs that provide free audits but will also require a contracted audit that would also produce a plan of action. Audits should address both conservation opportunities and alternatives for generating renewable energy.
71	SR	Implement those recommendations made in the audit (above) that will reduce MHF's net carbon emissions to zero.	1,2,3	N	PM	SR	TBD	TBD	TBD		N	\$20,000	\$50,000	\$50,000	\$120,000							This figure is an educated guess based on early investigations into a number of options, including small-scale wind and solar panels. This is a great grant-funding opportunity (e.g., MTC).
72	SR	Expand the water supply infrastructure to meet all of the needs of Moose Hill Farm.	2	N	PM	SR				0	N				\$0							Estimated cost of \$18,500 is captured in the CSA start-up budget. (Appendix C and Recommendation# 8).
73	GM	Create a local property committee that can support and advise staff on the management of Moose Hill Farm	1	N	RD	ADV	40			40	N				\$0							
74	GM	Further collaborate with MAS to address shared management issues and opportunities.	ongoing	N	S	PM	24	24	24	72	N				\$0							
						Total	1,164	2,766	218	4,148		245,045	340,300	575,900	1,161,245							

Appendix A

Moose Hill Farm Grass fed Beef program Startup Budget Proposed

The beef start-up and subsequent operating budgets assumes that we would start with five 1-year old steers, eight heifers, and one bull. This scenario makes full use of the staff early on, and front loads costs into start-up so that we can attain break-even early in the operation.

There are many ways that costs may decrease. This scenario assumes that all infrastructure is put in place in FY08 and that cattle are purchased at the end of FY08 or early FY09 (i.e., no real operating costs for FY08).

INCOME				
4705		Miscellaneous Income		
		Sale of Used Hay Equipment	3,000	MHF hay equipment to Powisett
		Total	3,000	
EXPENSES				
5100	06	Salaries - Part Time		
		12000 feet hi tensile fence run around all pastures, 4 wire run.		
		354 hours X 2 staff = 708hrs @ \$13.00	9,204	Install 400 fence posts, all hi tensil wire (12000ft by 4 runs), battens and misc.
5700	06	Fringe Benefits @ 33%	3,037	
		Total Payroll		12,241
6001	6	Equipment		
		aluminum cattle trailer	10,000	
		12k hi tensile and posts	5,000	13 @ 4000' rolls hi-tens @ \$83.00, 400 posts @ \$5.10, 400 poly battens @ \$3.00, misc
		fence chargers for electric fencing	800	

Appendix A

Moose Hill Farm Grass fed Beef program Startup Budget Proposed

		portable pasture fencing	1,283		1.5 inch poly tape, 8 @ \$96, tape reels, 4 @ \$65, poly posts 100 @ \$2.55,
		2 water tanks 300 gal rubbermaid	440		
		portable water source (pickup bed)			
		352 gallon	241		
		feed ring for round bales	250		
		scale and label printer	1,200		
		Freezer/Fridge	1,000		
		Cattle	18,250		Assumes 8 heifers @1000, 5 yearling steers @\$750; 8 weaned calves @\$500, 1 bull @2500.
				38,464	
6002	06	M&R Other			
6004		property service			
7004		contractual services			
		demolish and remove existing loafing she	1,500		
		construct loafing shed	40,000		
				50,000	
		Total Start-up Costs		100,705	
		Net Start-up Costs		97,705	

Appendix A

Moose Hill Farm Grass fed Beef program FY09 Budget (Year 1) Proposed

In FY09, we are managing a herd of approximately 20 animals: 8 heifers (bred, but have not calved), 8 calves (purchased), 1 bull, and 5 new steers to replace steers sold from start-up.

INCOME							
4505	06	Sale of Merchandise					
		Sale of 5 steersx425 lbs x 6.25/lb	13,281				
		TOTAL REVENUE				13,281	
EXPENSES							
5100	06	Salaries - Part Time					
		1140 hrs @ 12/hr		13,680			
5700	06	Fringe Benefits @ 33%		4,514			
		Total Payroll			18,194		
6001	6	Equipment					
		equipment purchases	500	500			General equipment needs,
					500		
6002	06	M&R Other					
		5 yearlings steers @750 each	3750				
		Hay from TTOR Southeast Hay operation: 104 bales x \$50/bale	5,200				2 round bale/wk, (should be lower depending on pasture available)
		mineral supplements	120				Mineral blocks \$20 ea 6/yr
		Veterinary: \$100/yr/animal x 20	2,000				
		equipment repairs	1,000				
		fencing supplies	750				

Appendix A

Moose Hill Farm Grass fed Beef program FY09 Budget (Year 1) Proposed

		Miscellaneous M&R	500			includes incidental utilities associated with maintenance of loafing shed
				13,320		
		Total Maintenance & Repair			13,820	
6004	06	Property Services				
		Beef processing - 355/animal x 5	1,775			
				1,775		
		Total Outside Services			1,775	
8073	06	Fuel				
		Gasoline 240 gals x 3.00	720	720		
		Total Other Operating			720	
		TOTAL EXPENSES				35,009
		CHANGE IN NET ASSETS				-21,728
9501		Depreciation on trailer over 10 years		1,000		
		Renewal on new structures (40k @ 2%)		800		This is renewal for loafing shed (\$40K)
					1,800	
		Total after depreciation and renewal				-23,528

Appendix A

Moose Hill Farm Grass fed Beef program FY10 Budget (Year 2) Proposed

In Year 2, the herd consists of 8 cows, 8 calves, 8 yearlings (50/50), and we are selling the 5 steers that were purchased in year one.

INCOME							
4505	06	Sale of Merchandise					
		Sale of 5 steersx425 lbs x 6.25/lb	13,281				
		TOTAL REVENUE				13,281	
EXPENSES							
5100	06	Salaries - Part Time					
		1140 hrs @ 12/hr		13,680			
5700	06	Fringe Benefits @ 33%		4,514			
		Total Payroll			18,194		
6001	6	Equipment					
		equipment purchases	500	500			General equipment needs,
					500		
6002	06	M&R Other					
		Hay from TTOR Southeast Hay operation: 104 bales x \$50/bale	5,200				2 round bale/wk, (should be lower depending on pasture available)
		mineral supplements	120				Mineral blocks \$20 ea 6/yr
		Veterinary: \$100/yr/animal x 20	2,000				
		equipment repairs	1,000				
		fencing supplies	750				

Appendix A

Moose Hill Farm Grass fed Beef program FY10 Budget (Year 2) Proposed

		Miscellaneous M&R	500				includes incidental utilities associated with maintenance of loafing shed
				9,570			
		Total Maintenance & Repair			10,070		
6004	06	Property Services					
		Beef processing - 355/animal x 5	1,775				
				1,775			
		Total Outside Services			1,775		
8073	06	Fuel					
		Gasoline 240 gals x 3.00	720	720			
		Total Other Operating			720		
		TOTAL EXPENSES				31,259	
		CHANGE IN NET ASSETS				-17,978	
9501		Depreciation on trailer over 10 years		1,000			
		Renewal on new structures (40k @ 2%)		800			This is renewal for loafing shed (\$40K)
					1,800		
		Total after depreciation and renewal				-19,778	

Appendix A

Moose Hill Farm Grass fed Beef program FY11 Budget (Year 3) Proposed

In year 3, the herd consists of 12 cows, 12 calves, 8 yearlings, and one bull. We can sell 8 animals.

INCOME							
4505	06	Sale of Merchandise					
		8 steers x 425 lbs x 6.25/lb	21,250				
		TOTAL REVENUE				21,250	
EXPENSES							
5100	06	Salaries - Part Time					
		1140 hrs @ 12/hr		13,680			
5700	06	Fringe Benefits @ 33%		4,514			
		Total Payroll			18,194		
6001	6	Equipment					
		equipment purchases	500	500			General equipment needs,
					500		
6002	06	M&R Other					
		Hay from TTOR Southeast Hay operation: 104 bales x \$50/bale	5,200				2 round bale/wk, (should be lower depending on pasture available)
		mineral supplements	120				Mineral blocks \$20 ea 6/yr
		Veterinary: \$100/yr/animal x 20	2,000				
		equipment repairs	1,000				
		fencing supplies	750				
		Miscellaneous M&R	500				includes incidental utilities associated with maintenance of loafing shed

Appendix A

Moose Hill Farm Grass fed Beef program FY11 Budget (Year 3) Proposed

				9,570			
		Total Maintenance & Repair				10,070	
6004	06	Property Services					
		Beef processing - 355/animal x 8	2,840				
				2,840			
		Total Outside Services				2,840	
8073	06	Fuel					
		Gasoline 240 gals x 3.00	720	720			
		Total Other Operating				720	
		TOTAL EXPENSES					32,324
		CHANGE IN NET ASSETS					-11,074
9501		Depreciation on trailer over 10 years		1,000			
							Needs adjusting for coop and visitors area
		Renewal on new structures (40k @ 2%)		800			This is renewal for loafing shed (\$40K)
						1,800	
		Total after depreciation and renewal					-12,874

Appendix A

Moose Hill Farm Grass fed Beef program FY12 Budget (Year 4) Proposed

INCOME						
4505	06	Sale of Merchandise				
		11 animals (steers and heifers) x 425 lbs x 6.25/lb	29,219			
		one older animal x 800 lbs x .50/lb	400			
		TOTAL REVENUE			29,619	
EXPENSES						
5100	06	Salaries - Part Time				
		1140 hrs @ 12/hr		13,680		
5700	06	Fringe Benefits @ 33%		4,514		
		Total Payroll			18,194	
6001	6	Equipment				
		equipment purchases	500	500		General equipment needs,
				500		
6002	06	M&R Other				
		Hay from TTOR Southeast Hay operation: 104 bales x \$50/bale	5,200			2 round bale/wk, (should be lower depending on pasture available)
		mineral supplements	120			Mineral blocks \$20 ea 6/yr
		Veterinary: \$100/yr/animal x 20	2,000			
		equipment repairs	1,000			
		fencing supplies	750			

		Miscellaneous M&R	500				includes incidental utilities associated with maintenance of loafing shed
				9570			
		Total Maintenance & Repair			10,070		
6004	06	Property Services					
		Beef processing - 355/animal x 12	4,260				
				4,260			
		Total Outside Services			4,260		
8073	06	Fuel					
		Gasoline 240 gals x 3.00	720	720			
		Total Other Operating			720		
		TOTAL EXPENSES				33,744	
		CHANGE IN NET ASSETS					-4,125
9501		Depreciation on trailer over 10 years		1,000			
		Renewal on new structures (40k @ 2%)		800			This is renewal for loafing shed (\$40K)
					1,800		
		Total after depreciation and renewal					-5,925

Appendix B

Moose Hill Farm Chicken (laying) Startup Budget Proposed

EXPENSES						
6001	6	Equipment				
		Chicken Infrastructure	1,500			includes wire, wood and posts for outside pen, feeders, watering equipment.
		Egg incubator	70			for hatching future chicks
		Chicks 50 @ \$65.00, (\$17 S&H)	82			Chicks would be mail ordered, Dominiques as a possible heritage breed.
				1,652		
6002	06	M&R Other				
6004		property service				
7004		contractual services				
		construct chicken house		10,000		20' x 20' house for up to 60 chickens; based on cost of \$25 per sf.
		Total Start-up Costs		11,652		

Appendix B

Moose Hill Farm Chicken Operating FY08 Budget Proposed

INCOME							
4505	06	Sale of Merchandise					
		sale of eggs					
		733dz @ \$4.00	2,932				40 chickens @ 220 eggs/yr,(good layers can lay between 240 and 300 per year) (240/hen = 800dz, 250/hen = 833dz
		TOTAL REVENUE				2,932	
EXPENSES							
5100	06	Salaries - Part Time					
		112 hrs @ 12/hr		1,344			15 mins per day to feed and water, annually for misc maint
5700	06	Fringe Benefits @ 33%		444			
		Total Payroll			1,788		
6001	6	Equipment					
6002	06	M&R Other					
		chicken feed	1,500				50lbs layer mash and cracked corn per week @ \$12 per bag (\$1248), oyster shell and other misc.(could be less depending on pasturing)
		Total Maintenance & Repair			1,500		

Appendix B

Moose Hill Farm Chicken Operating FY08 Budget Proposed

6004	06	Property Services					
		TOTAL EXPENSES				3,288	
		CHANGE IN NET ASSETS				-356	
9501		Depreciation					
		Total after depreciation and renewal				-356	

Appendix C

Moose Hill Farm CSA Start-Up Budget (detailed)

Farm Operations		\$102,600
<u>Greenhouse construction</u>		\$15,000
Kit and parts (new)	\$9,000	
Lumber (or materials for end walls)	\$1,000	
Electric installation	\$5,000	
Plumbing/water installation (done in-house)	\$0	
<u>Greenhouse materials</u>		\$3,100
Tables	\$300	
Seed trays	\$850	
Potting soil	\$1,200	
Ground cloth	\$300	
Hoses	\$250	
Heat mats	\$200	
<u>Demolish existing greenhouse (poor condition)</u>		2500
<u>Renovations to Big Shed</u>		5,000
<u>Renovate the Milk Room</u>		11,000
<u>Create a sheltered food processing area</u>		5000
<u>Establish a compost operation</u>		25,000
<u>Electric fencing</u>		\$2,500
<u>Water source/irrigation</u>		\$18,500
Drill a deep well	\$12,000	
Pump	\$500	
10,000 gal storage tank	\$6,000	
<u>Prep fields for cultivation</u>		\$15,000
Equipment Needs		\$47,625
<u>Tractors</u>		\$22,000
Tillage tractor	\$9,500	
Primary cultivating tractor	\$9,500	
Secondary cultivating tractor	\$3,000	

Appendix C

Moose Hill Farm CSA Start-Up Budget (detailed)

<u>Implements and Cultivating Equipment</u>		\$11,850
Plow	\$350	
Disc harrow	\$2,100	
Rototiller	\$2,000	
Spreader	\$3,000	
Mower	\$1,000	
Seeder	\$650	
Basket weeder	\$2,500	
Cultivating tools	\$250	
<u>Farm Vehicle</u>		\$500
<u>Seeds and Fertility Supplies</u>		\$9,075
Seeds	\$3,000	
Sweet potato plants	\$275	
Seed potatoes	\$500	
Seed garlic	\$1,000	
Cover crop seed	\$1,200	
Compost	\$2,000	
Bagged fertilizer	\$1,000	
Fish emulsion	\$100	
<u>Other Materials</u>		\$4,200
Drip irrigation	\$500	
Reemay	\$800	
Plastic mulch	\$150	
Straw mulch	\$1,000	
Tools (shovels, hoes, gloves, etc.)	\$1,200	
Dibbler	\$150	
Harvest knives	\$50	
Harvest bins	\$350	
Other		\$11,200
<u>Purchase of walk-in cooler</u>	\$10,000	10,000
<u>Distribution Materials</u>		\$1,200
Tables, scales, boxes, bags	\$1,200	

Grand Total \$161,425

Appendix C

Moose Hill CSA Operating Budget (Estimated)

INCOME					Notes
4000	Investment Income	0			
4299	Fundraising	0			
4505	Sales of Merchandise				
	CSA shares				
	200 shares @ \$600	120,000			This budget assumes a fully subscribed CSA!!
	Items for retail	3,000			
	TOTAL REVENUE	123,000			

EXPENSES					
5000	Salaries - Full Time			32,000	With housing valued at \$8k per year; salary mid-point \$45k
	Farm Manager		32,000		
5100	Salaries - Seasonal			23,340	Assumes housing for 2 full-time seasonals
	2 full-time for 30 weeks at \$325/wk		19,500		
	1 part-time for 30 weeks at \$128/wk		3,840		
5700	Fringe Benefits			17,456	3 full-time at 33%; 1 part-time at 12%
6001	Equipment Purchase			1,000	
	miscellaneous small equipment replacement		1,000		

Appendix C

Moose Hill CSA Operating Budget (Estimated)

6002	M & R - Other			18,500	[actual from PoFa]
	seeds & plants		4,300		
	cover crop seed		1,200		
	soil amendments/fertility/compost		1,150		
	irrigation supplies		1,000		
	growing supplies/all miscellaneous tools/etc		4,400		
	electric fence		1,000		
	greenhouse supplies		2,600		
	harvest equipment		1,230		
	miscellaneous		1,500		
6004	Property Services			0	
8010	Conferences and Meetings			500	
	NOFA biannual conference		500		
8012	Dues and Subscriptions			100	
	org. memberships and literature		100		
8020	Heat			1,500	
	two 100-gal propoane tanks		1,500		
8021	Electric			1,000	

Appendix C

Moose Hill CSA Operating Budget (Estimated)

	Greenhouse, electric fence		1,000		
8035	Miscellaneous			200	
8040	Postage			850	
	farm-related mailings		850		
8043	Printing			500	
	any printed newsletters		500		
8055	Special Events			500	
	potlucks, etc.		500		
8058	Supplies			400	
	Office supplies		400		
8068	Travel			400	
8070	Uniforms			500	
8072	Vehicles			4,500	
	registration		150		
	oil & grease		350		

Appendix C

Moose Hill CSA Operating Budget (Estimated)

	vehicle & tractor repairs		2,000		
	vehicle & tractor parts		2,000		
8073	Fuel - gasoline & diesel			2,910	
	gasoline 200 gals x 3.00		600		
	diesel 770 gals x 3.00		2,310		
	TOTAL EXPENSES			106,156	

CHANGE IN NET ASSETS

16,844

Appendix D

Moose Hill Farm Hay Program Fork Factory Brook Startup Budget Proposed

EXPENSES					
6001		Equipment purchases			
					Choice of 3 different balers
		John Deere hay baler			with option packages as listed.
		458 round baler + package 0803 (1000lbs bales)	20,008		
		448 round baler + package 0806 (700 lbs bales)	15,875		
		448 round baler + package 0801 (700 lbs bales)	12,770		
		used equip from MHF			
		new holland 477 mower			
		kuhn tedder			
		new holland hay rake			
		John Deere square baler T24	3,000		
		annual fee for farm plate?			
		twine (will do up 1000 bales)	80		
		new sickle bar for mower	100		replaced seasonally
		Total Start-up		15,950	

Appendix D

Moose Hill Farm Hay Program Fork Factory Brook FY08-FY10 Budget Proposed

INCOME							
4505		Sale of merchandise					
		Round hay bales @ 50ea					
		MHF hay 110@\$50.00	5,500				should be more hay available for sale
		other misc sales					
						5,500	
EXPENSES							
5100		salaries - part time?					
		Brook					
		Fertilize and seed 16 hrs@ 12		192			Overseeding as needed yearly, adding clover
		mow fields 16hrs @ 12		192			
		tedder and rake hay 16hrs @ 12		192			
		bale hay 16hrs @ 12		192			
		store hay at Powiset Farm					
		(2 staff) 48hrs @ 12		576			
		Total			1,344		
5700		Fringe @ 33%		444			
		Total Fringe			444		
		Total salary and fringe				1,788	
6002		M & R					

Appendix D

Moose Hill Farm Hay Program Fork Factory Brook FY08-FY10 Budget Proposed

		annual soil samples		100			
		fertilizer		1,000			soil amendments as per soil samples following organic practices
		re-seed fields		1,000			adding clover and higher yielding grasses for increased hay quality and field resilience
		twine		100			2 rolls used to bale hay, one roll of 16000 feet should make the season. \$40/roll.
		grease and lube		100			
		tires		200			
		regular equipment repair		300			
		Total				2,800	
8073		fuel					
		gas		100			
		diesel		100			
		Total				200	
9501		depreciation				1,700	
		tractors					
		trailer					
		Total expenses				6,488	

Appendix D

**Moose Hill Farm
Hay Program Fork Factory Brook
FY08-FY10 Budget
Proposed**

		Change in net assets					-988	

APPENDIX E

Narrative Analysis of Potential Agricultural Options

Haying Operation

Property's ability to support the operation

Moose Hill Farm currently has approximately 42 acres of fields, including about 35 acres that, until recently, were hayed 2-3 times annually. The fields at Moose Hill Farm have been managed for hay for many years. The hayfields have not been limed for about five years and were fertilized about two years ago.¹ Therefore, the current production of the hayfields is roughly 70% of potential yield. The hayfields at Moose Hill Farm, if limed and fertilized to maximize production, should yield about 2000-2500 bales per year. Hay bales are currently stored in the big shed (~1000 bales) and the cow barn (~100 bales). Additional hay bale storage capacity would be needed for the commercial production of hay.

Moose Hill Farm is currently equipped for a small scale hay operation, though not a commercial level operation. Haying equipment currently available at the farm includes a John Deere tractor to run the hay combine (cutter/conditioner), a tedder, hay rake, and two balers. With the exception of the John Deere tractor (1992 model), all the haying equipment dates to the 1970s. In addition, the large tractor at Bird Park is needed to operate/pull the John Deere 24T baler. In addition to the above equipment, a haying operation at Moose Hill Farm would be dependent on hiring two seasonal employees committed to the hay operation (e.g., tractor operator, hay thrower). If TTOR were to conduct a commercial hay operation, we may want to hay other fields (e.g., Fork Factory Brook, Powisset Farm, etc.). However, additional hay from these properties would require additional storage capacity.

Compatibility with resource protection

Commercial haying to produce high quality hay will require early season cuttings which would effectively eliminate the potential of nesting grassland birds that currently use the fields. Setting aside a few acres of interior grassland as nesting habitat for grassland birds may satisfy the needs of a few nesting pairs, although this has not been adequately tested. In addition, the multiple mowings required for good quality hay production will reduce floristic diversity that supports a variety of grassland wildlife (e.g., butterflies, moths, etc.). A mulch hay operation, producing lower grade hay, only requires a late season cut (after July 15) is compatible with resource protection goals.

Ability of program to enhance visitor experience and advance The Trustees' education initiative

A feed hay (or mulch hay) operation does not offer much opportunity to engage visitors. One educational/interpretive opportunity could be created around the importance of grassland habitats, their decline in Massachusetts, and a description of the species that have been classified as endangered or threatened as a result of this loss in habitat. However, no other unique educational opportunities or visitor experiences will be afforded by a hay operation.

Ability to create volunteer opportunities

There are no volunteer opportunities associated with a haying operation.

¹ Pers. Comm., Steve Pascale, April, 2006.

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Institutional benefit to The Trustees

There would be little institutional benefit to the greater organization from another haying operation. Since there is no visitor experience or educational opportunities associated with this type of operation, the operation would not advance of The Trustees' mission.

Compatibility with community goals

Since most of the fields at Moose Hill Farm have been managed as hay fields in the past, a commercial hay operation would perpetuate the scenic qualities that have been associated with Moose Hill Farm.

Competition with local farmers

Competition is not a factor with this scenario.

Bureaucratic or regulatory requirements

None.

Start-up and annual operating costs

See Appendix D for start-up and annual operating costs associated with a haying operation at Moose Hill Farm.

Community Supported Agriculture (CSA)

Property's ability to support the operation

Prime farmland soils (Woodbridge fine sandy loam, Canton fine sandy loam) underlie all of the major fields. These soils have moderate limitations for field crops that reduce the choice of plants, mostly due to erosion potential. Flooding and/or seasonal high water table are not important issues for plant cultivation for any of the prime farmland soils on the property.

According to NRCS's evaluation of the fields, growing vegetables (and other crops) may be difficult due to the likely abundance of stones (particularly if the fields have not been tilled in many years, or at all) and potential erosion due to slope.² Cultivation of the larger fields on west side of the property would require growing crops along the contour to minimize erosion. In addition, since it does not appear that the fields have been turned over for many years, getting a good seed bed established may require a significant amount of stone removal, not just in the first year, but for many years in the future. Overall, South Field is less suited for crop cultivation than the East Field (across Moose Hill St.) due to slope and potential erosion. However, terracing or planting along the contour may solve this problem. The flatter East Field may a better choice for crop cultivation, although the site would still need to be graded and its rock content is unknown. The size of East Field (5 acres or less) will limit the number of CSA shares to 100 (20 shares/acre).

² Natural Resources Conservation Service, 2006. Letter regarding assessment of proposed agricultural operations at Moose Hill Farm, from Bernie Taber

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Regardless of the type of crops, an irrigation system with a reliable supply of water will be needed to support a CSA (the well and croplands should be in close proximity to one another). Staff at Appleton Farms state that a well that supplies 100 gpm is needed to support a CSA (100 shares?).³

Considerations related to the Irrigation Well:

- Before any CSA operation can be considered, the available water supply needs to be determined. The water yield of the existing irrigation well located in the South Field is unknown. As a first step, a pump test could be done to determine the yield of the existing irrigation well (\$600 for a 4 hr. test). A storage tank (10,000 gallons) or storage pond could be used to store water for irrigation (see below). Alternatively, a new well could be drilled at a cost of about \$5,000-\$6,000. Since wells in this area are unlikely to yield anywhere near 100 gpm, a second well could be drilled to supplement supply (even a second well is unlikely to yield 100 gpm total).
- A water storage tank may be used to store irrigation water that is pumped from the existing shallow irrigation well. Approximately 1460 gallons would be fed from the storage tank to drip irrigation strips to irrigate 1 acre of cropland for 30 minutes.⁴ A reliable 25 gpm well would replenish this volume in about 1 hour. A 10,000 gallon storage tank would support just under 7 acres of cropland.
- A pump will be needed for the irrigation well wherever it's located. The pump can be operated either by electricity, gas-powered generator, or perhaps a wind or solar powered generator. (Steve has costs for the wind and solar units (?), other costs have not been determined.)

Additional infrastructure may be needed to facilitate the CSA operation, since the “big shed” would likely be used for farm-related equipment storage. An additional building would be needed for facilitating the CSA (washing area, working space for storing, sorting and packaging produce, etc.). A greenhouse may also be needed. The location of a parking area for shareholders during pick-up times needs to be determined. A final consideration concerning a CSA operation is the strong potential for browsing of crops by deer (and/or other wildlife) if the cultivated area is not secured by fencing.

Compatibility with resource protection

Due to the relatively small acreage requirements, a CSA would be compatible with resource protection goals (e.g., grassland bird habitat). Crops would be grown organically, or “nearly” organic in a fashion that minimizes the use of chemicals, utilizing the most ecologically-sound methods available. This type of operation would also be effective in advocating for agricultural landscape protection by demonstrating an economically-viable, environmentally-sound farming operation.

³ The water supply well at Appleton Farms yields 120 gallons per minute. The Appleton CSA supports 400 shares.

⁴ Calculation from Steve Pascal based on information from www.dripworksusa.com (T-Tape).

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Ability of program to enhance visitor experience and advance The Trustees' education initiative

A CSA operation would create many visitor experience and educational opportunities, thereby supporting The Trustees' mission. This option, along with a livestock operation, is perhaps the best method of connecting people with a *working* agricultural landscape. Since shareholders visit the farm each week to pick-up their share of goods and pick some of their own food, people are also developing a connection to the property itself. This type of program has the added benefit of promoting healthy lifestyles by encouraging the consumption of nutritious, locally-grown foods.

Ability to create volunteer opportunities

A CSA has enormous potential to actively engage volunteers. Whether helping with office tasks (answering phones, preparing mailings, bookkeeping) or assisting with farm duties (weeding, dividing harvest into equal shares), the opportunities for volunteers are numerous and diverse. Volunteers would likely be necessary to help the operation run smoothly and minimize the amount of paid labor needed.

Institutional benefit to The Trustees

There would be enormous institutional benefit to The Trustees from the operation of a CSA at Moose Hill Farm. The operation could be self-sufficient and, aside from start-up costs, would not require additional funds from the organization's general operating budget. The fee per share could be set slightly lower for Trustees' members, which would provide incentive for membership, thus advancing another initiative of the organization. There would be endless opportunities for the exchange of knowledge and resources with the agricultural staff at Appleton Farms, who would benefit from having more colleagues involved with a working farm.

Compatibility with community goals

Check Sharon master plan.

Competition with local farmers

According to Appleton staff, the regional market for vegetable CSA's is very high. Establishing a CSA at Moose Hill Farm would likely increase public demand for CSA products, which will help support more CSA's in the area. Any CSA operation at Moose Hill Farm should be sensitive to the nearby Moose Hill Community Farm, jointly operated by the owners of Ward's Berry Farm and Massachusetts Audubon Society. Ward's Berry Farm retail fresh produce at their store on Main St., Sharon. There are four Farmers Markets and another CSA within 10 miles of Sharon. Crescent Dairy Farm, also in Sharon, primarily markets dairy products.

Bureaucratic or regulatory hurdles

Regulatory issues would only be problematic with a CSA if the operation is intended to be certified organic. There are strict federal regulations that must be met or exceeded in order for a crop to be certified as organically-grown. It is a slow process, as there must be a five-year period when no chemicals are used on the farmland prior to receiving certification. Cultivating crops using organic methods but forgoing the formal certification process might be a more desirable approach.

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Costs

Start-up costs for establishing a CSA may be significant due to the uncertainty of an adequate water supply, the potential need to grade and contour (or terrace) the cultivation area, and the need for additional infrastructure to facilitate the CSA (i.e., adequately sized building with wash room, retail space, etc.). An additional significant expense is funding the salary of one full-time Farm Manager, who would need to be hired one year in advance. Additionally, some equipment, including a tractor and modern cultivating equipment (harrow, plow, tiller), would need to be purchased. The estimated cost to drill a new irrigation well is approximately \$5000-\$6000. Financial assistance for installing a well and irrigation system may be available through the Natural Resource Conservation Service.

Cost-Income Ratio

Start-up costs for the CSA may be significant due to the need to secure an adequate and reliable water supply as well as additional infrastructure (CSA barn) and equipment (tractor and cultivation equipment). As with most farming operations, labor would be the greatest annual expense. One full-time Farm Manager would be needed to run the operation with two or three seasonal laborers. Housing for the Farm Manager could be provided in one of the other residences on the property. Finding seasonal laborers may be difficult unless housing is not offered as part of their compensation. If seasonal housing is made available for farm labor, the chances of finding seasonal workers would be greatly enhanced. The other major operating expenses would be the annual purchase of seeds, plants and fertility supplies (i.e., fertilizer, potash, etc.); miscellaneous maintenance and repair costs; utilities for the residences and farm buildings; and fuel costs for the farm vehicles.

Start-up and annual operating costs

See Appendix C for start-up and annual operating costs associated with Community Supported Agriculture at Moose Hill Farm.

Livestock Operation – Grazing Beef Herd

Property's ability to support the operation

Since Moose Hill Farm recently supported eight Belted Galloways cows, it is reasonably well suited for a small livestock operation. The cows were pastured during the summer and fall and fed hay from the back fields (and grain) during the winter and spring (700-800 bales were still available for market). A cow barn (10'x25') currently exists on the property and can comfortably house about eight cows. The barn has an attached grain room and can be used to store roughly 100 hay bales. The floor of the cow barn needs to be replaced if use of this building is to be continued. Additional livestock would require a larger structure to protect the cows during the winter; however, this is a moderate-cost investment. Additional pasture would also be necessary as the general stocking rate guideline is 1 cow/acre. Although the area of hayfield would diminish in proportion to the increase in pasture, the amount of hay produced at the farm could probably support up to 20 cows.⁵ The water supply need for a livestock operation of this size can be supported by existing water supplies on the property.

⁵ One mature cow requires an average of 30 lbs. of dry feed/day.

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The existing infrastructure is suitable for 10 livestock. If the operation was expanded to a herd of 20 animals, then two additional buildings will be needed. One building would be used as a walk-in feeding area (hay, grain) and limited hay storage. A second building would be used just for hay storage (3000 bale capacity). The “big shed” would be needed for hay equipment storage and would no longer be used for storing hay.

Compatibility with resource protection goals

The impact of a grazing beef herd on grassland wildlife is significant if the herd is sustained by hay grown on the property. Multiple mowings for quality feed hay would impact habitat for resident bobolinks attempting to nest in the fields. Potentially successful nesting could only occur by implementing a carefully designed mowing plan that maintained nesting habitat within the field interior. As with any intensive haying operation, the diversity of grassland wildlife would be reduced. Impacts to resident grassland birds may be avoided if hay is cropped from another of the Trustees properties, such as Fork Factory Brook.

Ability of program to enhance visitor experience and advance education initiative

The pastoral view of cows grazing in the fields at Moose Hill Farm would greatly enhance the visitor experience. People generally tend to associate farms with animals and expect to see livestock at a working farm. The opportunity to interact with livestock would attract visitors, especially families with children, to the Farm. With any type of livestock, educational opportunities abound. There are opportunities to connect people with the source of their food, to interpret the changing nature of farms in Massachusetts, to demonstrate ecologically-sound agricultural practices, and to promote healthy lifestyles by promoting naturally-raised, free range meats.

Ability to create volunteer opportunities

A beef cattle operation may not afford a great deal of volunteer opportunities. There may be some opportunity to assist with animal husbandry or to help with the marketing and sale of beef produced at the Farm. Other uses for volunteers may be developed as the program evolves.

Institutional benefit to The Trustees

There is a very small number of Trustees staff whose primary responsibilities are agriculture-specific. Only two of the organization's 96 properties host farming operations (other than hay production). The staff of these properties would surely benefit from having other colleagues involved in agriculture. Opportunities for an exchange of information, knowledge, equipment and possibly even labor may arise, particularly with Appleton Farms, which also runs a beef cattle operation.

Compatibility with community goals

Raising cattle at Moose Hill Farm is generally in keeping with past uses of the property since the farm was historically managed for dairy. Continuing this use offers opportunities for interpreting the history of the property and the changes that have occurred over time.

Competition with local farmers

There are no known beef cattle operations within the immediate area and, thus, competition with other farmers is not a factor.

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Bureaucratic or regulatory hurdles

There are no excessive or cumbersome regulations for raising cattle in Massachusetts. The regulations for cattle are similar to those of other livestock, which require the appropriate licenses and permits and call for the periodic inspection of facilities.

Start-up and annual operating costs

See Appendix A for start-up and annual operating costs associated with a beef operation at Moose Hill Farm.

APPENDIX F

1. **Title Search and Deed Abstracts, Moose Hill Farm**
2. **Living on Moose Hill: an interview with Steve Ellis**
3. **Historic Maps and Plans**
4. **Photos**

APPENDIX F
TITLE SEARCH AND DEED ABSTRACTS
Moose Hill Farm
(Not for use as legal documentation)

- 1931** Arthur Dreyfus (Sharon, Widower) to Henry P. Kendall (Walpole) ND 1951:484
2 parcels land in Sharon with all the buildings thereon as per 1914 plan, subject to Edison Electric Illuminating Company easement.
1. 119 A west of Moose Hill Road
2. 21 1/10 A. east of Moose Hill Road
- 1916** Raymond Carter to Dreyfus [ND 1341:461] – same description.
- 1915** Eva M. Barry to Carter [ND 1301:33] – same description. Barry had plan of property drawn up Dec 1914 (see maps & plans appendix)
- 1914** Martha A. Walker (Detroit widow) to Barry [ND 1280:406]
- same land, but differently divided. It includes one 42 acre parcel “*Known as the John Smith Homestead Farm together with the buildings thereon.*”
- 1910** George A. Carpenter (Wolfeboro NH) to Walker (Cambridge MA) [ND 1139:121]
- various parcels including “*the John Smith Homestead Farm with buildings.*”
- 1910** [foreclosure on 1907 mortgage]: Laura A. Sage to Carpenter [ND 1133:324]
- 1900** estate of John J. Shaw to Laura Sage [ND 871:8]
this transfer included 4 parcels:
- 1 parcel with buildings – known today as the Gagnon property. An 1886 mortgage on this parcel describes land but no buildings – thus defining the period during which the Gagnon house was built.
 - 42 acres *known as the John Smith Homestead Farm together with the buildings thereon.*
 - 6 ½ acres wood and meadow south of Moose Hill Road *extending northward to Jasper Holmes’ land.* Holmes was Smith’s nearest neighbor. The name appears in this location from the mid-19th century on.
 - 10 acres woodland (probably west of Moose Hill Rd.).
- 1888** A.L. Flanders to J.J. Shaw [ND 609:521]
- 1885** Charles T. Derry to A.L. Flanders [ND 569:437]
Derry appears to be a real estate broker/investor
- 1878** Frederick, William O., Albert F., George, and Leonard F. Fuller to Charles T. Derry [ND 504:77] – last three parcels listed above, with stipulation:
It being understood and agreed that Darius Foss the present occupant of the above described lands may [occupy] the same until the 15th of October 1878 and that the crops now standing upon the same...belong to him.
- 1864** Frederick Fuller transfers Smith Farm and the 6 ½ acres to his (sons?) [ND334:8]

APPENDIX F

1854 John Smith (Sharon) to Frederick Fuller (Providence RI) for \$500 [ND 228:236]
my homestead farm by estimation 42 acres plus or minus with all the buildings and improvements thereon. Land is divided into two parcels by the *road or highway* (Moose Hill Road) running through it. (See deed abstracts)

At the same time, Fuller sells back to John Smith and wife Susan a life tenancy in the property, for \$10. [ND228:236]

ca. 1800 Israel Smith to Israel Smith Jr.? (not examined), John Smith Jr. [ND 54:135] and Jacob Smith [ND 66:176] – father divides his Moose Hill property among his sons.

APPENDIX F

Deed Abstract: John Smith to Frederick Fuller 1854 [ND 228:236]

John Smith (Sharon, Mass.) to Frederick Fuller (Providence RI) for \$500:

my homestead farm by estimation 42 acres more or less with all the buildings and improvements thereon

one portion on the west side of the road or highway [= *Moose Hill Road*] beginning at the SE corner; thence bounded

- westerly with line of Silas Bullard Jr. and Jacob Smith's land to a road
- thence W by the N side of said road to the SW corner of my land being also a corner of Jacob Smith's land
- thence N with Smith to NW corner of my land
- thence E with the line of John C. Wilcox's land to the road [= *Summit Street*]
- thence S by the west line of the road.

second portion on the east side of [*Moose Hill*] road, beginning at the NW corner which is also a corner of Warren Smith's land,

- thence E by sd. Smith's land
- thence S by sd. Bullard's land
- thence W by Bullard's land to the road
- thence N on the east side of the road.

written: June 28, 1854; recorded July 26, 1854.

Comment: Silas Bullard Jr. and John Smith both appear on the 1858 map of Sharon. The Bullard land east of Moose Hill Road is indicated as occupied by Alden White (current Kendall Foundation red cape). Wilcox and Jacob Smith do not appear in the Moose Hill area in 1858, because they did not live at these locations. If this John Smith was the 'John Smith 2nd' of the transcribed 1797 deed, then abutter Warren Smith was likely his son. John was 83 when this deed was drawn up.

APPENDIX F

DEED: Israel Smith to Jacob Smith 1800 [ND 66:176]

Know all men by these presents that I Israel Smith of Sharon...
in consideration of a certain obligation given by my son Jacob Smith of the same town...
he therein binding himself & heirs to support me the said
Israel Smith & my wife Mary Smith with all that is necessary
for the support of life both in sickness & in health cloathing & c.
even to the latest survivor of either of us - & a decent burial after
death as is more fully set forth in said obligation – I the said Israel
Smith do hereby sell & convey to the said Jacob Smith...

a certain piece of land lying in Sharon aforesaid together with
all the buildings thereon, is bounded as follows: viz. beginning at the
corner of John Morses land turning easterly. Northerly on the land
of David Fisher Easterly on the land of John Smith – turning a wes
terly course on the land of said Smith – thence turning a southeas
terly course on said Smith thence turning a southwesterly course on sd Smith – thence a
Southerly course, thence an

Easterly course on said Smith land – to the road leading over Mooss hill
to a great rock at the road, thence Southerly on said road in part on the
land formerly owned by Ebenezer Bullard – thence turning Southwesterly
on the land of Israel Smith Jr. thence turning Southeasterly on said
Smith land, thence turning westerly on said Smith land, thence turn
ing Southwesterly on said Smith thence turning southeasterrly on
said Smith land, thence turning westerly on the land of Nathaniel
Guild thence turning Southerly on said Nathaniel Guild's land –
thence turning westerly on land of Herman Guild, thence turning
northerly on land of Nathaniel Guild in part & in part on the land of John Smith –
thence turning northerly on the land of the widow Rebecca Guild in
part & in part on the land of John Morse to the first mentioned
corner, the above piece of land is supposed to contain fifty or sixty
acres be the same more or less ...

Also one other piece of meadow land lying in Sharon afore
said in the Pegen Swamp so called containing three acres in common & un
divided with John Smith....

In witness whereof I have hereunto set my
hand & seal this twenty fifth day of August AD one thousand eight
hundred....

Signed sealed in presence of Benjamin Pettee, Edward French

N.B. This deed is not to be recorded untill after the decease of the latest survivor either of Israel
Smith or Mary Smith but to be delivered to a trusty person to keep untill that period shall
come then delivered to the grantor....

April 16th 1822 Rec^d Entered & Examined by James Foord Reg

*[This was a fairly common form of old-age insurance: father deeds property to son, to be
formally received after parents' death, the 'cost' being maintenance of parents in their home.
The land abuts John³ Smith's on Moose Hill, which Israel² had deeded to him three years
earlier. Note reference to Israel Smith Jr, who likely received a third of the father's farm]*

APPENDIX F

DEED: Israel Smith to John Smith 2nd 1797 [ND 54:135]

Know all men by these presents that
I Israel Smith of Sharon in the county of Norfolk and
Commonwealth of Massachusetts Gentleman
in consideration of the sum of Seven hundred & forty Dollars
paid by John Smith 2nd of the same Town county and
Commonwealth aforesaid Gentleman
the Receipt whereof I do hereby acknowledge, do hereby give, grant, sell and convey unto
the said John Smith and his heirs and assigns forever a certain tract
or parcel of land lying in Sharon aforesaid on Moose Hill so called
containing fifty acres and thirty seven rods in three pieces

1. 44 7/8 acres on both sides of the road leading over Moose Hill
bounded on lands of David Fisher until it comes to the road, then E on road to land of
heirs of Philip Withington, N on Withington heirs, E on land of Silas Bullard to the road
then E on road & my other land on all other parts; the line beginning at a rock in the wall
by sd. road then running W with said wall until it comes to the fence at the SE corner of
the house lot then with sd fence [outside?] sd lot until it comes near the barn then running
N'y though sd lot the line being about three rods E of the shed then turning with the
wall 13 rods until it comes to the fence then with sd fence until it comes to lands of David
Fisher aforesd
2. one other piece, part of the land purchased of Nathl. Guild containing 2 [acres], 2
[roods], 13? [rods] bounded W on Nathl Guild heirs, [N?] on heirs of Nathl Guild Jr, E &
S on my other land.
3. also 1/2 of my meadow lying in Bacon Swamp containing 6 acres on the whole,

-- hereby reserving to myself liberty to fence off a piece 8 rods long and 1 1/2 wide at the NW
corner of the first mentioned piece of land

-- also reserving a bridle way through the above granted premises on the southerly side of the
above John Smith's house to the town road leading over Moose Hill.

written: June 26, 1797; witnessed Jan. 26, 1802; recorded March [illeg], 1817.

*Comment: It is only a guess that these men are Israel² Smith and his son John³ Smith. John
might be identified as "John 2nd" because Israel's brother John² was still alive but did
not seem to have had a namesake son of his own.. If this is correct, the informal deed
between father and son was formalized before witnesses in 1802 prior to John 2nd's
marriage with Katharine Fisher (and could she have been abutter David Fisher's
daughter?).*

APPENDIX F

Interview Notes: A Walk with Steve Ellis (Property Manager, Moose Hill Farm)

Oct. 5, 2004 – Walk-over, Moose Hill Farm with Andy Walsh (Trustees ecologist) and Steve Ellis

- The Robert Ellis family moved to Moose Hill September 9, 1953 in order for Mr. Ellis to assume position as farm manager. Steven Ellis born 1958; has lived at Moose Hill ever since, and has worked there full-time since 1976.
- Steve Pascal, equipment supervisor, has worked at Moose Hill for 10 years.
- Fields at top of hill: always hay 2-3 times a year; “I’ve spent the past 10 years trying to get these field edges back where they belong – it’s a never ending job.”
- The east field shows evidence of fencing at north end indicating it was used as pasture at some point.
 - Apparently tried to grow corn here at one point also, but field is too dry; hill just drains right out.
 - Along wall line next to cart path over hill [*see cultural resources map*] is a well hole that used to contain a pump used to pump water up to the hill top. [*can see ‘shadow’ evidence of water line running top to bottom of field*]
 - East field was where Henry W. landed his plane; he didn’t like taking off over the house so started to extend the ‘runway’ northward but about that time he bought a new plane that needed less taxiway.
- In the woods at the north end of the field is a large birm of dumped rock with some dirt, angling northeast from field – is this the not-completed runway extension?
- The dairy farm: there were no livestock at the farm by the time of Henry P’s death in 1959.
 - 1964: barn fire wiped out main structure, left milk room and workshop (right ell) still standing. the fire was apparently set.
 - 1970s: workshop ell burned due to workman’s coat left on heater.
 - Standard cattle fence needs to be 4 feet high
 - Cows don’t like to eat Queen Anne’s Lace – avoid it in pasture and in cut hay
- Henry W. lived in Moose Hill Farm house with his mother until she died; John Plimpton Kendall + family lived at Field house (now Audubon headquarters) around corner.
- Steve and Andy Kendall grew up together; Andy learned to drive in an old Jeep on land across street from Farm, then open; now in reversion.
- An earlier farm dump (equipment parts, wheels et al) in hollow nearby, along with assorted structural debris (concrete chunks, rotting beams)

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- Steve's parents estimated that three farm cottages [*Gardener, Herdsman #1 and #2*] were built in 1940s.
- Foundations & Houses located by Steve (Tritsch observations):
 1. L-shaped large cellarhole with attached ground-level foundation, possible car/carriage/wood shed with large barn nearby; all adjacent to Summit St.
 2. Rough 3-sided 2' high foundation set back from break in wall along Summit Street – a 20th century get-away camp?
 3. Gagnon house & barn (carriage house): turn of century Victorian; chimney (for stove) much later.
 4. Felt house cellarhole & foundation upslope from Gagnon
 5. Red house across Moose Hill Rd: faces west (?): Greek Revival/ pre-1850 interior doors and moldings, center chimney. Great proportions. One room with 16-20" wide floor boards. Two fires her, so has been heavily reworked.

Newcomb house: 1 ½ story Cape with awkward additions; detached stone garage. House may be same era as one across stree