

Partnership Refuges: The Future of the National Wildlife Refuge System? A Case Study of Mashpee National Wildlife Refuge, Massachusetts

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**Partnership Refuges: The Future of the National Wildlife Refuge
System? A Case Study of Mashpee National Wildlife Refuge,
Massachusetts**

A Master's Project Presented

By

Margaret C. Engesser

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**Partnership Refuges: The Future of the National Wildlife Refuge
System? A Case Study of Mashpee National Wildlife Refuge,
Massachusetts**

Approved as to style and content by:

Elisabeth Hamin, Committee Chair
Landscape Architecture and Regional Planning

Ethan Carr, Committee Member
Landscape Architecture and Regional Planning

Carl Melberg, Committee Member
U.S. Fish and Wildlife Service

Elisabeth Hamin, Department Head
Landscape Architecture and Regional Planning

ABSTRACT

The U.S. Fish and Wildlife Service works with partners to carry out management activities and events on national wildlife refuges. Partnerships provide financial and conservation management assistance for refuges and allow the Service to expand its breadth of influence to different agencies and organizations nationwide. As partnerships become a more valuable tool utilized by refuges, the Service should consider establishing partnership-based refuges, in which the refuge is owned by multiple organizations and not solely by the Service. This Master of Regional Planning Project evaluates one of the first partnership refuges, Mashpee National Wildlife Refuge, located on Cape Cod, Massachusetts. Through the Service's partnership with eight state, local, and private entities, Mashpee NWR is the only known wildlife refuge in the National Wildlife Refuge System whose land is co-owned and managed by nine different organizations. This project follows the Mashpee Partnership through the beginning stages of the refuge's comprehensive conservation planning process and during revisions made to the refuge's original establishing document, a Memorandum of Understanding, which will be agreed to and signed by all nine organizations.

The Mashpee Partnership represents an important step towards the acceptance of partnership-based refuges within the Service. This project highlights the partners and the development of the Mashpee Partnership, and how they have collaboratively planned for the refuge's future. Through case studies, interviews, and an examination of partners' land uses, this project examines the Mashpee Partnership and the influence it has had on the Service and partners. A collaboration toolkit and other recommendations are provided, with the goal that the Service will use Mashpee NWR as a model for establishing new wildlife refuges through partnerships.

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ACRONYMS

<u>ACRONYM</u>	<u>FULL NAME</u>
ACEC	Areas of Critical Environmental Concern
ADA	Americans with Disabilities Act
ATV	All-Terrain Vehicle
BLM	Bureau of Land Management
CCP	Comprehensive Conservation Plan
CMP	Comprehensive Management Plan (NJ Pinelands)
DOD	Department of Defense
GIS	Geographic Information Systems
GMP	General Management Plan (Ebey's Landing)
LWCF	Land and Water Conservation Fund
MMLS	Makepeace and Mercy Lowe Sanctuary
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NEC	New England Cottontail
NPS	National Park Service
NWR	National Wildlife Refuge
TNC	The Nature Conservancy
USFS	U.S. Forest Service

PARTNERS:

USFWS	U.S. Fish and Wildlife Service
WBNERR	Waquoit Bay National Estuarine Research Reserve
DCR	Department of Conservation and Recreation (MA)
MA DFW	Massachusetts Department of Fish and Wildlife

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INTRODUCTION

The Mashpee National Wildlife Refuge (Mashpee NWR, refuge) is unique to the refuge system due to the collaborative management of refuge lands through several partnerships. Each partner owns land within the refuge, rather than the entirety of the land being owned by the U.S. Fish and Wildlife Service (USFWS, Service), which is the case at most other refuges. The Service values its expansive use of partnerships within the National Wildlife Refuge System (Refuge System). It participates in several types of partnerships, including grants and cooperative agreements, memoranda of understanding, and statutory partnerships. The Service defines a partnership as “an agreement between two or more organizations, created to achieve or assist in reaching a common goal” (USFWS 2008). Mashpee NWR will be developing a new Memorandum of Understanding (MOU) in which the Service’s partnership with other organizations is “based on mutual agreement on processes, products, or outcomes accomplished by working cooperatively with other federal and non-federal partners on issues of mutual interest” (USFWS 2008). The refuge had originally established an MOU in 1995 which will be replaced by the new MOU in order to reflect the current partnership situation.

As the refuge develops its draft comprehensive conservation plan (CCP), these partnerships, collectively referred to as the Mashpee Partnership, will be a critical element in the formulation of current and future management of the refuge. The importance of the Mashpee Partnership is further evident in the refuge’s draft vision statement, included in the CCP: “Mashpee National Wildlife Refuge is a unique refuge with its establishment as a partnership for the conservation and protection of its fish and wildlife resources...The Mashpee NWR partnership provides opportunities for visitors to develop an understanding of fish, wildlife and plant resources and an appreciation of their role in the environment today and into the future.”

Collaborative planning will maintain a fundamental role in the process of establishing the refuge's CCP. Several scholars have outlined varying approaches to undertaking a collaborative planning process, with specific steps in order to achieve the overall objective. Many authors have suggested that collaboration should involve a select group of stakeholders who are representative of the community's vision, desires, and goals. However, in this situation the stakeholders, or partners who will sign the MOU, are an exclusive group and cannot include organizations that do not own refuge land or do not intend to pursue land acquisition for the refuge in the future. While the public's opinions have been considered during the development of the CCP, the burden to decide how to implement future refuge land management largely rests with the partners. Therefore, it will be imperative that the partners do take into consideration the community's perspective on how the refuge lands should be managed in order to avoid future conflict and to maintain the public's interest in the refuge.

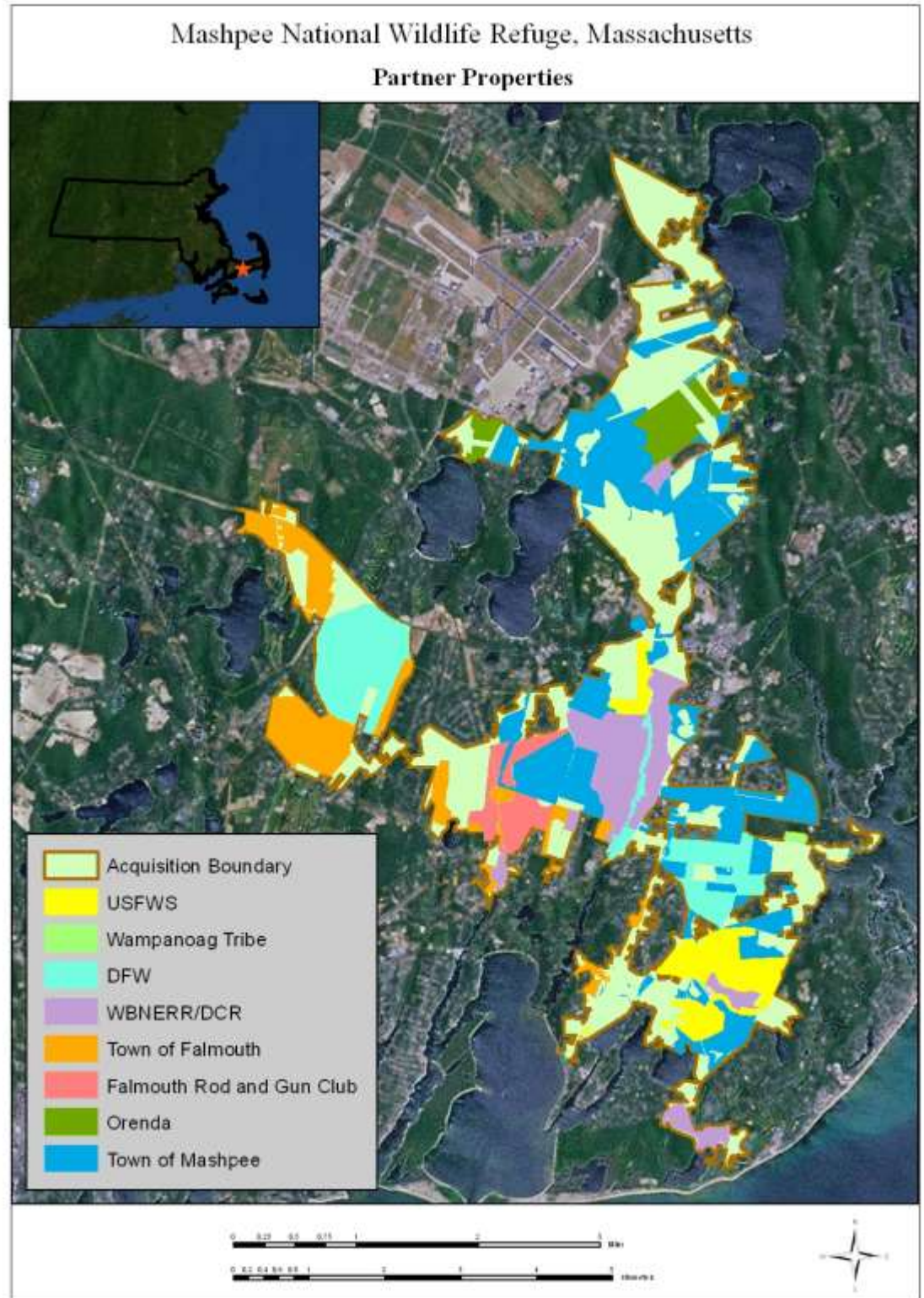
There are currently nine partners who own land within Mashpee NWR and before the CCP and MOU processes were begun, they were largely unaware of each other's land management approaches. There is a need for further communication and cooperation among each group, which will be achieved by updating the MOU that will identify how the partners will work together and establish agreed upon goals for the refuge. The partners are greatly invested in the refuge and are generally positive about the planning process and their ability to come to consensus regarding refuge management. The following is a list of the current refuge partners. These are the official partners included in the Mashpee Partnership and who will sign the MOU; there are other private organizations that own land within the refuge boundary that will not sign the MOU, and are thus not considered to be official partners.

Partners

1. U.S. Fish and Wildlife Service (USFWS, Service)
2. Massachusetts Department of Conservation and Recreation (DCR)/ Waquoit Bay National Estuarine Research Reserve (WBNERR)
3. Massachusetts Division of Fisheries and Wildlife (MADFW, DFW)
4. Town of Falmouth (Falmouth)
5. Town of Mashpee (Mashpee)
6. Falmouth Rod and Gun Club (Gun Club)
7. Orenda Wildlife Land Trust (Orenda)
8. Mashpee Wampanoag Indian Tribal Council (Tribe)
9. The Friends of Mashpee NWR

This project will aim to critically examine the tools used by the partners in the management of their land, and how collaborative management efforts benefit the refuge as a whole. The MOU will establish a Leadership Committee comprised of several partners who will guide the Mashpee Partnership's management of the refuge and shared goals. This committee will allow for group decision-making to occur on a more regular basis and to strive for more consistent land use goals.

This project was undertaken simultaneously with the Service's development of Mashpee NWR's CCP; therefore, this project and the CCP both influenced each other and allowed for a sharing of resources. This project will ideally be included as an appendix in the final CCP, as another reference for readers to understand the complexity and importance that the Mashpee Partnership has not only had for Mashpee NWR, but for the entire Refuge System. Because this project is very specific and emphasizes practice and application over theory, several project objectives and research questions are outlined that have guided the course of this project. The following map illustrates the location of the partners' properties within the Mashpee NWR boundary.



Map 1. Partner lands within Mashpee National Wildlife Refuge.

Research Questions

1. What are the differences in land uses on each partner's land and how much shared management is necessary if the partners have a shared goal of conservation?
2. How do the differences in land management practices and attitudes among the partners toward the refuge affect the collaborative planning process for the refuge?

Objectives

1. Inventory the land use techniques utilized by all the partners and determine their goals for the future management of refuge lands. What are they doing on their land and what management methods have been implemented?
 - a. Method: Analysis of partners' management plans and information incorporated from interviews; management matrix to obtain and organize information from each partner.
2. Comparison of land use management at wildlife refuges and other federal lands nationwide where land is also managed by several partners. Examine how these partnerships are organized and assess their overall progress. Make recommendations based on these findings.
 - a. Method: Literature review on similar wildlife refuges, national parks, and private partnerships.
3. Evaluate the collaborative planning process and the role of the Mashpee Partnership in refuge management. From this assessment, develop guidelines for collaboration to be used as a model for the development of similar refuges managed entirely through partnerships. Include recommendations and an assessment of tools and strategies for

collaboration that were successful and identify steps that did not positively contribute to collaboration.

The overarching goal of this project is that it can be used as a reference by the Service as a guideline and example for partner management. The intent is for this project, and the CCP, to be a model that defines a partnership refuge and exemplifies the ways in which a refuge can be managed by many distinct partners. Therefore, this will include a very procedural analysis that a refuge could follow to structure its partnerships and achieve similar goals to Mashpee NWR.

Based on these outcomes, I will argue that utilizing a collaborative partnership-based process is an effective approach for managing a wildlife refuge; that it could be applied to other multi-stakeholder managed lands in similar situations to Mashpee NWR; and that the Service should consider the value of partnership refuges when establishing new refuges or expanding current refuge boundaries.

AUTHOR'S ROLE

My role in this project was to work with the partners to develop the MOU and facilitate communication and feedback during the MOU process. As a student intern with the National Wildlife Refuge System's Planning Department at the Service's Northeast Regional Office, I maintained the role of intern during partner meetings and during communication, rather than as an outside student researcher. This allowed me to be identified as a Service employee by the partners. This project was very relevant to work done by the planners on the Mashpee NWR CCP and was developed simultaneously as the CCP planning process was taking place. The goal for this project was that it would be completed at about the same time the draft CCP was to

be finished. Therefore, I assisted planners on aspects of the CCP that are not included in this report; however, it helped inform this project, while this project is intended to inform refuge management at Mashpee NWR and partnerships at other refuges.

I tried to eliminate any biases; however, bias is undoubtedly present given my role as a Service employee and the personal relationships I have established with the partners. My overall experience developing the MOU and working with the partners and refuge staff was very positive and has subsequently had some influence on my analysis of the collaborative planning process. I have tried to be as thoughtful as possible on this process and have suggested recommendations sincerely based on my research and experience working with the partners.

METHODOLOGY

The purpose of this project is to understand collaborative planning and the value of partnerships to the Service. The primary methods used to solicit information from the partners, which is imperative for this project and developing the CCP, were the use of a management matrix and interviews with partners. These methods were chosen as the best way to gather the most updated data from each partner concerning their lands and management practices. Additional methods included attendance of meetings, review of partners' management plans when available, use of Geographic Information Systems (GIS) to map the refuge, and development of a GeoStory.

Interviews

The interview process consisted of five in-person interviews conducted on June 6-7, 2012 at WBNERR facilities in Falmouth, MA, following a CCP meeting and the first MOU meeting

among partners. Interviews were conducted with Don Clark (Falmouth Rod and Gun Club), Drew McManus (Mashpee Conservation Commission), MaryKay Fox (Friends of Mashpee, WBNERR), Tom Fudala (Town of Mashpee), and Liz Lewis (Orenda). Interviews were recorded and a series of six questions were asked (see below). The goal of these interviews was to obtain a further understanding of each partner's conservation and land management goals, in addition to their opinions on the Mashpee Partnership and collaborative planning process. All partners were not interviewed due to inconsistent communication and attendance at the MOU and CCP meetings. The partners were asked the following questions:

1. What data do you think is necessary for each partner to make accessible to the group so there is a shared awareness of everyone's land uses and management goals? What information would you like to see from each partner regarding their land?
2. What is the overarching goal for management of your land?
3. Why do you think it is important for the U.S. Fish and Wildlife Service to involve partner organizations who own land in a wildlife refuge?
4. Do you think all the partners can successfully work together through the comprehensive conservation planning process for the refuge? How will the partners maintain communication to ensure they are abiding by the MOU?

An additional interview was conducted over the phone with the refuge manager of the Everglades Headwaters National Wildlife Refuge in Florida, Charlie Pelizza. Mr. Pelizza was vital in the refuge's recent establishment. As a primary case study and one of the most comparable refuges to Mashpee NWR, Mr. Pelizza provided important information and guidance about working with many partners at Everglades Headwaters NWR. A series of eight questions were asked and the conversation was recorded. Information from the interviews with Mr. Pelizza and the partners has been incorporated throughout this document. Mr. Pelizza was asked the following questions regarding Everglades Headwaters NWR:

1. What is the history of the refuge and why was it established with so many landowners and partners? Have you met with all the partners together or just individually? How is the USFWS guiding management- how will you ensure consistency with so many partners?

2. Are there conflicting land uses and management goals among the partners? How are the issues dealt with and what role does the USFWS play in resolving conflicts among partners?
3. How is the relationship among all the partners and does each maintain consistent conservation related goals for their land? Have you thought about an MOU or MOA?
4. Why do you think it is important for the USFWS to involve partner organizations in a wildlife refuge, especially beginning with the refuge's establishment?
5. Do you think that this type of partner owned refuge will be managed successfully and is this something the USFWS should consider more when establishing new refuges?
6. How do you think you will be able to incorporate all the partners into the CCP once that process has begun? Will collaborative planning be effective in this situation?
7. What have been the major challenges thus far and the major accomplishments?
8. Do you know of other similarly managed refuges in the Refuge System?

Partner Management Matrix

A matrix within an excel spreadsheet was created as a tool to gather specific details regarding each partner. Categories for information gathered from each partner included: public use, access, infrastructure, laws and policies, habitat management, future plans, and land protection/acquisition (see appendix B for the full matrix). These categories were chosen because they are important components of the CCP and are essential for determining the stipulations in the MOU. This matrix was completed during the June CCP meeting and was projected on a wall so all participants were able to see each partner's management methods. The goal of the matrix was to not only provide necessary information to the Service to complete the CCP and MOU, but to bring awareness to each partner regarding all partners' management techniques and goals for their lands. While the matrix is not complete, either due to a representative from a partner organization not present at the meeting or simply a lack of knowledge on the topic or authority to give an answer, it was a useful tool in this project and the development of the CCP. This was an essential process for the refuge that will facilitate more collaborative efforts when managing the refuge.

Meetings

A total of 5 meetings were attended on both the CCP and MOU. They were located at WBNERR headquarters in Falmouth, MA and were usually day long meetings. Extensive notes were taken to be used to later inform the writing of the CCP and MOU. Meetings were generally well attended, often consisting of about half of the partners being represented. CCP meetings were led by Service staff and a contractor who was writing the document, while I led discussion during the MOU meetings.

GIS Mapping

A map of the refuge's acquisition boundary was developed to show ownership of lands by the nine partners. Properties within the refuge are color coded by partner. This map is important for clarifying the locations of partners' properties and providing an updated, accurate and detailed map of the refuge. It is useful for each partner to use as a reference. An updated map was also necessary for the CCP and MOU in order to identify and plan for partner lands. GIS data was provided by the Service and several partners, including the Towns of Mashpee and Falmouth, the Mashpee Conservation Commission, and WBNERR. This map will also be used in the CCP.

GeoStory

A GeoStory is a relatively new form of interactive, place-based media created by the National Geographic Society. It allows organizations to create a story regarding a specific issue or topic, and publish it on the National Geographic website and embed it in other sites. A GeoStory for Mashpee NWR was created to tell the story of the Mashpee Partnership and its

importance to the refuge. For this project, it is used as an additional tool to highlight the Mashpee Partnership in a fun, interactive way. Its primary purpose is to bring awareness to the uniqueness of the Mashpee Partnership and the refuge. This is an educational tool that each partner can use to bring awareness to their organization and to the refuge, and each partner will be able to feature the Geostory on their individual websites if they decide to do so.

The GeoStory focuses on the individual partners who gave their permission, including the Mashpee Conservation Commission, Orenda, WBNERR, the Rod and Gun Club, the Friends of Mashpee NWR and the Mashpee Wampanoag Tribe. Each page of the story includes information on one partner and is accompanied by an interactive map showing the partner's lands within the refuge boundary. The goal of the GeoStory is to take the audience on a tour of refuge lands and provide them with a picture of who owns and manages the lands, in addition to important qualities of the properties. Each page also includes another form of media, such as photographs, music/nature sounds, or a video. To view this GeoStory visit National Geographic at: <http://www.geostories.org/portal/> or the Mashpee NWR website at: <http://www.fws.gov/northeast/mashpee/>.

LITERATURE REVIEW

Collaboration during the Planning Process

The involvement of stakeholders in the planning process is critical to the management of lands and for developing a unified constituency that is not only affected by planning decisions, but can influence the outcome of the planning process. It is essential for planning bodies to engage stakeholders at the early stages of planning. As challenges arise during the planning process, this hinders their ability to problem solve and agree if they are not included from the beginning. All related stakeholders should be included (Randolph 2004), in order to holistically approach the planning process and consider every perspective.

There are several approaches to engaging stakeholders during the planning process, which are outlined by Chase et al. (2000). The spectrum of no stakeholder involvement to stakeholders making final decisions involves the following approaches: the authoritative approach, where the governing agency is the expert and does not involve stakeholders; the passive-receptive approach, in which stakeholders must initiate their involvement and their input is not always considered; the inquisitive approach, when a management agency invites stakeholder involvement that helps inform final decisions; and the transactional approach, where stakeholders can make final decisions rather than only informing the decision. The transactional approach, as it has been more widely utilized during the past two decades, has been greatly received by many agencies because of the benefits associated with a high level of stakeholder involvement.

The process of collaborative planning, also commonly referred to as consensus building, allows for the collective thinking of stakeholders in the formulation of a decision, which they reach through consensus and by developing “ideas for creating new conditions and possibilities”

(Innes and Booher 1999). Innes and Booher liken consensus building to role playing, as it is a method for stakeholders to communicate with and learn from each other, and to discuss several possible scenarios they believe are suitable for solving the issue at hand. The ideas being purported throughout the collaboration process do not necessarily need to be shared amongst the stakeholders and planning facilitators (Innes and Booher 1999); rather, this process is intentioned for stakeholders to express their ideas and opinions in a collaborative manner to ultimately reach consensus and produce a final decision that solves a particular problem. Collaboration facilitates long-term relationships and is being increasingly used in land use planning. It involves the following processes: communication, consultation, conflict resolution, consensus building, cooperation, and coordination (Margerum 2011).

While collaborative planning efforts emphasize stakeholders working together, a major drawback of this approach is that the stakeholders do not always represent the greater community interest (Margerum 2011). Additionally, collaboration may be useful to solve a problem or address an issue; however it does not always last, often because the collaborators are not able to adapt over the long-term or funding resources fall through. Many collaborative projects often only have one or two major accomplishments then disintegrate (Mason 2008). However, McKinney and Field (2008) have found that community-based collaboration on federal land has resulted in improved relationships between stakeholders and is conducive to a more trusting environment. This form of collaboration has been shown to lead to more informed decision-making.

Collaborative planning allows stakeholders to assert some power over the decision-making process. The field of planning has struggled with the notion of power and reconciling the overall lack of power that planners possess. Because of the growing importance of

collaboration and consensus building among stakeholders, the issue of power has become of greater importance in planning. Stakeholders form a network of power, defined as “a shared ability of linked agents to alter their environment in ways advantageous to these agents individually or collectively”, which is a result of collaboration among stakeholders and other individuals. The idea of shared power among stakeholders and agencies/planning bodies is a more recent consideration that has influenced the importance and efficiencies of the collaborative planning process (Booher and Innes 2002).

Booher and Innes argue that there are three elements necessary to the successful exchange of power among involved parties. The stakeholders must be *diverse* and representative of the different aspects of the issue trying to be solved, and must be knowledgeable in order to accurately contribute to the process. Because they have different interests and represent various perspectives, it allows for a more comprehensive understanding of the issues. There exists *interdependence* between stakeholders because they each have their own agendas, which creates an atmosphere of power that eventually evolves into a reciprocal relationship in which they can more equally express their specific desires. The final element, which embodies a more equal exchange of power among stakeholders, is engaging in *authentic dialogue* during which each entity is able to express their ideas in a receptive environment (Booher and Innes 2002). The power dynamic involved in collaborative planning allows for more equal involvement among stakeholders, which assists in the overall decision-making process. Likewise, Rolle (2002) notes that in collaborative efforts, progress is an important measurable to determine the effectiveness of the collaboration. It allows participants to experience a tangible outcome of their efforts and see that they have produced change. Rolle has outlined several measures of progress for collaboration that she used to evaluate the progress of the Applegate Partnership, as described

later in detail. Accordingly, a successful collaborative group must meet its goals, be sustained, understand the community and be inclusive, encourage cooperation among different entities, and induce changes in policy, regulations, and programs when necessary.

Mason (2008) acknowledges that a group of stakeholders is almost inevitably concerned with land-use, largely based on personal interactions and sharing experiences with each other. This, he terms, is a place-based stakeholder network, which is characterized by a shared physical space among participants. Because of this, stakeholders have a vested interest in land use and are involved with collaborative, place based planning. When it comes to public participation in civic engagement and land use planning and collaboration, concentrated incentive parties are often more involved and motivated for the outcome than the general public would be. Such people may include those involved in the timber, ranching, recreation industries, among others, and have more to gain or lose in terms of environmental protection than would the average citizen. Therefore, it is often easier and more effective for these incentive-based parties to be mobilized more effectively and to offer stronger support for environmental issues (Mason 2008).

A more concrete example of collaboration in land management and planning processes is the surge in stakeholder involvement in wildlife management during the past few decades. Wildlife management is relevant to this project as it is an important aspect of management at Mashpee NWR. As Chase et al. express, there has been wider involvement by various stakeholder groups in active wildlife management, including hunters, landowners, and environmentalists, which has proven to be both reassuring and challenging to the overall management of wildlife. They describe one model of the management process that can be used to guide stakeholder involvement. This process commences with establishing a foundation in research which guides the planning process, and helps identify the key problems that the

stakeholders are tackling. Because stakeholders often have different and competing interests, a sound decision-making process must be devised. This will result in the formulation of appropriate actions to be taken to solve the problem, which will help define further management goals and objectives related to the overall issue (2000).

Federal Agency Approaches to Collaboration

Several federal agencies have been instituting collaboration as a method for managing public lands. The Bureau of Land Management (BLM) is focused on using collaboration as a tool to build community relationships and encourage stewardship of public lands. Similar to the Service, the BLM can engage in several types of partnerships that are both formal and informal. The BLM's goal is to encourage cooperative conservation, which is the enhancement of natural resources and environmental protection through collaboration with federal, state, local, and tribal entities, along with non-governmental organizations and individuals. The BLM has published a Collaboration Desk Guide that describes the process of collaboration and how to incorporate it into the planning process (BLM 2007). This desk guide is used to inform federal agency collaboration and is an example of how an agency has been implementing collaborative processes.

The BLM uses this notion of cooperative conservation as a guide for the agency's collaboration with partners. Cooperative conservation is the action related to the use and protection of natural resources through a collaborative effort among federal, state, tribal, and local governments. More importantly, it is "the next generation in shared community stewardship of public lands, anchored in the BLM's longstanding commitment to communities, partnerships, and cooperation" (BLM 2007). The BLM highly values collaboration for the management of

public lands. It acknowledges, as does Booher and Innes (2002) that each partner, including the BLM, will act as equal partners during collaboration. The Collaboration Desk Guide is a useful resource for guiding collaboration at the federal level and could also be used as a resource by the Service or refuges as a guide for collaboration and consensus building (BLM 2007).

One approach to privately owned land within a larger federal reserve is designated wilderness areas, of which the Service, BLM, National Park Service (NPS), and the U.S. Forest Service (USFS) can designate. The Service often sets aside designated wilderness areas within refuges. There are currently over one million acres of wilderness land that are privately owned, and are referred to as wilderness inholdings. Tanner (2002) reports that the USFS owns nearly 135,000 acres of wilderness inholdings and the BLM has just over 300,000 acres. Combined for all agencies, the privately owned acres represent a large portion of the total wilderness areas that are under federal jurisdiction.

Oftentimes private inholdings are allowed to remain in wilderness areas, and they can pose several challenges to the government and to the ecology of the wilderness area itself. Wilderness areas are strictly protected and oftentimes have restrictions that limit the allowable uses. Because private landowners live within the wilderness area, conflicts often arise between how they want to use their land and the federal restrictions imposed upon them. This often includes issues with development, such as constructing access roads or structures that would deteriorate the quality of the wilderness (Tanner 2002). Such issues regarding the compatibility of uses are a significant goal the partners must address for Mashpee NWR. The partners will not only need to agree to uses, mainly how/if the public can use their land, but will also need to consider federal policy and the guidelines that the Service puts forth for the refuge on the identification of compatible uses. While Mashpee NWR does not have any federally designated

wilderness areas, it contains numerous private landowners, similar to the notion of private inholdings.

In addition to the Department of Interior's support of privately owned land within a federally designated area, federal funding has supported the collaborative efforts of partnerships and co-management of federally owned lands. The land and water conservation fund (LWCF) is a federal program aimed at acquiring new lands for federal, state, and local governments. That LWCF is the main source of funding for land acquisition by the four federal agencies within the Department of the Interior. Mason (2008) states that recently, more funding has been given to the acquisition of conservation easements and multi-stakeholder efforts whose goal is conservation at a landscape level. The LWCF has increased its funding to support collaborative planning endeavors and place-based projects (Mason 2008), thus showing the federal government's support of collaborative, partnership based projects. The LWCF will hopefully be used to help fund the expansion of the Everglades Headwaters NWR during the 2014 budget year (Pelizza Personal Communication 2012).

The National Park Service

The NPS, a federal agency within the Department of the Interior, has taken strides towards integrating more of a partnership role in several individual parks (Hamin 2000). The NPS does not have a positive track record with citizens in many parts of the United States due to past land acquisition practices that were largely unfavorable for private landowners. Therefore, the NPS strives to portray itself only as a partner that is respectful of local land-use regulations (Mason 2008). The NPS's increased emphasis on partnerships can be utilized as an example for the Service's approach to partnership based wildlife refuges. The NPS has created several

“partnership parks”, which focus on the community's involvement in management of the park. Community involvement includes a wide array of factors, including local government officials, Friends groups, and individual landowners. These partnership parks represent a changing focus in park management, although this type of management is confined to only a small portion of national parks (Hamin 2000).

Collaboration among partners and reaching consensus is integral to the management of these partnership parks. Local government can play a major role in park management (Hamin 2000), as is the case with the Towns of Mashpee and Falmouth’s involvement with managing the Mashpee NWR. These sorts of partnership parks are also influenced by the political arena, especially when encouraging the development of urban parks. Because there is limited land available to create parks, the NPS must implement alternative forms of land acquisition and management, in the form of incorporating privately owned land into a larger national park unit (Hamin 2000).

A case study of a partnership park is Ebey’s Landing National Historical Reserve in Washington State. Ebey’s Landing is comprised of about 17,570 acres, of which 85 percent is privately owned and 3.8 percent (or 684 acres) is owned by the NPS. The remaining ownership is a combination of state and local agencies. Participating in the Reserve is voluntary and its establishment was a community effort. The Reserve is a partnership between the Town of Coupeville, Island County, Washington State, and the NPS. These four entities established an Interlocal Agreement for the administration of the Reserve in 1988, which is similar to the Mashpee NWR MOU. The Reserve’s general management plan (GMP) includes a list of the primary reasons why the Reserve is of local, national, and international significance. The first reason the plan gives is that the Reserve is significant because it is “a new kind of national park

unit cooperatively managed by a trust board representing local, state, and federal interests” (NPS 2006).

Another aspect that characterizes Ebey’s Landing as a partnership park is the lack of a traditional park superintendent and instead, a Trust Board composed of nine representatives from the four main governmental partners. The Trust Board members serve for four years, and this is the first NPS unit to be managed entirely by a Trust Board. Ebey’s Landing Reserve completed its GMP in 2006, which is the Service’s equivalent of a CCP. Therefore, this is an example of a partnership-based federal unit that has completed its planning process (NPS 2006).

The NPS is a minor landowner in the Reserve and has five primary responsibilities which include: maintenance/management of federal land; revising the Reserve’s GMP; participating as a member of the Trust Board; requesting appropriations for the budget; and providing policy guidance to the Trust Board. Both Island County and the Town of Coupeville are responsible for incorporating the Reserve’s GMP into the town and county’s comprehensive plans, in addition to providing financial support for refuge management and operating costs. The NPS works with its partners to coordinate habitat management activities and recreational opportunities across partner-owned lands. The partnership’s interlocal agreement establishes the composition and areas of responsibility of the Trust Board. The Trust Board’s main area of responsibility is to oversee the administration and protection of important Reserve sites and facilities, and to prepare an annual budget. In accordance with NPS regulations, the Secretary of the Interior can decide to take over Reserve management completely if he/she feels it is being managed improperly (NPS 2006). This is a stark difference between the Service’s policies guiding Mashpee NWR, as there are no stipulations allowing the Service to take over management of all refuge lands.

In addition to partnership parks, the NPS has other congressionally authorized areas where management is shared among partners. These “partnership areas” include most long-distance trails and designated river corridors. Because these trails and corridors exist on privately and federally owned land, efforts have been made to work with all landowners involved. Furthermore, national heritage areas are generally managed by state and local governments and nonprofit organizations. The NPS is usually responsible for providing technical and financial aid to the entity that is responsible for the majority of the national heritage area’s management (NPS 2003).

CASE STUDIES

Everglades Headwaters National Wildlife Refuge

An example of a national wildlife refuge that will have a majority of its lands owned by private entities is the Everglades Headwaters NWR, located in south-central Florida. Everglades Headwaters NWR was recently established in January 2012 with a 10-acre donation that began the future 50,000-acre refuge, with a total acquisition boundary of 130,000 acres. According to the refuge manager, the land within the refuge boundary is owned mostly by private landowners and the Service will own and manage any lands acquired by fee title. The Service only has authority to acquire 50,000 of these acres from willing sellers, and the remaining land would be managed through conservation easements that will be purchased by the Service. The total estimated cost of the land for the refuge is expected to be \$400 million (Pelizza Personal Communication 2012).

A fundamental element of this refuge is the conservation partners who will be involved in its establishment, some of which include the U.S. Air Force, Florida Fish and Wildlife

Conservation Commission, Florida Department of Environmental Protection, and The Nature Conservancy (TNC). With these partners, the Service plans to enter into long-term leases, or cooperative agreements, in order to manage the land in cooperation with the Service's conservation goals (USFWS 2011). The Service will not be responsible for managing land upon which it has a conservation easement; rather, these lands will remain in private ownership and will be the responsibility of the landowner to manage, consistent with the Service's conservation goals. The Service will arrange with these partners the wildlife and habitat management plans they can both agree to, and the landowner must adhere to such plans and accept input when needed from the refuge staff (Pelizza Personal Communication 2012).

The partnerships that have helped create the refuge have been vital for the Service to gain the trust and support of local residents and organizations. Given the Service's past influence in this region, especially with the regulations put on hunting and fishing and the sportsmen's dissatisfaction with the Service, the Service's attitude is that they are only one of the team members working to conserve the land. According to Pelizza, the Service is trying "to ensure that we are communicating and collaborating, but we recognize that all of the different agencies and organizations have different mandates and regulations." Additionally, some of the local agencies such as the Florida Fish and Wildlife Conservation Commission and TNC have had long-standing relationships with landowners in the region, so there is an understanding of these agencies and an element of trust among residents. This was important when the Service held public meetings regarding the refuge, as landowners saw the Service working with the agencies they trusted, which helped change the negative attitudes towards the Service. As Pelizza stated in regards to these essential partnerships, "I don't think we could have moved as quickly and as

successfully without their assistance. We couldn't have done it by ourselves, no question about that.” (Pelizza Personal Communication 2012).

The refuge will not likely have a refuge-wide agreement, such as an MOU or Memorandum of Agreement (MOA). This is mostly in part because the larger partner agencies would likely refuse to have an agreement, because they most likely do not need outside assistance. The Service and partners have been able to work well together thus far without an MOU or MOA, so there is not necessarily the need to have a formal agreement binding all partners. However, there have already been several MOUs among the Service and individual agencies, which are more appropriate when funds or services are exchanged. For instance, the Service will be signing an interagency agreement with the Department of Defense (DOD) which owns an Air Force Range within the acquisition boundary. In this agreement, the DOD will provide funding for law enforcement assistance at their Air Force Range, while the Service will provide the staff, supervision, and training. This is an example of how communication has helped both agencies fulfill an important need (Pelizza Personal Communication 2012).

For the Everglades Headwaters NWR, partnerships have been a fundamental aspect of the refuge’s establishment. Even though the refuge currently consists of only 10 Service-owned acres, the future structure of the refuge as soon as more land is purchased will be very similar to Mashpee NWR. Both refuges have, within their acquisition boundary, land in ownership by private landowners and organizations that will one day be part of the refuge. The scale and magnitude of the Everglades Headwaters NWR demonstrates the need for the Service to partner with other organizations in order to conserve a wider landscape, and the importance that individual landowners will have in the management of the refuge in the future.

Glacial Ridge National Wildlife Refuge

Glacial Ridge NWR, located in northwestern Minnesota, was established by the Service in 2004 based on a partnership with TNC. In 1999, a 24,000-acre property known as Tilden Farms was sold to TNC, whose goal was to restore the threatened tallgrass prairie and prairie wetlands. TNC agreed to sell the land to the Service once their restoration efforts were complete, and the Service would become the long-term manager of the land. Because of TNC's nongovernmental organization status, funding for restoration activities was provided by the U.S. Department of Agriculture's Wetland Reserve Program, and was more substantial than the funding the Service would have received. Once the restorations were completed, the lands were transferred to the Service by either purchase or donation from TNC to establish Glacial Ridge NWR (Bennett Personal Communication 2012).

Glacial Ridge NWR has an approved acquisition boundary of 36,000 acres, 24,000 of which are currently under Service ownership. TNC own 2,600 acres which are managed as scientific and natural areas. Approximately 400 acres comprise a watershed district, including a flood control project. The Minnesota Department of Natural Resources manages 1,700 acres as state wildlife management areas, and about 7,600 acres are currently in private ownership. The Service hopes to purchase privately-owned land from willing sellers in the future to include within the refuge. While the refuge's acquisition boundary contains lands owned by several partners, the Service only considers its property as being part of the refuge, rather than the entire refuge (Bennett Personal Communication 2012).

There is no formal arrangement for the partnerships at Glacial Ridge NWR. The refuge has never established an official agreement, such as an MOU or MOA, to guide the partnerships and refuge management. According to the refuge manager, the lack of a formal agreement has

never been an issue. The partners have been able to successfully work together since the refuge's establishment and they meet several times per year. Because each partner has similar objectives for managing the prairie habitat, they are able to collaboratively work towards management of the refuge and achieving the same goals. While Glacial Ridge NWR does not have entirely the same makeup as Mashpee NWR, they share an important characteristic: both refuges were established through partnerships that still exist today. Because of this, Glacial Ridge NWR is a useful case study for this project as it is an example of a refuge that heavily relies on its partnerships, but does not need a formal agreement to ensure these partnerships are successful and beneficial to the refuge (Bennett Personal Communication 2012).

Applegate Partnership

The Applegate watershed, located in a mountainous region of Oregon, is a half-million acre area that is home to about 12,000 residents. About 70 percent of the land is owned by the federal government, including the USFS and BLM, 20 percent by private entities, and 10 percent is owned by large timber companies. During the 1980's, this area experienced extensive clear-cutting and spreading residential development that was a threat to the area's agricultural land and wildlife habitat. The two federal agencies primarily worked independently and there was little coordination with local residents and organizations to address the problems occurring in the area. A decade later, the government was able to stop logging on federal lands in order to protect wildlife. By 1992, the Applegate Partnership was formed by a group of local environmentalists and other interested parties to create a plan for the entire watershed. President Clinton and his administration became involved in the partnership, and included the Applegate watershed as an adaptive management area under his Northwest Forest Plan. The Applegate Partnership's vision

included that “through community involvement in education, this partnership supports management of all land within the watershed in a manner that sustains natural resources and that will, in turn, contribute to economic and community well-being within the Applegate Valley” (Applegate Partnership 1993). The Applegate Partnership proved to be very successful, as stakeholders reached an agreement on logging and management practices, and created several projects that would improve the health of the watershed and wildlife habitat. Collaboration was truly effective in this case as the Applegate Partnership established trust and accountability among its stakeholders and the surrounding community (Margerum 2011; Rolle 2002). The Applegate Partnership is important because it was one of the first partnerships of its kind and it illuminated the benefits of working collaboratively, and is still influential today.

The Applegate Partnership has had many successes, according to Rolle (2002), one of which includes a newspaper it distributes to all residents and landowners in the Applegate watershed, which was a primary method the Partnership used to engage the community. The Applegate Partnership also produced landscape level conservation, including shifting away from clearcutting on federal lands and an emphasis on integrated watershed analysis that occurred on both private and federal land. The Applegate Partnership also produced the Applegate River Watershed Council, which has been very successful in improving the overall watershed and planning for its future. Another important aspect of the Applegate Partnership is that it provides educational opportunities and outreach to the community, which has thus resulted in increased community involvement in the watershed.

The Applegate Partnership has been successful and is still in existence today for several reasons, and is an important example for similar collaborative efforts. When the Applegate Partnership was established, no official ending date was set and the group set out from the

beginning to engage and understand the community. It also attempted to include as broad an array as possible of participants representing different sectors and organizations. The inclusiveness of the Applegate Partnership was a backbone of its success in the early stages as it appealed to many and encouraged a safe environment to voice opinions. It provided opportunities for participants to really understand the situation by facilitating field trips, presentations, and inviting scientists to lecture. The Applegate Partnership has extended beyond its own boundaries and has influenced and inspired civic action, watershed restoration, land-use, and other special interest groups that have formed as an outcome of the partnership (Rolle 2002).

The Applegate Partnership has also resulted in shared resources among participants. This has included the sharing of GIS data amongst federal and private parties, with more people having access to it, which has improved the ability to plan for the watershed. The Applegate Partnership is important because it revolutionized collaboration and the way that different groups and individuals can communicate with each other and work towards a common goal. The Applegate Partnership resulted in a core team comprised of representatives from different agencies who will focus on the Applegate watershed and the sharing of resources. While the Applegate Partnership has made much progress, it has not yet met the entirety of its objectives or made the policy changes necessary to be completely successful (Rolle 2002).

New Jersey Pinelands

The New Jersey Pinelands National Reserve (Reserve) was the country's first national reserve established in 1978 under the National Parks and Recreation Act. It encompasses over one million acres and includes seven counties and 56 towns in New Jersey, resulting in over 700,000 inhabitants. The Reserve is one-third publically owned, which includes parks, forests,

and historic villages. Federal land located within the Reserve includes two national wildlife refuges, Forsythe NWR and Cape May NWR, and three military sites (New Jersey Pinelands Commission 2012).

Following the Reserve's establishment, the New Jersey Pinelands Commission (Commission) was created to "preserve, protect, and enhance the natural and cultural resources of the Pinelands National Reserve, and to encourage compatible economic and other human activities consistent with that purpose". The Commission is responsible for implementing the Pinelands Comprehensive Management Plan (CMP) while working with federal, state, and local governments. The goal of the CMP is to regulate development within the Reserve in cooperation with the Pinelands Protection Act, in order to protect the Pinelands' natural, cultural, and recreational resources. The Reserve is an important example of landscape level conservation in which the federal government is involved in protecting. The Reserve is also managed by the Pinelands Municipal Council, which consists of the mayors of the 53 municipalities included in the Reserve, and was established through the Pinelands Protection Act. The Council works cooperatively with the Commission to pass legislation that affects the communities and is an advisory entity to the Commission when issues affecting the Reserve arise (New Jersey Pinelands Commission 2012).

Due to the many towns and landowners included in the Pinelands Reserve, several MOAs and intergovernmental agreements have been created to ensure cooperation, which is supported by the CMP. Agreements are generally entered into when an agency or town requests a development project or use to be implemented that is not in conformance with the CMP's land use and development restrictions. The Executive Director of the Commission must evaluate such requests and approve or deny the agreement. In order for the agreement to be approved, the

restrictions that are waived to accommodate the development must be balanced by other efforts that will aim to protect the Pinelands in different ways. The proposed development must undergo public review and comment, and final review will be done by the Executive Director and all members of the Pinelands Commission (New Jersey Pinelands 2008).

The New Jersey Pinelands Commission has entered into several MOAs with towns, counties, state agencies, and federal agencies, including the NPS. An example of an MOA is the 1998 agreement between the NPS, NJ Department of Environmental Protection, NJ Department of Commerce and Economic Development, and the Pinelands Commission to cooperatively manage the New Jersey Coastal Heritage Trail Route. The MOA outlines the resources each agency will provide, including staff, site evaluation, preparing plans, and planning public meetings, and was in effect for a term of 5 years (NPS 1998). The Pinelands Commission also has several MOAs currently under review, including agreements with several counties, boroughs, and townships (New Jersey Pinelands Commission 2012). It is a positive example of the benefits of intergovernmental and interagency agreements, and illustrates how towns can work collaboratively to manage a reserve, which can be used as an example for the towns of Mashpee and Falmouth.

Understanding the Literature

The Mashpee Partnership

The collaborative planning process that Innes and Booher (1999) discuss best characterizes the Mashpee Partnership. Their emphasis on collaboration being based on stakeholder consensus building and facilitating relationships among stakeholders is similar to how the Mashpee Partnership has unfolded and evolved during the CCP and MOU process. The

partners have been able to get to know each other and form relationships on a professional and personal level. While there have been some points of contention, disagreements among the partners have for the most part been resolved and a solution devised that accommodates each partner.

The process of consensus building that the partners have formed has generally been successful, which in a large part can be attributed to the power shared among the partners, resulting in an equal playing field. This analysis of power and equality among the Mashpee Partnership is influenced by Booher and Innes (2002) and their discussion of the role that power plays in influencing the effectiveness and outcomes of a collaborative planning process. Because each partner in the Mashpee Partnership is seen as an equal stakeholder, they are all invested in protecting the refuge and working together to better manage the refuge as a whole. The partners all know that their opinions matter and that they have the power to refuse or approve any activity occurring on their land, even if they are the minority. While the Service has facilitated partner meetings and the planning process, they hold no more authority over refuge lands than the other partners. The ability of federal, state, local, tribal, and private organizations to work together on an equal level for the same reason has allowed this partnership to endure and collaboratively manage the refuge.

One of the major ideas that can be taken from the literature review and applied to the analysis of the Mashpee Partnership is the concept of a “partnership park”. According to Hamin (2000), the NPS has incorporated several partnership parks and partnership areas into the National Park System as an alternative method for acquiring protected lands. As this is the case with Mashpee NWR, these partnership parks have incorporated privately owned lands into their boundaries. This can include land owned by the state or local government, private organizations

or individual landowners. Partnership parks work well in urban environments where there is limited undeveloped land available. Therefore, the NPS strives to include in a park boundary lands that are not owned by the federal government.

Hamin's description of partnership parks is very similar to the situation of Mashpee NWR. The refuge is located in a fairly urbanized part of Cape Cod in a setting where protecting open space is important to local governments and residents. Because of this, the Service has been able to work with the partners to incorporate their lands into the boundary of the refuge, and to work with additional partners to plan for the expansion of the refuge. In terms of how partnership parks are described, Mashpee NWR has many of the same characteristics of the partnership park and should be recognized as a partnership refuge. It is a type of refuge that the Service should consider establishing, especially in more urban environments where protected land is limited and the need for open space is great.

The case studies also offer valuable insight into the idea of a partnership at the federal level. The examples of Glacial Ridge NWR and Everglades Headwaters NWR are illustrative of partnerships at different levels and the integral role a partnership, composed of several key players, can play in the establishment and function of a refuge. The composition and function of these partnerships differ from Mashpee NWR; however, all three refuges were established either through partnerships or based on proposed partnerships.

The cases of Glacial Ridge and Everglades Headwaters refuges were the only refuges similar to Mashpee that were able to be identified by this author. This report acknowledges that there are likely other partnership-based refuges in the Refuge System where, together with the Service, the partners are the major landowners of refuge land. However, due to the large number of refuges nationwide (nearly 600), each refuge was not examined for this report. Within the

Service's Northeast Region, Mashpee NWR is the only partnership refuge; therefore, it is an important example for this region of the United States.

Interview Findings

Interviews were conducted with representatives for five of the partners to understand their perspective of the collaborative planning process and to gather any recommendations that might improve this process for another refuge. The general attitude towards this process has been positive and many of the partners felt they were treated equally in the decision-making process. It is also beneficial for the Service's image as an entity of the federal government, as past governmental land acquisition strategies have not always been preferred by private organizations. The Rod and Gun Club representative noted that the club has a "very favorable image of them [USFWS] because they are evenhanded and fair dealing, and aren't out to shut this [MOU] down" (Clark Personal Communication 2012). Another partner praised the collaborative planning and MOU process, commenting that the group is very supportive and that there has been a respectful atmosphere throughout the whole process (Fox Personal Communication 2012).

It wasn't until the past few years that the partners felt a strong connection to the partnership and that it was evolving into a unified group. As noted by several of the partners interviewed, the partnership committee began strong and eventually tapered off, without meeting for several years to discuss refuge management. However, the relationship between the refuge partners has been reinvigorated since they have begun to meet regularly again with the commencement of the CCP process (Fudala, Fox, Clark, Personal Communication 2012). The CCP has brought the Mashpee Partnership to a new level, requiring more involvement and

communication among the partners than ever before, especially with the formation of the MOU. According to one partner, the CCP has given him a much more solid sense of the direction that the Mashpee Partnership and the refuge are headed towards. This is largely attributable to the goals included in the CCP that will guide the future of the refuge's management. This, he feels, has added more structure to the Mashpee Partnership, rather than everyone expressing their own individual opinions, which was impeding progress (McManus Personal Communication 2012).

The Mashpee Partnership has not only facilitated the group's ability to make decisions regarding refuge management, but it has helped the partners realize that many of them face the same issue. Thus, it is logical to address problems collectively rather than individually, which is at the heart of the MOU. Specific issues have united the partners in their efforts to protect Mashpee NWR, including addressing options to deter illegal dumping and efforts to manage the refuge for New England Cottontail (NEC). These two topics, among others, affect the majority of refuge lands and almost all of the partners, and are issues that will be better solved for the refuge as a whole.

The partnership at Mashpee NWR demonstrates the transactional approach as described by Chase et al. (2000), in which stakeholders contribute to final decision-making. It also maintains an element of equal power shared among the partners, in which each partner is encouraged to voice an opinion and can make decisions, while being led by the Service. Even though the Service is the leader in this partnership, especially in terms of the CCP and MOU, all partners are considered equal, which is an important aspect of collaborative planning and stakeholder relationships according to Booher and Innes (2002). The Mashpee Partnership embodies the image that Booher and Innes conjure of a successful partnership with an equal exchange of power, in which the partners are diverse, interdependent, and engage in authentic

dialogue. The partner organizations are very diverse and represent a range of federal, state, local, tribal, and private entities, therefore creating a large knowledge base. There is an element of interdependence among the partners because they have begun to rely upon each other and work collaboratively in managing the refuge, meanwhile maintaining their organization's individual philosophies. The Mashpee Partnership is also conducive to a positive environment in which authentic dialogue can occur, and is an element of this partnership that many partners have expressed as crucial for making decisions.

Management Plan Inventory

Each of the partners has an individual approach to managing their land within the refuge boundary. Several of the partners have documented these efforts and goals in published management plans; others, however, approach land management more informally and thus the information gathered on their land management techniques was acquired through conversations and interviews with representatives from these partners. Information was also obtained from several of the partners' websites, where their management is mentioned, although not to the same extent as it would be in a land management plan. Several of the partners are not included in this section as written management plans were not available. The summaries of the management plans that follow pertain in some way to Mashpee NWR and the partners' management of some or all of their lands that fall within the refuge boundary. For a detailed description of each partner's land uses and management activities, see the partner management matrix in appendix B or the matrix summary below.

Waquoit Bay National Estuarine Research Reserve

Of all the partners, the Waquoit Bay National Estuarine Research Reserve (WBNERR, Reserve) has the most in-depth and detailed land management plan. WBNERR is part of the National Estuarine Reserve System, which is the network of protected lands consisting of estuaries and coastal habitats that comprise a total of 26 reserves in several states. WBNERR has 2,780 acres of land and water, the majority of which is owned by the Commonwealth of Massachusetts. The MA Department of Conservation and Recreation is the parent agency of WBNERR, and they consequently co-own several properties within the refuge. Stringent state restrictions enforced by DCR must be followed in the DCR Resource Management Plans, of which WBNERR's plan is categorized. WBNERR is also responsible for several large properties in the Towns of Mashpee and Falmouth. Therefore, a detailed land management plan is necessary to guide the uses and management of WBNERR properties.

WBNERR owns several properties within Mashpee NWR. These lands include: Abigail Brook, Child's River, Phinney Property, Quashnet Woodlands, Nstar, North Quashnet, and the Quashnet River Property. WBNERR, under the jurisdiction of DCR and the National Oceanic and Atmospheric Administration (NOAA), implemented a management plan in 2006 to guide the use and management of its properties located in Mashpee and Falmouth for the next five years, ending in 2011. A newer version of this plan is currently being drafted and will cover goals for the years 2012 to 2015. The majority of this section relies on the 2006 plan because the newer version is currently being developed and has not yet been finalized; however, there are several references to the 2012 plan in this section.

There are also several in-holdings within the boundary of the Reserve that are privately owned. Much of the land that WBNERR acquired before the development of this plan was

acquired with the intention of being included within the Mashpee NWR boundary. This land acquisition included the Abigail Brook Property, Child's River, the Phinney Property, and the Quashnet River Area, all acquired between 2002 and 2005. All properties that WBNERR has acquired in the past several years have been within the Mashpee NWR acquisition boundary. It plans to acquire other properties in the future following DCR land acquisition policies and funding from NOAA, DCR, and grants (WBNERR 2006).

Following WBNERR's philosophy and goals, the Reserve's management plan seeks to address stewardship of its lands, research and monitoring, and encourages training and education. Because WBNERR's programs emphasize water quality, coastal ecosystem management, and coastal stewardship, the management plan focuses on addressing these themes on WBNERR's several properties.

One of WBNERR's main priorities is conducting research on land and water properties. This research is largely intended to preserve the marine and land ecosystems by analyzing and addressing environmental and social issues affecting WBNERR lands and collecting data. This research allows for the management of the properties identified as critical and of most importance. The intensive environmental monitoring that takes place at WBNERR is important for the management of its lands, because factors such as climate change are closely monitored and the organization can react to such changes in the environment appropriately.

Several of the goals outlined in WBNERR's management plan specifically pertain to how the Reserve intends to manage its land in the future. The overarching theme of WBNERR's land management is to "manage with an emphasis on conservation and sustainable uses of ecological resources while balancing the needs of research, education and recreation" (Land Management Objective 3.2). At the time of this plan, WBNERR had intended to develop and implement

specific resource management plans which included a road access management plan, a forest management plan, invasive species management plan, and a road access management plan.

WBERR works closely with the MADFW to ensure that management does not interfere with or negatively impact the fragile ecosystems and wildlife habitat within the Reserve lands.

WBNERR takes the destruction of natural resources as a very serious matter, and therefore is quick to respond to such degradation by implementing appropriate management activities. These activities can include, but are not limited to, the removal of invasive species, road maintenance, and closing areas to public use. WBNERR utilizes controlled burns on several of its properties; one example is the Quashnet River Area on the refuge. Fire is used to control the pitch pine scrub oak habitat and to manage this habitat for NEC. WBNERR also utilizes prescribed burning on non-refuge lands, including Washburn Island.

Ecological restoration is another important management goal directed towards habitats that have endured extensive human impact within the Reserve. Restoration activities will help restore the ecological system and improve habitat for wildlife, and will be carried out through the Reserve's Restoration Science Program. Inventorying and monitoring will assist with the identification of highest priority lands that deserve the most concentration of restoration projects. At the time of this plan, the restoration science program was only a proposed program; however, the Reserve has had several ongoing restoration projects aimed at restoring areas that have been degraded by human impact. One such project is the culvert replacement at Abigail Brook, a property within the refuge that will encourage water to flow more naturally and restore habitat along Abigail Brook.

Similar to the Refuge System, WBNERR and DCR work towards acquiring new properties to be included within the Reserve in order to ensure their protection. WBNERR bases

its land acquisition efforts on its partnership with the Mashpee NWR and acquires land that will be included within the refuge boundary, or outside the boundary but within the Waquoit Bay Watershed. At the time of this plan, the last five properties that the Reserve acquired are within the refuge boundary.

Not only does WBNERR own several properties throughout the refuge, it also manages bodies of water including Abigail Brook and the Childs River, which flow through the refuge. Water management is primarily done through monitoring and inventorying aquatic and marine resources. This includes monitoring vegetation, vernal pools, fish, and aquatic insects. This monitoring is important because its results influence the management decisions made by the Reserve staff for the protection of WBNERR's waters.

WBNERR Land Management Tools

Land stewardship zoning is the main tool used by WBNERR to guide management of Reserve lands. This type of zoning, which originated with DCR, is important because it delineates the concentration of allowable uses on Reserve lands and specifically indicates which uses and activities are allowed and prohibited. The land is divided into three zones, each of which has their own restrictions. The first zone, or Zone 1, is the most restrictive due to its vulnerable and sensitive resources and habitat. It comprises 459 acres and is also referred to as the "core area" of the Reserve. This generally includes the presence of endangered or threatened species, or other habitats that might be specifically vulnerable to human impact. Areas managed under this zone need specific and special management that will protect the resources from harmful impacts.

Zone 2 includes 803 acres of important natural and cultural resources that are less sensitive than those found in zone 1. This zone allows more recreational activities that are to be dispersed throughout the area in order to avoid concentrated human impacts. Zone 2 lands are actively managed consistently with the goals outlined in the management plan, which include common forestry management practices and ensuring the dispersion of recreational uses. The last zone, or zone 3, comprises lands with the highest concentration of recreational activities and includes WBNERR's administrative, maintenance, and recreational sites. These include the Reserve headquarters, parking lot, swimming pools, campgrounds, and other forms of recreational infrastructure. A total of 24 acres make up zone 3.

In addition to these land stewardship zones, WBNERR also utilizes a significant feature overlay zone to provide more highly concentrated management of the reserve's most important and sensitive resources. These include a Protected Species Habitat Area Overlay and a Cultural Resources Areas overlay. The first overlay is applied to two properties within the refuge boundary because of the presence of rare moths and butterflies: the Quashnet River Area and the Abigail Brook Area. Early successional, pine-barren and pine-oak woodland habitat is maintained in these two areas in order to sustain the moth and butterfly species; consequently, management activities to maintain this habitat includes selective cutting and prescribed burning. The Cultural Resources Areas overlay only pertains to one parcel located within the refuge boundary, the Child's River Area. This overlay is required due to the presence of documented prehistoric Native American sites; therefore, any development within this area must undergo review by DCR.

WBNERR Relevant Laws and Regulations

The DCR-managed program, Areas of Critical Environmental Concern (ACEC), regulates much of the management that takes place on WBNERR land. The ACEC boundary includes all of the properties included in Mashpee NWR. The ACEC designation requires more stringent standards and management that follows the regulations. State assistance is generally needed to manage such lands.

Lands designated as ACEC areas require stricter standards within the state and local regulations that are applied to WBNERR lands. The Massachusetts Environmental Policy Act is more stringently applied and requires high levels of environmental review for ACEC lands. This is also the case for other state laws including the Public Waterfront Act and the Wetlands Protection Act.

Land Protection

WBNERR and the refuge have utilized several conservation planning tools to ensure the protection of its properties. These tools heavily emphasize mapping to prioritize critical lands, water resources, and wildlife habitat. These include BioMap and Living Waters, both of which are programs under the Massachusetts Natural Heritage and Endangered Species Program. The maps generated from these two programs identify the lands and waters that are most critical to preserving biodiversity. Furthermore, WBNERR has stated its interest in adding several properties to be included within the refuge boundary, which will be finalized upon completion of the CCP.

Town of Mashpee/Conservation Commission

The Town of Mashpee's 2009 Open Space and Recreation Plan includes planning for conservation lands within the refuge boundary. Mashpee borders Falmouth to the east and the Town of Sandwich to the south. The town had a 2010 population of about 14,000 people (U.S. Census Bureau); the Mashpee Planning Department estimated that the summer population in 2007 grew to over 30,000 people (Mashpee Open Space Plan 2009). Its history is unique to the area in that it is home to the Mashpee Wampanoag Tribe, or the Native Americans to greet the pilgrims at Plymouth, MA. Mashpee has a rich history and culture and is a popular summer destination (Mashpee Open Space Plan 2009).

Even though the open space plan does not necessarily outline management objectives for town conservation lands, it is important for establishing the town's goals and objectives concerning such properties and the steps to achieve the goals. One of the town's objectives, and which is directly connected to the refuge, is to preserve and maintain open space corridors that will allow for uninterrupted wildlife passage. This includes ensuring that open space management activities by all involved organizations are coordinated effectively, which includes lands specifically within the refuge. The plan also outlines the town's recreation needs and objectives, which is necessary as public use is a priority for most wildlife refuges. This includes objectives for the town to ensure access to conservation lands, improve recreational facilities, and to coordinate recreational activities with local, state and federal agencies. The Town of Mashpee and the Mashpee Conservation Commission are focused on expanding the current conservation properties within and outside the refuge boundary.

Town of Falmouth

The Town of Falmouth owns several parcels within the refuge boundary and outlines its management tools for these properties in its 2008 Open Space and Recreation Plan. Falmouth is the most southwestern town on Cape Cod and its population has been increasing since 2000, for a population over 31, 000 residents. Falmouth is popular among summer visitors as it is a port for travelers to Martha's Vineyard and offers quality beaches (Falmouth Open Space Plan 2008).

Protected open space accounts for the third largest amount of land in the town. Approximately 2,600 acres of land owned by the town is designated as permanent open space and is primarily managed by the Falmouth Conservation Commission. The protected open space land in the town is open for public use and many recreational opportunities. A significant portion of open space preserved by the town was initiated in response to growing development. The town created a nonprofit land trust, known as the 300 Committee, to be used solely for the purpose of protecting open space and acquiring new land to preserve. The 300 Committee has helped the town acquire more than 1,300 acres of land for conservation, including a 200-acre parcel adjacent to Coonamesett Pond, which is within the refuge. The Town of Falmouth's Conservation Commission is committed to Mashpee NWR and has proposed that a majority of Conservation Commission land be included in the refuge, which would expand the refuge southwest through Falmouth.

Because municipalities use zoning as a tool for identifying allowable land uses, Falmouth and Mashpee both use zoning as a main tool to regulate the uses occurring on properties within the refuge. Falmouth implemented a coastal pond overlay district in response to increased nitrogen levels in the water, which were attributable to uses of the surrounding lands. A zoning bylaw also governs the coastal pond overlay districts and requires a thorough analysis of the

potential impacts of development surrounding the ponds. Development, mainly of residential areas, is restricted within the zoning bylaw to abide by certain open space procedures. This includes clustered subdivisions that preserve some open space that is either given to the town or restricted by an easement. The town also implemented, in the late 1980s, a wildlife corridor overlay district with the intention of maintaining connected corridors for wildlife migration. This overlay district places certain restrictions on development and aims to preserve current open space. These three zoning tools are important for the town to maintain its open space, which subsequently affects its lands located within Mashpee NWR.

Orenda Wildlife Land Trust

Orenda Wildlife Land Trust is a private land trust that protects land on Cape Cod to benefit wildlife. Orenda currently manages 14 wildlife sanctuaries, 3 of which are located in the refuge (Carl Monge, Quashnet River, and Makepeace and Mercy Lowe Sanctuaries) (Orenda Wildlife Land Trust 2013). Orenda produced a management plan in 2003 for one of its properties within the refuge, the Makepeace and Mercy Lowe Sanctuary (MMLS). The goal of the plan was to prioritize and plan for stewardship activities and inventory resources on the property, which is held in perpetuity as a wildlife sanctuary. The overarching goal for this property is to decrease human impacts in order to maintain the wildlife habitat. Orenda acknowledges that many of the issues facing this property are shared issues among all of the refuge partners, including illegal dumping, hunting, and vehicle access. One of the goals that will help regulate public use on this property is to encourage stewardship among residents, who will alert Orenda to any problems they see occurring on the land. This property is an important point of conservation because it

provides habitat for migratory birds that nest in pine oak woods, and is connected with other properties that provide similar habitat.

Orenda puts forth several management activities and recommendations to occur on this property in conjunction with the other partners, emphasizing the importance of collaborative efforts in guiding the management of the refuge. Such recommendations include improved information on access to the sanctuary in order to limit disturbance by unwanted vehicles. The plan also proposes to install gates at several locations as a deterrent to illegal dumping and all-terrain vehicle (ATV) use. Another management goal of this plan is to continue road maintenance; however, Orenda must coordinate better with the Town of Mashpee and other refuge partners in order to have consistent practices and avoid miscommunication. Orenda has clear goals and management activities outlined for this property, and has communicated the value of the Mashpee Partnership for managing refuge lands within this plan. Unfortunately, management plans were not available or have not been developed for Orenda's other properties within the refuge.

PROJECT FINDINGS

Partner Land Use Activities: Management Matrix Results

A main tool used in the project to gauge partner land uses and management activities was the partner matrix used during one of the CCP/MOU meetings (see section on methodology). The matrix (appendix B) includes all of the partners and a list of activities divided into seven categories: public use, access, infrastructure, communication, laws and policies, refuge management, and future goals. The goal of this method was to identify partner activities occurring on the refuge so they could be considered in both the MOU and CCP. It was also a

way for the partners to become familiar with each other and recognize the abundance of resources at their disposal through the Mashpee Partnership.

The majority of the partners offer several public use opportunities on their lands, including hunting, wildlife observation, hiking, and environmental education. There are partners who have staunchly stated they do not permit certain activities. For instance, Orenda does not allow hunting or fishing, while the Service prohibits all public uses excluding hunting and medicinal herb collection for the Tribe, which was established through a previous agreement. Exceptions such as these were necessary to identify and bring awareness to all partners so there is a common understanding of each agency's permitted and prohibited uses.

The matrix was also key to helping the partners identify refuge-wide needs and establish long-term goals. For example, ADA access is present on only one partner's land and the majority of partners do not have restrooms available for the public. Illegal dumping was also identified as an issue shared among all partners, and something that the Mashpee Partnership needs to address uniformly. This included discussion on each partner's gate and signage policies and if instituting a universal gating and locking system would deter illegal dumping. This is a critical issue addressed in the MOU and is a goal the refuge staff and partners will be working hard to implement. It will be much more efficient if the partners take such measures together to allow for some consistency in refuge management and facilities.

Refuge management was another important topic which this matrix addressed, including identification of current management activities on each partner's land. By identifying the current management, partners were able to see where there were commonalities and potential for combining resources to ensure more consistent management and efficiency. An example of possible combined efforts for habitat management is through prescribed burning, another main

topic in the MOU. While many of the partners currently partake in prescribed burns, there are others who would like to pursue this in the future as well. Some of the smaller partner agencies might not have the resources to do prescribed burns so will likely rely on larger agencies, such as the Service and DCR, to provide the necessary resources. Another topic that was brought to light by using this matrix was identifying partners' land protection and acquisition goals. Expanding the refuge boundary is a goal of many of the partners and they will be able to assist each other with land acquisition endeavors.

Mission Statement Comparison

The nine partners involved in the Mashpee Partnership are organizations and agencies with distinct mission statements. A mission statement generally represents an organization's core values and can be used as an indicator to assess its broader goals. In this case, the partners' mission statements are all reflective of each organization's philosophies and goals for land and wildlife protection. In order to show the similarities and differences among the partners, a word frequency analysis was used to determine the most frequent key words that were included in every mission statement. A total of 42 key words were extracted from the mission statements. Twenty words occurred only once in all the mission statements and were therefore eliminated from further analysis. A benchmark for analysis was determined to narrow down the most frequently used words; words that occurred in more than three mission statements were used and are presented in the table below, with the most frequent words in descending order. The words "protection" and "resource" both occurred in six mission statements, "land" occurred in five, "natural" and "conservation" occurred in four, and the remaining six words occurred in three mission statements. These high frequency words indicate that the partners strive to protect Cape

Cod's natural resources and are very conservation oriented. Each partner's full mission statement is included in appendix C.

	WBNERR	DCR	DFW	Orenda	Rod and Gun Club	USFWS	Tribe	Friends	Mashpee ¹	Falmouth ²
Protection/Protect										
Resource										
Land										
Natural										
Conservation										
Habitat										
Massachusetts										
Stewardship/Steward										
Fish										
Preserve										
Wildlife										

¹Mashpee refers to the Mashpee Conservation Commission's mission statement.

²The mission statement for the Town of Falmouth used in this analysis was adopted by the Board of Selectmen to specifically refer to Mashpee NWR. The Town of Falmouth has a separate mission statement for the town.

Economic Value of Partnerships

Partnerships are not only a useful tool for managing land, but are economically valuable for the Service to use in order to secure more funding and support for refuge management.

Partnerships can and should be viewed as an alternative method for funding a wildlife refuge. It lessens the financial burden on refuge staff and the Service by seeking private funding to support a refuge. As expected to be the case with Mashpee NWR, securing grant funding will hopefully in the future be less of a challenge when multiple partners work collaboratively to apply for grants. According to an Outreach Handbook produced by the Service in 2001, a partnership carries more weight when seeking grant funding than would an individual organization, as the

partnership combines the resources of each partner and is an influential way to garner funding in an application (USFWS 2001).

With several stakeholders working together in a partnership, organization and clarity are essential when seeking funding opportunities. To have the greatest impact in a grant application, the partnership must first define the project which they are seeking funding for and articulate the resources they have and the proposed strategies for implementing the project after receiving funding. The checklist below (Figure 1) was included in the Service's Outreach Handbook as a tool a partnership can use when developing a project for which it hopes to receive funding. This checklist will be useful for the Mashpee Partnership to use when applying to grants in the future. It is recommended that the Mashpee Partnership, or the Leadership Committee designated within the MOU, appoint a partner/committee to lead the effort in identifying and applying to grants for the refuge.

Figure 1. A Checklist for Partnership Projects (USFWS 2001, Outreach Handbook).

- ✓ Clearly define the project using measurable terms.
- ✓ List goods and services needed for the project.
- ✓ Identify resources in the partnership, including schedule of availability.
- ✓ Identify resources that must be obtained from other sources, and:
 - ✓ Work with partners to develop a list of possible grantors.
 - ✓ Develop a strategy for approaching potential grantors.
 - ✓ Produce a completed funding proposal.
- ✓ Implement project as resources are obtained.

The Mashpee Partnership has helped the refuge gain over 6,000 acres, even though the Service only owns about 350 acres. Because of the Mashpee Partnership, the Service has spent less on land acquisition when compared to most refuges of similar size. While the Service only has jurisdiction over its own land, it has been able to conserve additional lands by incorporating privately owned properties into the refuge. Because of the Mashpee Partnership, the Service has been able to spend less money on Mashpee NWR while protecting more land than is currently owned by the Service.

Equipment sharing can also be a result of partnerships and a financial benefit for all partners. Sharing equipment among partners for managing a refuge reduces expenditures and maintenance costs for purchasing new equipment. The Mashpee Partnership has formally agreed to the sharing of equipment in the MOU. The partners have plans to compile a detailed list of the equipment and facilities they are able to share with each other. While this will not be included in the MOU, it will be a priority document produced by the Mashpee Partnership in the future and shared amongst all of the partners. It will be a useful way for the partners to have the means to carry out refuge management objectives by using equipment they otherwise would not have access to or be able to afford. The Service, for example, has begun the equipment sharing process with an individual partner. There is a separate MOU with WBNERR that allows trained WBNERR staff to operate a Service-owned boat within the Waquoit Bay. While this separate boat MOU was established several years ago, future equipment sharing will not require separate MOUs but will be agreed to by all partners who are willing to share their equipment.

The Service has only recorded the price it paid to acquire the two Service-owned properties in the refuge, which in 1998 was \$2.8 million. Using the Towns of Mashpee and Falmouth assessor's data, the property value of partner-owned lands was determined. A GIS

shapefile with the towns of Mashpee and Falmouth parcel data was overlaid on the partners' property data to determine the exact parcel numbers, which was then searched in the Town Assessor's Office databases. Because the Service does not have the information on the amount each partner originally paid for their property, this analysis offers an alternative method for assessing the refuge's total property value. While the land values for each partner is approximate, it gives an idea of the total monetary value of the refuge, which has otherwise not been used by the Service. This analysis only includes partner-owned lands within the refuge boundary, so other types of developed land, such as residential open space and other private landowners, have been excluded. The assessor's data for the Town of Mashpee is from 2011 and the data from the town of Falmouth was for fiscal year 2012. Table 1 shows the most current total property values of each partner's lands within the refuge boundary, and an approximate total value of the refuge. Table 2 provides a list of current property values for five properties within the refuge, which were chosen because they are among the largest town and state-owned properties.

Table 1. Total Assessed Property Values for Partners (in dollars)	
<i>Wampanoag Tribe</i>	39,700
<i>WBNERR/DCR¹</i>	425,600
<i>Rod and Gun Club</i>	1,210,393
<i>Orenda</i>	1,590,400
<i>USFWS</i>	6,381,800
<i>DFW</i>	8,155,000
<i>Town of Falmouth</i>	15,807,100
<i>Town of Mashpee</i>	28,320,500
Total	\$54,873,593

¹This estimation does not include properties located in the Town of Mashpee as the prices were unavailable for state-owned properties. Otherwise, this number would be much higher since WBNERR and DCR both own major properties within the refuge that are located in the Town of Mashpee.

Table 2. Total Assessed Property Values for a Sampling of Properties, Ownership Included (in dollars)	
<i>Quashnet Woods</i> (DFW)	1,137,800
<i>Jehu Pond CA</i> ¹ (Mashpee)	2,431,400
<i>John's Pond CA</i> (Mashpee)	3,589,500
<i>Coonamessett Reservation</i> (Town of Falmouth)	4,084,900
<i>South Mashpee Pine Barrens</i> (Town of Mashpee)	9,167,700

¹CA refers to Conservation Area

The total assessed value of Mashpee NWR, although not completely comparable to payment information for other refuges, is an indicator of the current value of the properties within the refuge. Property on Cape Cod is limited and very expensive; therefore, it is even more important for the Mashpee Partnership in the future to include other landowners in the refuge and work towards protecting additional lands before they are developed. The approximate value of the refuge based on the assessors' information is an important justification for why the Service should develop more partnership refuges. In 1995 the Service only spent \$2.8 million on what is now a refuge worth over \$50 million. The amount that the Service paid compared to the total acreage protected within the refuge is outstanding and only possible based on the partners involved.

ANALYSIS AND RECOMMENDATIONS

The Mashpee Partnership was begun in 1995 with the establishment of the refuge and the first MOU. The partners all share a common goal, that of land protection, which brings them together to protect land within Mashpee NWR. Many of the partner organizations have had strong representation since 1995, and there is a genuine desire to preserve and expand the refuge. The Service has consistently been the leader in managing the Mashpee Partnership and ensuring there is communication among the partners. While this has been efficient, there is an understanding, which has been reinforced with the new MOU, that all partners have equal power within the Mashpee Partnership and in managing the refuge. This idea of equal power, which has been identified as a crucial element of collaboration, makes this partnership unique compared to the more common partnerships utilized by the Service.

A critical aspect of what has allowed the Mashpee Partnership to continue is the constancy of partner representatives. Many of the partner organizations have had the same person(s) serve as the representative for the Mashpee Partnership for the past several years. This has been critical, especially since the CCP and MOU process began, for maintaining consistency in planning, discussion of refuge management, and communication.

For the CCP and MOU, having the same person(s) from each organization consistently be involved helped the process run more quickly and efficiently. As each representative grew familiar with the project they were more invested in the refuge than another representative might be. Having the same people repeatedly present at refuge meetings over the past few years helped foster relationships among partners and maintain a steady and reliable form of communication. There has also been one person who has been involved with the refuge and the partnership since

its establishment in 1995, the Mashpee Town Planner, who provided much insight into the changes the refuge has incurred over the years.

Since the Mashpee Partnership is based on a commitment to manage and protect the Mashpee NWR, there is always the goal of refuge expansion and incorporating additional partners into the Partnership. This is an attitude generally shared among all the current partners and is a quality that allows the Partnership to remain open to building relationships with new partners. This was evidenced during the MOU process when the Cape Cod Beagle Club was invited to attend an MOU meeting. The Beagle Club owns a property that lies within the refuge's acquisition boundary, and they have not been involved with the Service or other refuge efforts in the past. This was the first time in the history of the Mashpee Partnership that the Beagle Club was represented, and it demonstrated how important it is for the Partnership to expand its efforts to include organizations that have yet to have any involvement with the refuge. While the Beagle Club is not officially included in the MOU, it can still participate in the Partnership and refuge. The presence of the Beagle Club was a reminder for the partners of how beneficial to the refuge it would be to engage additional partners. This exemplifies one of the foundational qualities of the Mashpee Partnership, that it is committed to the refuge but maintains flexibility when working with prospective partners.

While the partners share a uniform mission of conservation and land protection of Cape Cod, it is important to reemphasize that these partners have very different missions and goals, which are sometimes conflicting. The collaboration process during the development of the CCP and MOU aided in the identification of conflicting land uses and goals. The partners were able to work through and discuss such issues in a positive environment and develop solutions to accommodate each partner's philosophies. This Partnership was and still is truly collaborative

and is a model of collaboration within a large partnership and during a comprehensive planning process.

For a situation like the Mashpee Partnership where many decisions are made through consensus among partners, it is necessary for the lead agency, in this case the Service, to ensure they are prepared to make decisions with partners. This means that for a wildlife refuge, the staff should be informed and have reached some consensus regarding an issue prior to meeting with partners. While it is often hard to coordinate such decisions with all staff members, it is important for the Service to be in agreement and be prepared to make decisions before consulting partners. This is especially important during the CCP process, as was exhibited at Mashpee. The Service staff and consultants were almost always prepared and in agreement before meeting with partners. This communicates to the partners that the Service takes collaboration with partners seriously and is willing to incorporate their input into a CCP or other management decisions.

Mashpee Partnership Challenges

The most consistent struggle during the CCP/MOU process was communication. It was very difficult to coordinate with nine different agencies, including the multiple Service staff, and ensure that a representative from each agency would be present at the meetings. There was never a meeting during this author's time working with the refuge when a representative from every agency was present. Additionally, as with any large number of people, it was hard to maintain e-mail communication with each person and receive necessary information that was requested for the CCP and MOU. Eventually, information was gathered from each agency and is reflected in the CCP and MOU.

It was especially challenging to gather information about each agency and their management and land use activities. Combined with difficulties in staying in contact with many of the partners, gathering all of the necessary data was nearly impossible for the Service staff developing the CCP. The partner matrix was the main solution to gathering meaningful and consistent information from all the partners during one meeting, in addition to many email attempts to solicit information regarding partner lands.

One of the major issues with developing the MOU was determining how all partners could coordinate resources to create consistency in areas of the refuge's management. This included discussion on installing a locking and gating system on partner lands to deter illegal entry and dumping. While everyone was in favor of this concept except for the Tribe, installation of such a system was dependent upon each partner agency's own policies and regulations. This was a roadblock for developing standards for gates that all partners could comply with. While this was only a small issue in the entirety of the MOU process, it demonstrates the complexity of the Partnership. Attaining some level of consistency among partners in refuge management may be the ideal situation; however, it may never be attained due to the laws and policies governing each partner.

Collaboration Toolkit

The Service should take specific steps when thinking about establishing a partnership refuge or incorporating partner-owned lands into an existing refuge. Below are some suggestions for the important milestones to be achieved during this process, which are based on the Mashpee Partnership's experience.

Goal 1: Identify Partners

Once the Service has identified a location for a new partnership refuge, or privately-owned lands it would like to include in a refuge, the Service should identify potential partners and do initial outreach. The Service should also strive to incorporate the partnership aspect into existing refuges by expanding refuge boundaries to include other landowners. When contacting partners who will be within the new refuge boundary, Service staff should emphasize that inclusion within the refuge will not have any consequences for the partners and there will be no obligation on behalf of the partners to participate in the refuge.

- For lands to include within the refuge acquisition boundary, the Service should target currently protected open space parcels owned by state, local, or private entities.
- Once the refuge acquisition boundary is established, the Service should work with willing landowners to develop an MOU for the refuge. Inclusion in the MOU will be voluntary by the partners and will serve as a formal agreement that will aid in the management of the refuge.

Goal 2: Appoint Partner Representatives

Each partner should designate one person to represent the organization throughout the refuge's establishment, and when appropriate, the MOU and CCP process.

- Maintaining the same group of partner representatives will help ensure consistency within the partnership and for refuge management.
- The representatives will be familiar with each other and the refuge.
- Partners will develop more meaningful relationships based on commitment and desire to see the same goal achieved.
- Each representative will be the point of contact for their organization and will maintain communication with the other partners.

Goal 3: Consistency of Partnership Meetings and Communication

Partnership meetings and communication should be simple and easily achievable by all partners.

- Meetings should be held in a consistent location that is centrally located within or outside the refuge boundary, and at a time when most agencies can attend. The facility should be easily accessible by all partners. Meetings should be held on a regular basis to maintain momentum for the refuge and keep the partners engaged.
- Communication should involve the core group of partner representatives, in addition to other partner personnel involved in the partnership.
- The partnership should create a Partner Database in which the contact information of each partner is stored, and subsequently given to each partner involved.

Goal 4: Information Sharing

The partners should understand the goals of each organization and be familiar with management activities occurring on partner-owned lands.

- The Service should make sure that information is shared among all the partners at the beginning of the refuge's establishment. This should be done through meetings, email, and providing copies of partner management plans/other informational materials to all partners.
- It is important for partners to be familiar with each other's lands in order to understand the refuge as a whole. The Service should encourage partners to visit and tour each other's lands at the beginning of the collaboration process.

In a situation like Mashpee NWR's CCP and MOU, where specific information was needed from each partner, it might have been useful to survey the partners to extract the information at the beginning of the CCP process. The partner asset matrix proved to be very valuable in the process; however, it was a tool that could really only be used at meetings and in person, rather than being sent electronically. This is partly because it required explanation and it would have been difficult to manage all partners' responses. To accompany the matrix, it is recommended that the lead agency running the meetings, in this case the Service, email a survey to all partners requesting very specific information that would not require much research on the part of the partner representative. This would be an ideal way to gather information from each partner at the beginning of the process for establishing a partnership refuge. Such information

would not only be useful for each partner to have, but it could inform an MOU or other type of interagency agreement established in the future. The goal of the survey would be to elicit as much specific information as possible while making it simple for the person to give a timely response. This would include a simple format, ensuring that questions will be understood by each partner, and providing options to questions rather than open ended questions. The survey should be brief and used as a tool to engage the partners while providing critical information to the Service. A sample survey of questions the Service might consider implementing to gather information from partners includes:

1. *What is the acreage and name of your property/properties?*
2. *Which habitat types can be found on your property? Circle all that apply.*
Wetlands Vernal Pools Forest (type) Riverine
Grasslands Shrublands Impoundments Ponds/Pools
Farmland-Crops Farmland-Grazing Other:
3. *List wildlife species found on your property, including but not limited to trust resources, migratory birds, mammals, aquatic species, etc.*
4. *List plant/tree species found on your property.*
5. *Are there any endangered or threatened species, or species of conservation concern, that exist on your property? Please describe.*
6. *Which public uses are allowed on your property? Circle all that apply.*
Wildlife Observation Hunting Fishing Hiking/Walking
Environmental Education Bicycling Dog walking Geocaching
Horseback Riding Boating Canoeing/Kayaking
ATVs Swimming Skiing Snowmobiling
Other:

7. *What type of infrastructure is present on your property? Circle all that apply.*

Parking Lot	Roads	Restrooms	Gates	Signs
Trails	Kiosk	Visitor Center/Information Booth		
Law Enforcement	Boat Access	Hunting Blinds	Other:	

8. *How do you manage your property (species/habitat management)? Circle all that apply.*

Species Surveys/Inventorying	Prescribed burning	Mosquito Control
Invasive species Control	Herbicide Use	Timber Harvest
Mowing/Haying		
Other:		

9. *Please describe any major goals for the management of your land and potential impacts on other refuge lands.*

10. *Is your agency planning to expand its property? If so, where do you see future expansion occurring?*

Alternative Partnership Structures

A formal structure for a partnership that is collaboratively managing a wildlife refuge is necessary for maintaining a consistent decision-making process. Assigning specific roles to partner representatives will help a partnership stay on track and maintain consistent communication. Whether or not the partnership has established an MOU, a structure of authority will help the partners achieve their goals for the refuge. If the partnership does have an MOU, it would be appropriate to revise it to include an explicit organizational structure for the partnership. If an MOU will most likely not be established in the partnership's foreseeable future, then it would behoove the partners to come to a more informal agreement about organizational structure and official positions. For the Mashpee Partnership, the partners reached

consensus regarding their organization, which was outlined in the MOU, and can be used as an example for other partnerships (see appendix A).

Below are two alternative possibilities for how a partnership can be structured in order to maximize consistency and maintain a structure to the partnership. The Mashpee Partnership has nine partners; the example structures are for both a larger and smaller partnership. It should be noted that these structures imply that each partner has equal power within the partnership; the official positions give individual partners more responsibility to lead the partnership, but do not connote power over the other partners or authority to make decisions without consultation. All positions are voluntary and each agency should not be required to have a representative fulfill an official position. These two partnership structure examples were developed based on the author's experience with the Mashpee Partnership and existing Service MOU's for other wildlife refuges and various Service partnerships.

The MOUs and other agreements used as a reference to develop the alternative partnership structures listed below include:

- Mashpee Partnership MOU
- SUASCO Cisma MOU: The Service and 23 partners established the Sudbury-Assabet-Concord Cooperative Invasive Species Management Area (SUASCO-CISMA) in eastern Massachusetts
- MOU between the Trustees of Reservations and the Service's Eastern Massachusetts National Wildlife Refuge Complex
- Master Cooperative Wildland Fire and Stafford Act Response Agreement among the Forest Service, National Park Service, U.S. Fish and Wildlife Service, and New Hampshire Division of Forests and Lands
- MOU among the U.S. Department of Agriculture, U.S. Department of the Interior, and the U.S. Environmental Protection Agency Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions through the National Environmental Policy Act Process

Partnership Structure #1: Five Partners

In a partnership where there are fewer participants, it is recommended that each partner representative have an assigned role so no partner is excluded. This will help ensure consistent participation from every partner. This structure is similar to the Mashpee Partnership but involves every partner and there are no extra partners. Potential positions within the partnership could include:

- Chairperson
- Vice Chairperson
- Secretary
- Public Relations
- Grant Writer
- Refuge Liaison
- Data/Information Collector
- Special Project Leader (e.g. Equipment sharing, event organizing, contacting potential partners, etc.)

Because this partnership consists of a small number of people, it is recommended that decision-making require complete approval amongst all partners.

Partnership Structure #2: Fifteen Partners

This alternative partnership structure is primarily based on characteristics of the Mashpee Partnership outlined in the MOU and the SUASCO Cisma MOU. A group of five partner representatives should be assigned the following roles and will lead a steering committee that will guide the partnership:

- Chairperson
- Vice Chairperson
- Secretary
- Public Relations
- Refuge Liaison

An example of the responsibilities of these individual roles can be seen in the Mashpee MOU; however, the individual steering committee should assign responsibilities to fit the needs of that partnership. The steering committee's primary function is to ensure that the partnership continues to evolve and pursue refuge management activities. These positions are advisory and decision-making should be consensus-based and occur among the entire partnership. It is recommended that the steering committee encourage a representative from each agency to be present during meetings to guarantee broader involvement. The steering committee is also responsible for assigning additional committees to lead specific projects, such as developing an invasive species management plan or researching and applying for grant funding. For a partnership with as many as fifteen partners, smaller project-based committees will be essential for accomplishing the partnership and refuge's goals. Similar to the details included in the Mashpee MOU and SUASCO-CISMA MOU, decision-making should require a 2/3 majority vote of all partners who are present at the time of voting.

CONCLUSION

The Mashpee Partnership has developed into a united, conservation oriented group of people whose main priority is management of Mashpee NWR. The Partnership has had many accomplishments and challenges throughout its development, but it has proven to be an important model of how a national wildlife refuge can be managed through partnerships. Mashpee NWR and its partners represent an alternative future of wildlife refuges and the importance of collaborative planning among federal, state, local, and private entities. Mashpee NWR represents a new, revolutionary way to perceive wildlife refuges and land protection by the Service and potentially other federal agencies. The recommendations and tools provided

throughout this project will positively contribute to the Service's view of partnership-based refuges, and encourage the Service to establish refuges through partnerships in the future. The Service and the Mashpee partners recognize the impacts the Mashpee Partnership could potentially have on the Refuge System, and are hopeful that this form of refuge management will be the norm in the future.

This project was able to answer the initial research questions posed at the beginning of this paper. The partner management matrix not only identified management activities occurring on each partner's lands, but it played a key role in establishing the differences between the partners' land uses. This allowed partners to identify areas of management where effort and resources could be shared, which was incorporated into the MOU. Furthermore, the matrix and interviews with partners provided insight into the partners' attitudes towards the CCP process. Each partner brought a unique perspective to the planning process and provided valuable input into the MOU. Identifying partner management activities within the refuge provided the partners with a broader understanding of the refuge, and initiated a greater awareness of the refuge as a whole that is made up of nine different landowning organizations.

This project focused on reasons why Mashpee NWR is a model for a partnership refuge. However, future research might negate this perspective and partnership-based refuges might not be a preferred option for the Service. This project also has implications for refuge planning by the Service and the CCP process. The Mashpee CCP was written collaboratively among the Service and its partners. If more refuges are established through partnerships in the future, planners will need to work with partners to a greater extent than current planning requires. This will have implications for the CCP process and the Service's role in the overall planning process for national wildlife refuges.

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APPENDICES

Appendix A. MOU

This is a draft version of the Mashpee Partnership MOU. It is unsigned and will not be official until the CCP is complete and all partners have signed the MOU.

MEMORANDUM OF UNDERSTANDING

BY AND AMONG

THE U.S. FISH AND WILDLIFE SERVICE
EASTERN MASSACHUSETTS NATIONAL WILDLIFE REFUGE COMPLEX

AND

THE MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION

AND

THE MASSACHUSETTS DIVISION OF FISHERIES AND WILDLIFE

AND

THE TOWN OF MASHPEE/MASHPEE CONSERVATION COMMISSION

AND

THE TOWN OF FALMOUTH/FALMOUTH CONSERVATION COMMISSION

AND

THE FALMOUTH ROD AND GUN CLUB INC.

AND

THE ORENDA WILDLIFE LAND TRUST

AND

THE MASHPEE WAMPANOAG INDIAN TRIBAL COUNCIL

AND

THE FRIENDS OF THE MASHPEE NATIONAL WILDLIFE REFUGE

I. INTRODUCTION:

The importance of the Waquoit Bay, its tributaries, and watershed area has long been recognized by the Towns of Mashpee and Falmouth, the Commonwealth of Massachusetts, conservation groups, and the Mashpee Wampanoag Indian Tribal Council (Tribe). The Towns of Mashpee and Falmouth have protected lands within the Waquoit Bay watershed by fee title purchase by creating open space and use of conservation restrictions and easements. The Massachusetts Department of Conservation and Recreation (DCR) and Division of Fisheries and Wildlife (DFW, MADFW) have also protected a significant amount of the watershed along the Quashnet River, the Mashpee Pine Barrens, and Jehu Pond by fee title purchase. In 1988, DCR and the National Oceanic and Atmospheric Administration (NOAA) jointly established the Waquoit Bay National Estuarine Research Reserve (WBNERR) in Falmouth, which is a major landowner within the refuge. In 1995, the U.S. Fish and Wildlife Service (USFWS, Service) worked with these partners to establish the Mashpee National Wildlife Refuge (Mashpee NWR, refuge) for the protection of waterfowl and wildlife. The refuge encompasses all of these existing protection efforts and provides an acquisition boundary within the watershed for future opportunities for conservation efforts.

As of 2012, Mashpee NWR contained 5,871 acres of protected lands, with an acquisition boundary of 6,444 acres. There are currently 8 partners who own lands within the refuge: the USFWS, the MADFW, DCR (the parent agency of WBNERR), Town of Mashpee/Mashpee Conservation Commission and Water District, Town of Falmouth/Falmouth Conservation Commission and Department of Public Works, the Falmouth Rod and Gun Club Inc. (Gun Club), The Orenda Wildlife Land Trust (Orenda), and the Tribe. A Friends Group, The Friends of Mashpee NWR (Friends), was established in 1995 to assist the refuge partners in management of the refuge and to contribute to conservation stewardship with a focus on education, public awareness, and appreciation of the refuge, its wildlife, and its unique habitats. These partners form the Mashpee Partnership, which is a unique partnership that collaboratively oversees and manages the refuge, making it one of few refuges nationwide that is managed in this manner. Together, the partners have planned and implemented management strategies for the New England cottontail (NEC), a candidate species, reduced hazard fuel loading and the risk of wildfire, and devised ways to combat issues such as illegal dumping. The partners are all conservation oriented and support future land acquisition to expand the refuge boundary. There are additional conservation organizations that occasionally attend meetings and participate in refuge activities, however are not included in this MOU. These partners include the Cape Cod Beagle Club, The Nature Conservancy, and The Trustees of Reservations.

Individually, the partners strive to meet their individual organization's conservation goals on lands within the refuge. WBNERR's focus areas are water quality, climate change, and habitat. The Towns of Mashpee and Falmouth strive to preserve open spaces within and surrounding residential and commercial areas. The Gun Club is primarily focused on hunting and promotes a strong conservation ethic, while Orenda preserves its lands as wildlife sanctuaries. Even though the overall missions of many of the partners may differ, all of the partners have a vested interest in conservation and protecting the lands within the Mashpee NWR.

II. PURPOSE:

This Memorandum of Understanding (MOU) provides a formal basis for cooperation and coordination between the Service, MADFW, DCR (WBNERR), the Town of Mashpee/Mashpee Conservation Commission, the Town of Falmouth/Falmouth Conservation Commission, the Falmouth Rod and Gun Club Inc., Orenda, the Tribe, and the Friends. This updated MOU will replace the original MOU signed by the partners in 1995 in order to reflect the current partners and the current and future management activities occurring on the refuge. Although the responsibilities of the undersigned concerning Mashpee NWR are different, there are complementary functions and areas of common interest that permit and would benefit from cooperation, coordination, and joint endeavors. Through this MOU, the signatories recognize that the refuge is in a unique situation that has allowed for shared ownership and stewardship of lands within the refuge boundary. The participation and collaboration of the many partners involved in this refuge is vital to managing refuge lands now and in the future.

This MOU will serve to aid all partners in accomplishing refuge management goals and objectives by ensuring and providing for:

- A commitment by the partner organizations who have signed the MOU to continue to collaborate and coordinate cooperative refuge management efforts.
- A seamless process for the sharing of equipment and resources to achieve refuge management goals.
- A common understanding of the partners' individual approaches to managing their lands and permitted public use activities.
- A common notification process through which all partners will be able to communicate with each other on a regular basis and review and update the MOU.

III. AUTHORITY:

This MOU is entered into under the authorities of the individual partners listed below:

1. U.S. Fish and Wildlife Service
 - National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. 168dd 668ee.
 - Fish and Wildlife Act of 1956, as amended 16 U.S.C. §§ 668dd, 742f(c)(e) and the Community Partnership Act, 16 U.S.C. § 742(f)(d).
2. Towns of Mashpee and Falmouth
 - Governmental units; joint operation of public activities; termination of agreement; “governmental unit” defined; financial safeguards, MA GL c. 40§ 4A
 - Contracts with state or public authority for construction of public works, MA GL c. 40§ 4D
3. MA Department of Conservation and Recreation
 - The DCR is acting pursuant to the authority set forth in G. L. c. 132A, § 7, G. L. c. 92, § 33, rules and regulations promulgated thereunder, including 304 Code Mass. Regs. § 12.00, 350 Code Mass. Regs § 2.00, and all other powers enabling.

IV. STATEMENT OF MUTUAL BENEFIT:

The Mashpee NWR is one of 556 refuges within the National Wildlife Refuge System (NWRS) and is one of eight refuges within the Eastern Massachusetts NWR Complex. The 9 partners included in this MOU share common goals for their lands within the refuge boundary. A collaborative landscape approach to the management of all refuge properties will enhance best management practices and improve partner relations. It is desirable for all partners to establish this MOU with the goal of working collaboratively towards managing refuge lands and benefiting from the partnership. This should include coordination during large-scale management activities and to assist partners when needed, and the willingness to share resources among partners to enhance further collaboration.

V. ROLES:

In addition to the shared responsibilities of all the partners, each partner is responsible for management of their individual properties located within the refuge. Every partner except the Friends owns land within the refuge and several properties are jointly owned and managed by multiple partners, especially the State agencies. Such responsibilities and ownership are delineated as follows:

A. *U.S. Fish and Wildlife Service*

The USFWS oversees the collaborative management of these partner-owned lands that comprise the Mashpee NWR and is responsible for ensuring that the uses on the properties are consistent with the goals of the NWRS. The Service owns two properties, Bufflehead Bay property (327 acres) and Hamblin Pond/Witkus property (3 acres). The Service also holds a conservation restriction on 43.96 acres adjacent to the Mashpee High School and Quashnet River, which are owned by the Town of Mashpee.

The refuge was established in 1995 “...for the development, advancement, management, conservation, and protection of fish and wildlife resources ... 16 U.S.C. § 742 f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services.” The Service is developing a comprehensive conservation plan (CCP) that will guide refuge management for the next 15 years. One of the refuge’s core goals outlined in the CCP emphasizes the role of the partnerships and the enhancement and perpetuation of long-term conservation through such Federal, State, local, Tribal, and private partnerships. The mission of the NWRS is “to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (National Wildlife Refuge System Improvement Act 1997).

B. *Massachusetts Department of Conservation and Recreation/Waquoit Bay National Estuarine Research Reserve*

DCR manages several properties located within the refuge. These fall within the management area of the Waquoit Bay National Estuarine Research Reserve (WBNERR), which is a DCR State Park as well as one of 28 Research Reserves within the United States. DCR is responsible for managing an extensive system of forests, parks, watersheds, and historic sites across the State of Massachusetts. Its mission is to “protect, promote and enhance our common wealth of natural, cultural and recreational resources”. As part of the National Estuarine Research Reserve System, WBNERR promotes

stewardship of the Waquoit Bay's estuarine and coastal ecosystems and supports extensive research, education, and resource protection efforts. Over 1,000 acres of land and water within the refuge lie within DCR/WBNERR's management area. These properties include: Abigail Brook; Child's River Estuary; Phinney Property; Quashnet Woods/Nstar; North Quashnet; Quashnet River Property; Great Flat Pond; and Quashnet River Access at Martin Road.

C. Massachusetts Division of Fisheries and Wildlife

The MDFW is responsible for the conservation, protection, and management of fish and wildlife throughout the State of Massachusetts. MDFW strives to balance the needs of both humans and wildlife and to manage fish and wildlife resources for the enjoyment of the public. Within the refuge, MDFW is responsible for managing nearly 700 acres of land, including the Quashnet Woodlands, which is owned in fee with DCR. Other properties include the Mashpee Pine Barrens; Quashnet River Wildlife Conservation Easement; Frances A. Crane Wildlife Management Area; and a conservation restriction on the Mashpee Conservation Commission's Pickerel Cove Recreation Area. MDFW must manage these lands in accordance with several State statutes and regulations, including Inland Fisheries and Game and Other Natural Resources (M.G.L. c. 131) and the MA Endangered Species Act (M.G.L. c.131A).

D. Town of Mashpee/Mashpee Conservation Commission

The Town of Mashpee owns many lands designated as conservation land or open space, much of which falls within the refuge boundary. The Conservation Commission is responsible for the care and management of the majority of these lands within the refuge (1,015.55 acres), with other lands under the control of the Board of Selectmen / Town Manager (the 193.07-acre Land Bank open space property and the 27.3-acre Heritage Memorial Park). The Town also owns 188.58 acres of "tax taking" land and the Mashpee High School property (91.47 acres that are not subject to USFWS conservation restriction) within the refuge. Under Massachusetts State law, the Conservation Commission's purpose is to develop and promote natural resources for the protection of the watershed resources of the town. Additionally, the Mashpee Conservation Commission promotes proper stewardship of conservation lands and open space parcels. Together, the Town of Mashpee and the Conservation Commission manage 1,322.9 acres in the refuge, which includes, aside from the Mashpee High School and Heritage Memorial Park, the following properties: Pickerel Cove Recreation Area Conservation Area (CA); Anchor Donation CA; Lovell's Lane CA; Sconsett Village CA; Back Road CA; Jehu Pond CA; Child's River CA; Johns Pond Park CA; Andrade CA; Quashnet

Woods CA; South Mashpee Pine Barrens CA; Sipps Road CA; Quashnet River CA; and the Quashnet Woodlands Land Bank property.

E. Town of Falmouth/Falmouth Conservation Commission

Similar to the Town of Mashpee, the Town of Falmouth and the Falmouth Conservation Commission own and manage several properties within the refuge boundary. Most management activities are carried out by the Conservation Commission in accordance with the Town's Open Space and Recreation Plan and its Comprehensive Plan. Falmouth owns a significant parcel, the Coonamesset Reservation (212 acres), and several other smaller properties in the refuge which include: Wiljoles Property; Braeburn Farms CR; Little Jenkins Pond CR; Haywood Road Woods; Clarke Property; and the Souza Property.

F. Falmouth Rod and Gun Club Inc.

The Falmouth Rod and Gun Club Inc. promotes the protection of fish and wildlife through cooperation with State and local conservation authorities, meanwhile maintaining an ample game preserve for hunters and fishermen to enjoy. The Club owns a 194-acre parcel within the refuge, which makes it one of the largest private property owners in both Falmouth and Mashpee. The property is open to the public for wildlife observation, hiking, hunting, and dog walking. Club membership is capped at 300 members. The land contains several apple trees and many fields that are planted with crops in order to sustain wildlife. The majority of the property is held in a conservation easement which ensures it will remain as open space in perpetuity.

G. Orenda Wildlife Land Trust

The Orenda Wildlife Land Trust is a private nonprofit land trust dedicated to preserving open space for wildlife habitat and protection of open space wildlife sanctuaries. Orenda currently owns and manages 173.6 acres of land within the refuge. These properties include Ashumet Pond Sanctuary (35 acres), Quashnet River (3.53 acres.), Makepeace Sanctuary (85.9 acres), Mercy Lowe property (42.7 acres), the Carl Monge Sanctuary (13.77 acres), Mashpee River Woodlands (2 acres), and the Witch Pond property (27 acres).

H. Mashpee Wampanoag Indian Tribal Council

The Tribe currently owns one property within the refuge boundary (8.9 acres). Its mission for the protection of natural resources strives to prevent illegal dumping on Tribal lands

and encourages environmental and natural resources training to promote environmental stewardship of Tribal lands. The Tribe participates in traditional activities, such as medicinal plant collection, and recreational activities including horseback riding, hunting, fishing on their land. As a result of the USFWS 1994 Native American Policy Act, the Service provides Native American Tribes reasonable access to Service-owned lands for traditional activities such as hunting and medicinal plant collection.

I. Friends of the Mashpee National Wildlife Refuge

While the Friends of the Mashpee National Wildlife Refuge do not own property within the refuge boundary, they are a vital component of the management of the refuge and maintain a strong relationship with the public. The Friends Group is a 501 3c non-profit organization devoted to the Mashpee NWR and helps the partners manage their lands by providing their expertise, financial support, and refuge volunteers when needed. The Friends Group supports all partners who own land within the refuge and are considered full participants in the decision-making process for the refuge through this MOU.

VI. RESPONSIBILITIES AND AREAS OF COOPERATION:

- A. The Mashpee Partnership (Partnership) will be composed of representatives from each of the signatories (partners) and will meet regularly to discuss refuge related issues of mutual interest and to explore appropriate areas of cooperation (see article A). All partners will retain the ownership and management rights of the land they may currently have under their jurisdiction.
 - 1. The Partnership will be based upon coordination and cooperation between the signatory partners.
 - 2. The Partnership will establish its own bylaws and operational logistics (e.g. decision-making through the process of consensus)
- B. The USFWS will consult with all partners in the development of the refuge's CCP and periodic review and updates of all plans. All partners are encouraged to consult with each other in the development of their own management plans and will include a description of the refuge and the Partnership. Partners will allow review of draft management plans by other partners, as applicable.
- C. When opportunities present themselves, partners are encouraged to coordinate and collaborate on interpretive program development, environmental education, research, public relations, outreach, and recreational opportunities.

- D. All partners will follow the notification protocol to notify all partners before implementing new management activities (see article B).
- E. All partners will work together to provide resources and management tools necessary to:
 - 1. Perpetuate the native fauna and flora, including Federal and State listed species, within the boundaries of Mashpee NWR.
 - 2. Provide compatible uses of resources, including wildlife dependent recreation, subsistence practices, research, educational activities, and nature study.
 - 3. Reduce the risk of wildfire and threat to homes and resources by reducing hazard fuel loading within the wildland urban interface.
- F. All partners will continue to share information and cooperation in law enforcement efforts within the refuge.
- G. All partners will collaborate on joint publication of studies and grant proposals when appropriate, notwithstanding the individual partners' policies.
- H. All partners agree to participate and cooperate in the land and water protection efforts in or near the Mashpee NWR in accordance with the individual partners who have statewide land acquisition goals and policies.
- I. All partners are encouraged to be proactive in appraising and acquiring land within and surrounding the Mashpee NWR as it becomes available. Land acquisition shall not be limited to any one partner.
- J. All partners agree to share staff expertise, labor, facilities, and equipment as feasible to help facilitate and implement land management, resource protection and public use programs in accordance with individual partners' policies. The partners involved in the working arrangement are responsible for establishing rules for the sharing of resources on a case by case basis.
- K. Nothing in this MOU shall be construed as obligating any of the partners hereto to the present expenditure of funds or allocation of staff resources.
- L. Nothing contained herein shall be construed as limiting in any way the responsibility and authority, as defined by law, of any of the partners, in connection with the administration and protection of lands and resources under their respective administrations.
- M. Additional parties holding fee title to permanently restricted conservation land(s) within the Mashpee NWR and surrounding area may be added as partners upon approval by the Partnership.

VII. ARTICLES:

These articles are intended to provide further guidance for the Partnership to continue collaboration among partners.

A. Partnership Structure and Responsibilities

1. Holding a minimum of biannual partner meetings to discuss refuge management and decision-making.
 - a. Meetings will take place in both the Spring and Fall, or when appropriate.
 - b. Meetings will be held at the WBNERR boathouse upon availability. Other partner facilities may be used for future meeting locations upon approval.
 - c. Conference call capabilities will be provided for partners unable to attend meetings; ample prior notification must be given to the Partnership Secretary.
2. Subcommittees
 - a. Partners can establish subcommittees at any time to address specific issues.
 - b. Subcommittees should be designated by the officers listed below.
3. Assign specific roles to partner representatives for a term of one year in order to facilitate biannual meetings; positions include but are not limited to chairperson, vice-chairperson, and secretary.
 - a. Chairperson: Facilitates meetings and is responsible for maintaining any necessary communication with partners throughout the year; works with partners individually if problems arise and decides upon appropriate topics to be discussed during biannual meetings; acts as the **Point of Contact** for partners to contact as issues or concerns arise.
 - b. Vice Chairperson: Creates meeting agendas, assists chairperson with communication throughout the year; facilitates biannual meetings if the chairperson is unable to attend.
 - c. Secretary: Records notes at meetings and emails out to partners in a timely manner; reserves meeting location and sets up the conference call line; communicates with partners to schedule meetings; is responsible for updating the email list; databases meeting notes and Partnership related documents for future reference.
4. Voting will be held annually to elect new officers within the Partnership. The secretary will manage the voting process and record votes. Voting will be done via email within a 2-week time period, occurring 2 months prior to the next biannual meeting. Prospective officers can be nominated by themselves and/or other partners. The new officers will discuss roles and responsibilities during the following biannual meeting.

5. The Partnership will strive to operate by consensus with a commitment to cooperation across jurisdictional boundaries. When a vote on resolutions or other items becomes necessary, a 2/3 majority vote of those partner representatives present shall be required for passage.
6. Other Conservation Partners
 - a. The Partnership will approve additional partners when appropriate, given that their land falls within the refuge boundary or may be used to expand the refuge acquisition boundary in the future.
 - b. These partners will be able to attend meetings, present issues or concerns, and participate in collaborative events and activities, including refuge management.
 - c. These partners will not have the right to vote or serve within the Partnership and their lands will not be subject to this MOU.

B. Communication

1. Notification Protocol: the Partnership will agree to a uniform method of communication among all partners in order to ensure consistent communication to all partners when necessary.
 - a. The main method of communication will be through email. The Partnership will devise an email list that will be maintained by the secretary and will include the designated representatives from each organization. This email list will be disseminated to each partner.
 - b. The following circumstances (including but not limited to) necessitate prior notification via email and a follow up confirmation among the partners, at least one week in advance unless otherwise indicated to all parties:
 - i. Conducting projects such as inventorying, monitoring and research on partner lands. Partners should provide this prior notification as a courtesy.
 - ii. Prescribed burns (planned one week in advance, weather notification within 24-hour notice for partners).
 - iii. Road maintenance when partners' roads or refuge access is impacted.
 - iv. Habitat management and other major activities that could potentially impact other partners' properties.
 - c. The partner(s) participating in any of the above activities, among others, must provide detailed information to all partners regarding the proposed activity. This will include where and when the activity will occur, who will be participating, and the purpose of the activity.

- d. During emergencies, e.g. fires, notification will be on a case by case basis, as time allows. Such emergencies generally require 911 for immediate response, followed by notification of the land owner(s) involved as soon as possible.
- 2. Data Sharing
 - a. Research and data collected on the refuge should be shared, when applicable, among all partners to increase awareness of partner activities and encourage collaboration on research endeavors. Data sharing should occur through the email list or another mutually agreed upon method.
 - b. If data is shared and subsequently published, the partner providing the information must be given timely notification and opportunity to review the document that is being published and must receive credit for providing/sharing the data.

C. Signage

- 1. Partners will discuss the implementation of common signs along the boundaries of their properties that identify them as part of the refuge. This will not only make the refuge more visible and identifiable, but will send a unified message to the public.
 - a. Partners will decide upon either a brand which represents Mashpee NWR included on each partner's current signage, or a sign that will hang under current signs. Signs will contain a phrase that reflects the Partnership and the refuge.
 - b. Larger signs listing all partners will be constructed at most major refuge entrances.
 - c. Partners will coordinate to identify sign locations as well as the installation of all signs.

D. Access

- 1. All partners agree to discuss the potential adoption of a universal gating and locking system that will be applied at appropriate locations on all partner-owned lands.
 - a. Partners should discuss new gate proposals via email or at meetings.
 - b. All partners will have access to every gate for official use only and are not required to seek permission to enter another partner's property.
 - c. Each partner is responsible for unlocking/securing their individual properties when needed.
 - d. Partners will attempt to standardize open and closure times and adjust times for special events and exceptions.

- e. Partners should use the notification protocol if they decide to change the locks to their property, and notify the appropriate emergency personnel.
 - f. The partners will identify potential locations for areas with ADA/elderly access and determine any changes in gating and locking as a result.
 - g. Partners will work to identify potential funding sources to implement access goals.
2. Emergency Access:
- a. The Mashpee and Falmouth Fire and Police Departments will be provided keys to the gates in order to ensure access to the refuge during emergency situations. Partners will work with these departments to develop a notification system so that relevant partners are informed when a 911 call has been issued for their property. Knox boxes will be installed on all gates for emergency services.

E. Outreach

- 1. Press Releases
 - a. Partners should work together to create press releases specifically regarding the refuge.
- 2. Visitor Services (environmental education, public relations, and recreational opportunities):
 - a. Partners will work collaboratively to support visitor services programs and events that occur on the refuge. Partners will maintain their right to conduct visitor services programs on their own properties without partner collaboration.

F. Maintenance

- 1. All partners should maintain their individual facilities, e.g. trails and parking lots, within the refuge for use as individual partners' policies, statutes, and regulations permit.
- 2. As a minimum, each partner should maintain access via existing roads and infrastructure in case of emergency needs, such as wildfire and rescue.

G. Public Use

- 1. Each partner will dictate the opportunity and access for hunting, fishing, and trapping on their own lands in accordance with their own policies and recognize the Mashpee Wampanoag Tribe Aboriginal Freedoms. The Tribe has agreed, as per Orenda's mission, to exclude their properties from hunting, trapping and fishing.
- 2. Partners are responsible for publicizing their individual public use regulations on each property.

3. All partners will work together to promote and facilitate approved public use activities throughout the entire refuge regardless of ownership, based on compliance with individual partner policies and approval.
4. The partners will work together to provide connecting trails on their properties where possible and to depict the trails on the refuge map and brochure.

H. Facilities

1. Visitor Center
 - a. There is currently no refuge visitor center; however, several partners maintain individual visitor centers/information offices. The partners will work towards the development of a refugewide visitor center in the future and consult the existing plans for a visitor center building. The Town of Mashpee has provided land for the construction of a future visitor center off Route 28 near the South Cape Resort and across from Quashnet Woods.
2. Shared Staff Lodging and Office Space
 - a. Partners will further investigate and discuss the possibility of sharing their lodging space and/or office space for partners' staff, as one of the many resources to be shared through this MOU.
3. Research Facilities
 - a. Partners should allow and encourage others to make use of their research facilities, especially if it will benefit the refuge.
4. Restrooms
 - a. Several partners own and maintain restroom facilities on their individual properties. The partners will work together to implement additional facilities as needed.
5. Pavilions/Picnic Areas
 - a. Partners may permit partner events to occur at their facilities, unless otherwise specified.

I. Habitat Management

1. Habitat may be managed for various environmental and public safety reasons, including but not limited to:
 - a. Species of greatest conservation need.
 - b. Invasive species control.
 - c. Reduction of hazardous conditions to prevent catastrophic wildfire.
 - d. Restoration efforts to restore ecosystem function and integrity.
2. Methods for accomplishing the above may include, among others:
 - a. Mechanical manipulation of trees and shrubs, including clearing.
 - b. Chemical control.

- c. Prescribed fire: The Service will be working to update the Fire Management Plan for the entire Eastern MA NWR Complex, which will include Mashpee NWR and all partner lands. The Service, along with various partners and independent contractors, is working to develop prescribed burn plans (prescriptions) for all areas identified in the 2008 Hazard Fuels Assessment. These plans will serve as the legal operational plans for the implementation of prescribed fire and will also identify locations of required fire breaks and mechanical fuel treatments. By signing the burn plans for their respective properties by way of this agreement, partners will allow for the use of prescribed fire on any land within the refuge boundary, subject to the land owner's permission or approval. The prescribed burn plans will meet all interagency standards and will be approved by all stakeholders involved. All burn plans will meet requirements of the Massachusetts Department of Environmental Protection Air Quality permitting, as well as other local, State, and Federal regulations.
- 3. Tools and methods to ensure consistent management across partner lands include:
 - a. Sharing of expertise and trained staff
 - b. Surveys
 - c. Monitoring and reporting
 - d. Sharing of equipment

J. Law Enforcement

- 1. Each partner's law enforcement entity shall have granted permission upon approval of this agreement to patrol and/or respond as necessary anywhere within the refuge boundary.
- 2. Upon permission, each partner's law enforcement entity will operate within the scope of their individual employment, jurisdictions, and internal policies, including any other formalized agreements, while on partner lands.
- 3. Each partner's law enforcement entity will share information and resources as it relates to enforcement within the boundaries of the refuge. This may include the development of a task force to address specific issues such as dumping or unauthorized off road vehicle use.
- 4. All partners' non-law enforcement employees are encouraged to report any unauthorized activity occurring within the refuge boundary. Any documented or observed activities shall be reported via electronic correspondence,

telephone, or in person, to the affected entity's representative in a timely manner.

K. Equipment Sharing

1. All partners agree to share any necessary equipment with each other, on an "as available" basis and at no charge, which will benefit the refuge and is to be used only on refuge lands, unless otherwise stated.
2. The Partnership will annually create a separate document including the equipment each partner is willing to share, operator availability, and any limitations associated with the equipment.
3. Each partner will either provide a trained operator and equipment or will ensure that the partners are trained and/or certified to operate any equipment before use as required by each partner's policies.
4. All liability is the responsibility of the partner operating the equipment. Repairs resulting from misuse, abuse, carelessness, or accidental damage will be the responsibility of the partner using the equipment at the time damage occurred or as otherwise agreed to by all parties.
5. State Partners: MDFW and DCR can provide an employee operator to use equipment, upon availability, off State property.
6. The Service will provide necessary training for partner operators to operate Service-owned equipment. The service currently moors a boat in the Waquoit Bay, which could be made available for use by partners.
7. All other partners not previously mentioned are responsible for identifying their own training needs for equipment and the equipment, if any, they are able to share according to their own policies.

L. Friends of Mashpee NWR

1. The Friends should be used as a resource by all partners and are not solely for the Service to utilize.
2. The Friends agree to provide volunteers when needed to assist partners in management practices and other activities or events on the refuge.
3. All partners are encouraged to allow the Friends, with prior notice, on their property and facilities to utilize for refuge related events, including but not limited to fundraising, annual meetings, and improvement projects, in compliance with partners' policies and protocols. Friend's events will be approved by each partner on a case by case basis. Each partner has the authority to apply either a Special Use Permit process or a Volunteer Policy process per their policies.

VIII. AGREEMENT TERM:

This Memorandum of Understanding will be effective upon signatures by all parties, and will be in effect for a period of 5 years. This MOU will automatically be renewed every 5 years with a maximum of up to 15 years. Each partner will be allowed to review and request modifications. The MOU will be extended beyond the 15 year timeframe with a review by authorized signatories. Participation in this Agreement may be terminated at any time by a signatory party upon giving written notice of termination to the other parties at least thirty (30) days prior to the date fixed in such notice.

IX. MODIFICATION:

Modifications or renewals to this Agreement may be proposed at any time during the period of performance by any party and shall become effective upon written approval by all parties. All parties will review this MOU annually and develop Annual Operating Plans.

X. SPECIAL PROVISIONS:

- A. Nothing in this MOU is intended or will be construed to limit, expand, or affect in any way the authority or legal responsibilities of the partner organizations.
- B. This MOU is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between the parties of this MOU will be handled in accordance with applicable laws, regulations, and procedures.
- C. The signatories and their respective organizations or agencies and offices will handle their own activities and utilize their own resources except for those outlined in the MOU, including the expenditure of their own funds, in pursuing these objectives. Each organization will carry out its separate activities in a coordinated and mutually beneficial manner.
- D. Each party agrees that it will be responsible for its own acts and the results thereof and shall not be responsible for the acts of the other party and the results thereof. Each party therefore agrees that it will assume all risk and liability to itself, its agents or employees, for any injury to persons or property resulting in any manner from conduct of its own operations, and the operations of its agents, or employees, under this Agreement, and for any loss, cost, damage, or expense resulting at any time from any and all causes due to any act or acts, negligence, or the failure to exercise proper precautions, of or by itself or its own agents or its own employees, while occupying or visiting the premises under and pursuant to this agreement.

- E. Nothing in this MOU is intended or will be construed to restrict the signatories or organizations from participating in similar activities or arrangements with other public or private agencies, organizations, or individuals.
- F. All press releases and public statements issued by the partners concerning or characterizing this MOU will be jointly reviewed and agreed to by the partners.
- G. This MOU may be amended or modified only through written/verbal agreement among all of the partners, signed by representatives of each organization. Other partners may become members of this MOU with the written/verbal consent of all current signatories.
- H. This MOU will be reviewed annually for adequacy and effectiveness, and any necessary changes will be made.
- I. This MOU shall become effective on the last date of execution as indicated below.
- J. This MOU shall be subject to all laws, regulations and policies governing the Service and partners.

XI. DISPUTE RESOLUTION:

- A. The signatories will resolve expeditiously all disputes related to this MOU. Disputes will be raised and resolved in a timely manner with due consideration to the projects or other activities on the refuge that are impacted by the dispute.
- B. The signatories encourage communication and joint problem solving to recognize and deal with disputes as they arise and to maintain constructive relationships. Partners should not wait to address disputes at the Partnership's biannual meetings, but rather should address them immediately.
- C. Decision-making will occur at the lowest level possible, among those representatives involved in the Partnership. Unresolved issues will be elevated quickly to higher-level decision makers to apply a broader policy perspective as needed.

XII. PRINCIPAL CONTACTS:

The principle contacts for each partner included in this MOU are as follows.

U.S. Fish and Wildlife Service	Falmouth Rod and Gun Club
Tom Eagle Deputy Refuge Manager 73 Weir Hill Rd. Sudbury, MA 01776 (978) 580-0183 tom_eagle@fws.gov	Don Clarke P.O. Box 162 Falmouth, MA 02540 (508) 540-6652 capecoddr@comcast.net

MA Department of Conservation and Recreation	Town of Falmouth/Falmouth Conservation Commission
Dave Celino Chief Fire Warden MA DCR Bureau of Forest Fire Control 251 Causeway Street Boston, MA (508) 326-2403 david.celino@state.ma.us	Mark Kasprzyk Conservation Commission Agent 59 Town Hall Square Falmouth, MA 02540 (508) 495-7445 (508) 495-7449 (fax) mkasprzyk@falmouthmass.us
Waquoit Bay National Estuarine Research Reserve	Orenda Wildlife Land Trust
Jim Rassman Stewardship Coordinator P.O. Box 3092 149 Waquoit Highway Waquoit, MA 02536 (508) 457-0495 james.rassman@state.ma.us	Liz Lewis Administrator 4011 Main Street Cummaquid, MA 02669 (508) 362-4798 orenda@comcast.net
MA Department of Fish and Wildlife	Mashpee Wampanoag Tribal Council
Jason Zimmer District Manager, Southeast District 1048 Division of Fish and Wildlife 195 Bournedale Road Buzzards Bay, MA 02532 (508) 759-3406 jason.zimmer@state.ma.us	George “Chuckie” Green Assistant Director, Natural Resources 213 Sampson’s Mill Road Mashpee, MA 02649 (508) 743-9066 cgreen@mwtribe.com
Town of Mashpee/Conservation Commission	Friends of the Mashpee NWR
Tom Fudala Town Planner 16 Great Neck Road North Mashpee, MA 02649 (508) 775-9168 tfudala@mashpee.ma.gov	MaryKay Fox President (508) 292-3707 FriendsofMNWR@gmail.com

In Witness Whereof, the parties herein named have caused this Memorandum of Understanding to be executed by their duly authorized representatives on the date indicated below:

APPROVED BY:

Regional Director
U.S. Fish and Wildlife Service

Date

Commissioner
MA Department of Conservation and Recreation

Date

Director
MA Division of Fisheries and Wildlife

Date

Chairman, Board of Selectmen
Town of Mashpee

Date

Chairman, Board of Selectmen
Town of Falmouth

Date

President
The Falmouth Rod and Gun Club, Inc.

Date

President
The Orenda Wildlife Land Trust

Date

President
Mashpee Wampanoag Indian Tribal Council

Date

President
The Friends of the Mashpee National Wildlife Refuge

Date

Additional MOU Contacts:

U.S. Fish and Wildlife Service	U.S. Fish and Wildlife Service
Libby Herland Project Leader Eastern Massachusetts NWR Complex 73 Weir Hill Rd. Sudbury, MA 01776 (978) 443-4661 ext. 11 (978) 443-2898 (fax) libby_herland@fws.gov	Carl Melberg Refuge Planner Eastern Massachusetts NWR Complex 73 Weir Hill Rd. Sudbury, MA 01776 (978) 443-4661 ext. 32 (978) 443-2898 (fax) carl_melberg@fws.gov
U.S. Fish and Wildlife Service	U.S. Fish and Wildlife Service
Susan Russo Visitor Services Manager Eastern Massachusetts NWR Complex 73 Weir Hill Rd. Sudbury, MA 01776 (978) 443-4661 ext. 34 (978) 443-2898 (fax) susan_j_russo@fws.gov	Dave Walker Fire Management Officer Rhode Island NWR Complex 50 Bend Road Charlestown, RI 02813 (401) 364-9124 (401) 364-0170 (fax) david_walker@fws.gov
U.S. Fish and Wildlife Service	U.S. Fish and Wildlife Service
Rick Vollick Northeast Region Fire Planner 1547 County Route 565 Sussex, NJ 07461 (973) 702-7266 ext. 19 (973) 702-7286 (fax) rick_vollick@fws.gov	Eileen McGourty Fish and Wildlife Biologist Eastern Massachusetts NWR Complex 73 Weir Hill Road Sudbury, MA 01776 (978) 443-4661 ext. 37 (978) 443-2898 (fax) eileen_mcgourty@fws.gov
U.S. Fish and Wildlife Service	MA Department of Fish and Wildlife
Brian Willard Supervisory Federal Wildlife Officer Eastern Massachusetts NWR Complex 73 Weir Hill Rd. Sudbury, MA 01776 (978) 443-4661 ext. 13 (978) 443-2898 (fax)	Steve Hurley 251 Causeway St., Suite 900 Boston, MA 02114 Fish and Stream Restoration steve.hurley@ma.state.us
Mashpee Conservation Commission	Falmouth Conservation Commission
Andrew McManus Conservation Agent/Herring Warden Town of Mashpee	Jennifer McKay Conservation Commission Administrator 59 Town Hall Square

16 Great Neck Rd. North Mashpee, MA 02649 (508) 539-1424 ext. 8539 (508) 477-0222 (fax) amcmanus@mashpeema.gov	Falmouth, MA 02540 (508) 495-7445 jmckay@falmouthmass.us
Mashpee Fire Department	Mashpee Wampanoag Tribal Council
George Baker Fire Chief 20 Frank Hicks Drive Mashpee, MA 02649 (508) 539-1454 gbaker@mashpeema.gov	Quan Tobey Director, Natural Resources 213 Sampson's Mill Road Mashpee, MA 02649 (508) 477-5800 qtobey@mwtribe.com
Waquoit Bay National Estuarine Research Reserve	Orenda Wildlife Land Trust
Alison Leschen Reserve Manager WBNERR 149 Waquoit Highway, PO Box 3092 Waquoit, MA 02536 (508) 457-0495 ext. 3092 (617) 727-6174 (fax) alison.leschen@state.ma.us	Farley Lewis 4011 Main Street Cummaquid, MA 02669 (508) 362-4798 farlewis@comcast.net
Orenda Wildlife Land Trust	Orenda Wildlife Land Trust
Ken Burnes 4011 Main Street Cummaquid, MA 02669 (508) 362-4798 kenburnes@gmail.com	Dick Boyden Land Stewardship Committee 4011 Main Street Cummaquid, MA 02669 (508) 362-4798 rfboyden@gmail.com
Falmouth Rod and Gun Club	MA Department of Conservation and Recreation
Mike Cardeiro P.O. Box 162 Falmouth, MA 02540 (508) 540-6652	Edward M. Lambert Commissioner 251 Causeway Street Boston, MA 02114 (617) 626-1250

MA Department of Conservation and Recreation	MA Department of Conservation and Recreation
Priscilla Geigis Director/Assistant Commissioner State Parks and Recreation 251 Causeway Street Boston, MA 02114 (617) 626-1250	Douglas Rice Office of the General Counsel 251 Causeway Street Boston, MA 02114 (617) 626-1250

Appendix B. Partner Management Matrix

Note: Matrix does not include The Friends of Mashpee NWR because they do not own property within the refuge.

Additionally, grey boxes indicate the information was not available for or provided by that partner.

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
Sources of Information	Management Plan, Staff	Refuge Staff, Past Plans	Plans, Website, Staff	Website, Staff	Open Space Plan, Staff	Open space plan, Staff	Website, Staff	Website, Staff
PUBLIC USE								
Hunting	Yes, according to state laws.	Only permit the Tribe to hunt.	Yes, on Quashnet River Access, Pickerel Cove, and Crane WMA.	None	Yes, according to local rules and state guidelines, Conservation Commission Regulations, and firearms laws restrictions.	None-Passive recreation only.	Yes- quail hunting is limited. Follows all state regulations. Open to public.	Yes
Fishing	Yes, according to state laws; catch and release fishing only.	No	Yes, allowed at Quashnet River Access and Pickerel Cove.	None	Yes, according to state regulations, wherever water is present.	None-Passive recreation only.	Yes-allowed in ponds; open for public access.	Yes
Wildlife observation	Yes, allowed on platforms.	Yes-scheduled events only.	Yes	Yes	Yes, it is encouraged on town properties.	Yes	No observation areas. There is a Town-owned cranberry bog along Carriage Shop Road, with permitted public use and no restrictions.	Yes

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
Interpretation	Yes, offsite at headquarters, Martin Road (DCR/MADFW). Quashnet property has signage/kiosk.	No	Yes	Not presently, but open to interpretation	Offer free tours at several properties. Walks occur multiple times per week during the summer and on Saturdays during the rest of the year, and are led by staff.	The town offers tours led by volunteers and through the 300 Committee Land Trust.	Not presently, but are open to kiosks on history, youth events, and including interpretive information in club newsletters.	Not presently, but open to interpretation.
Environmental Education	Yes, occurs at the Quashnet property. Provides curriculum-based instruction to schools, mostly junior high students; environmental education is only done for school groups.	No	Yes	Yes, but is limited.	Yes, provide the free interpretation tours along Childs River; mostly does environmental education for preschool groups occasionally and upon request. Future plans to teach about fire safety.	The town offers tours led by volunteers and through the 300 Committee Land Trust.	Holds annual fishing and hunting events for youth.	Holds youth activities that occur off refuge on Quahog education, Gooseberry Island, oysters and medicinal plants.
Walking and Hiking	Yes	No, but occurs illegally.	Yes	Yes, along roads	Yes	Yes	Yes	Yes
Beach Combing and Collection	Collecting occurs but is not regulated.	Not allowed	Yes					Yes, medicinal plants collection.
Other Activities	Swimming, research, boating (motorized and non-motorized), geocaching, no camping allowed in refuge.	Plant collection for medicinal purposes for the Tribe only.		Not active, wildlife and animal rehabilitation.	Swimming, canoeing, and kayaking on John's Pond and Mashpee Pond; boat-carry in access for canoes and kayaks.	Cross-country skiing, nature study at Coonamesett Reservation Area.	Boy Scouts; fire arms training; scholarships; annual game feed; youth recreation.	Oyster farming on Waquiot Bay waters within the refuge, cultural resource preservation, and grant writing.

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
ACCESS								
Trail Use	Yes, data is currently being gathered in trail surveys for maintenance issues and non-regulated/illegal trails on DCR lands.	Service-owned lands are closed currently, but illegal use occurs.	Yes	Allowed on existing paths, prohibit new trails for recreation.	There are dozens of trails owned by the Conservation Commission and built by the Conservation Corps. Trails are regularly maintained by volunteers. Cape Cod Trail intersects refuge land; interested in possible connections with Cape Cod Pathways Trail.	Available for public use in most areas.	Yes, trail down to Childs Rivers and walking occurs on the road within the property.	Yes, no established trails but use existing roads.
Bicycling and Mountain Biking	No motorized vehicles are allowed on conserved land.	No	No	No	Bicycling is allowed, no motorized vehicles allowed, and some mountain bikes are permitted.	No	No, but mountain biking is not restricted.	Not restricted
Vehicle Use	Only allowed on roads.	No	Yes	No	Only allowed on paved and dirt roads.	No	No	There is a dirt road but vehicle use is not encouraged. Have one gate that remains open and one that is closed.

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
ATV/ORV Use	No, but occurs illegally.	No		Yes, allowed on Great Hay, Simon Lowe, and Makepeace Mercy Lowe properties.	Prohibited, but occurs illegally.	No	No	No, but occurs illegally.
ADA access	None on the refuge, but have an agency program.	No		No	Town has identified areas for access as required by the open space plan, however it has not been implemented yet.		No	Only on the road entering the property.
Horseback Riding	Allowed, have restrictions on non-refuge lands.	No		No	Yes		No restrictions	Yes, allowed across Great Hay and near the bog; daily access allowed.
Boating and Paddling	Yes, canoeing.	No			Yes, motorized boating and canoeing allowed in some ponds. Moody Pond and Punkhorn Point have boat access.			N/A

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
INFRASTRUCTURE								
Parking	Yes, at the visitor center, headquarters and at the Quashnet property.	Yes, Informal Parking.	Yes	None, roadside parking is legal but is not designated	Yes, at Pickerel Cove, Abigail's Brook/Bufflehead Bay, John's Pond, Jehu Pond, and Child's River; informal parking area at the pine barrens and near tribal land.	Yes, at the Coonamessett Reservation Area.	Yes	
Roads	Dirt, service roads.	No	Yes	Only on Makepeace-Mercy Lowe property, along Pierce, Simon Lowe, and Great Hay Roads.	Yes, paved and dirt roads (mostly dirt); motorized access allowed at Moody's Pond.		Yes	Dirt road
Restrooms	No	No			No	No		
Equipment Availability Specifics	Brush hogs, chain saws, and chippers. Fire resources: about 4 Type 6 Engines involved in prescribed fire, and a Terex Skid Steer Cutter.	Fire Management program equipment.			Conservation Commission and Department of Public Works own brush; own trucks for cleanups; DPW staff trained to use USFWS skid.		Yes	

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
Gates	Yes, at Quashnet River Conservation Area, Quashnet Woods, Abigail Brook, Martin Road and Whiting Road (Quashnet Woods) properties.	Yes	Yes, at Pickerel Cove and Crane properties.	Yes, along Pierce, Great Hay, Simon Lowe, and Lovells Lane Roads- 4 gates total.	Yes, in place by DPW-Johns Pond, Jehu Pond (gates not town-owned). Universal key is desired.	Yes, at the Coonamessett Reservation Area	Yes	2 gates (1 Mashpee Town-owned, 1 Tribe-owned) at edge of refuge boundary.
Trails		Yes	Yes	No specific trails except for an old logging road, brush is very thick.	Yes- Bufflehead Bay, Abigail's Brook, Quashnet Woods (near Moody Pond), Pickerel Cove, John's Pond, Cross Cape Trail. Have old dirt roads that aren't maintained but are used as trails.			No developed trails, use fire breaks as trails; Cross Cape Trail goes through land on the refuge.
Staffing and Volunteer Capacity	State Archaeologist	Friends Group, current staffing for Eastern Massachusetts Refuge Complex.			Conservation Commission has 1 staff member; AmeriCorps works during the summer; and land stewards program does cleanup.			Two staff members in Natural Resources department.

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
Cultural Resources	Yes	Yes, see CCP chapter 2 for known sites.			Town-wide archaeological sensitivity training; maps of Pre- and Post- Contact; no sites allowed to be posted, but sensitivity allowed for layers.			Yes, have gravesites at headquarters and within the refuge.
COMMUNICATION								
Visitor Center and Information	Yes, but not within the refuge.	No		Have an office off-site, not on the refuge.	No, but have identified a potential property for a visitor center in the refuge.		No	Yes, but does not include information on the refuge.
Website/Social Media	Yes	Twitter, Mashpee Web site, Friends Group, Flickr	MADFW website has links to each parcel.	Yes	Yes		Yes	No
Signage	Signs guiding usage at Abigail Brook property.	Yes	Yes	Have signs with the names of the property.	Most properties have a sign at the road, including areas within the refuge; very limited trail signage, has been discussed but not implemented.			No, have stakes to indicate the boundary, open to unified posting.

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
Boundary Posting	No, but have postings at some access points based on state standards. Currently opposed to boundary indicators.	Yes	Yes, at Quashnet River Access property.	Yes, have boundary markers for most properties.	None posted but are open to unified refuge boundary indicator.	Yes, at Coonamessett Reservation Area property.	No	No, have stakes to indicate the boundary, open to unified posting.
Information Kiosk	Yes	No	Yes	None, but have brochures and pamphlets	No, but there is one outside the refuge.			
<i>LAWS AND POLICIES</i>								
General Policies and Regulations	All state laws apply to all DCR and WBNERR lands; MA Environmental Policy Act; Public Waterfront Act; Wetlands Protection Act; MA Coastal Zone Management Program Regulations; and the Ocean Sanctuaries Act.	National Environmental Policy Act; Biological Integrity, Diversity and Environmental Health Act; Endangered Species Act; Clean Water Act; and state and local wetland regulations.	Wildlife Management Area regulations.	Orenda Wildlife Land Trust Sanctuary Policies; monitor properties twice a year and file report, including vandalism reports.	Conservation Commission regulations.	Conservation Commission regulations.	State hunting and fishing, all federal, state, local, by-laws and regulations.	Tribal laws and policies.

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
Mosquito Control	County	County		None, no restriction.	County	County	County	No
Littering and Illegal Dumping	Waquoit Bay is a Federal No Discharge Zone (EPA designation). Littering is prohibited, but is a chronic problem.	Illegal dumping occurs.		Illegal, but dumping occurs mainly along road to Makepeace-Mercy Lowe Sanctuary.	Illegal, hold cleanups every few months, have regular dumping areas.		Illegal dumping occurs in the parking lot because of the gates. Disposal is costly for the Club.	Illegal dumping occurs.
Pets	Leashed dogs allowed in most areas.	No		Dogs on leash allowed but not encouraged or enforced.	Yes, allowed on leash or under control while on Conservation Commission land.		Yes, dogs are allowed.	Yes, no enforcement and most are unleashed.
Campfire	Open fires prohibited and no campsites within the refuge.		No fires without special permission.	No	No, bonfire at gravel pits not allowed but is a recurring issue; previously allowed Boy Scouts by special permit.			No because located too close to Cedar Swamp, but don't discourage due to cultural issues.

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
Safety Issues	Agency has safety plan for operations, hunting safety is posted (caution signs), Hurricane (WBNERR) and other disaster plans.		Hunting safety.	None.	Liability of ATV use, unleashed pets.		Wildlands Fuel Hazard Plan, in agreement with the town and Tribe. Shooting range has a steel belted fence to protect against bullets.	Wildland fire issues.
Permits	Special use permits for uses outside the agency's mission.			N/A	Permits for fires from the fire department.		No	No
Law Enforcement	Environmental police officers (EPOs) and a park ranger with limited responsibilities, i.e., ticketing and is unarmed.	One law enforcement officer split among other refuges in refuge complex.		MOU being produced, strict patrolling by Mashpee Police frequently	Local police, EPOs, no Natural Resource Police, MA EPOs stationed out of Mashpee Police Department. Natural Resource officers from Falmouth are used.	Department of Natural Resources Officers if needed.	Department of Natural Resources Officers from Falmouth.	No, informal EPOs need permission to enter gated lands.

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
REFUGE MANAGEMENT								
Current Management	Osprey Nests currently within refuge. Highest Priority: Migratory fish restoration (anadromous fish; 2nd Highest Priority: Rare habitat management, including grasslands, prescribed fire for pitch pine scrub oak. Vulnerability assessments and sea level rise studies.	Management for NEC, migratory birds, waterfowl, endangered and threatened species.	Natural Heritage and Endangered Species Program (NHESP) – conservation/management of wildlife species that aren't hunted. Manage hunted wildlife species.	Sanctuary management: habitat preservation, minimum intervention for wildlife, wildlife rehabilitation and release, habitat restoration for small mammals. NEC management.	Management for state- listed species, NEC, barrens buckmoth. Some management at the Cedar Swamp and Pine Barrens, need to conduct inventory and assessment.	Wildlife Corridor Overlay District (bylaws).	Plant fields with grasses/wild bird mix, maintain fruit trees for wildlife food, and clean Childs River every year. Pond allowed for natural succession, no plans to do pond restoration for brook trout.	Restoration of plants for cultural significance, greenhouse for seeding for cultural and native plant seeds repository.
Prescribed Burning for Habitat Management	Prescribed fire for Quashnet River Area and Washburn Fire Plan (off refuge); included in MOU for exchange of resources.	Not set as a priority, need a species inventory first.		Open to prescribed fire, have release sites and feeding stations for animals.	Town encourages fire management for primary habitat for the buckmoth and NEC, supports fuel reduction.	Town in communication with DCR on Washburn Island burns.	Will bring back information to the Club's Board about prescribed burns; need fuel mgmt and to restore it to its native state.	NEC habitat management- 30 acres for prescribed burns, some of which goes into the refuge; plan for Fall 2012 to burn 1-acre test parcel.

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
Prescribed Burning for Fuel Hazard and Public Safety	Control project at Childs River property. Educate local community on invasive species. Signs for fire program usage- Fire Wise, Falmouth Fire Tower.			None, but open to the possibility	Yes, have fire breaks close to residential areas, Fire Wise Program with brochures.		None, but open to the possibility.	Have a high need for fire and have a burn plan in place.
Timber Harvest	Forest health monitoring- winter and gypsy moths, some monitoring occurs within the refuge.			None, for wildlife purposes only.			No, would be open to NEC management and educating members about it and have signs posted, but can't enforce it.	Open to habitat management but not for just trees/timber (no timber currently on land due to past major fire).
Surveys	Fish, bird, and marsh surveys. Currently doing a trails survey to identify illegal trails on state lands- have GIS layers completed.	Vegetation surveys throughout the refuge.	Fish surveys.	Species counts and lists, open to surveys, NEC trapping, counting; have no restriction -ns regarding surveys.	Archaeological Surveys throughout all Town lands within refuge, species list for Town, NEC trapping, and fuel assessment Survey.		Fish surveys- Brook Trout, use of PIT tag to track fish.	Habitat cover and soil maps, no animal inventories, water quality-monitoring devices-sondes that have been permanently deployed.

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
Herbicide Use	None, both agencies open to the possibility.			Case by case basis, open to invasive species control.	None		Don't use, spray 15 apple trees, no fertilizers are used, wouldn't be opposed if it is the best management practice, would need to be board approved.	Not currently licensed pesticide applicators, would be a last resort for invasive species and would need negotiations for application.
Invasive Species Control	Forest Health Monitoring- Winter and gypsy moth.	NEC, migratory birds, waterfowl, endangered and threatened species	Fisheries management, state-listed species.	Not currently, but open to the possibility	Not currently, but open to the possibility, especially for phragmites; would need Town approval.	State-listed species.	None.	Mapping currently, burning for habitat, open to discussion about other methods.
Management Tools				Current practices, best management practices, several current plans available.	Implemented mandatory cluster development (Open Space Plan), land purchase, priority properties list identified in Open Space Plan.		Conservation easement for 170 acres; clean Childs River every year and tag brook trout in Quashnet River.	No specific plan for communicating about natural disasters or protecting cultural resources. Section 106 covers work plan.

Partners	WBNERR/DCR	USFWS	MA DFW	Orenda	Town of Mashpee	Town of Falmouth	Rod and Gun club	Wampanoag Tribe
<i>FUTURE GOALS</i>								
Future Plans	Install more osprey nests in refuge and include South Cape Beach and Washburn Island in the refuge.			Enforce-ment Plan (MOU) being formed with Service.	Open Space maps out of date on website due to recent acquisition.		Need maps or brochure for future, consider ideas for NEC and other management activities. Objective is to acquire land for future use and preservation, and become a 501C3 organization. Future quail restoration.	Restoration of plants of cultural significance, especially fire dependent species that will hopefully return once more prescribed burning is used. Have greenhouse collaboration with native seed society.
Land Protection and Acquisition	South Cape Beach State Park , Washburn Island, Childs River (3 acre property).	Expand refuge boundary through new and existing partnerships.		Open to the possibility	Land purchase: priority list identified in the Open Space Plan, with several parcels in the refuge boundary.		Allow a large area for designated dog walking.	A tribal purchase is currently being considered, Gooseberry Island, but current price is prohibiting action.

Appendix C. Partner Mission Statements

U.S. Fish and Wildlife Service, National Wildlife Refuge System

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

Waquoit Bay National Estuarine Research Reserve

“The Waquoit Bay National Estuarine Research Reserve provides long-term protection to the habitats and resources of this representative estuarine ecosystem, which serves as a natural laboratory for research by the Reserve and others to further our understanding of natural estuarine and watershed-linked processes and human influences on them. The Reserve works, through partnerships, to make the resulting information available to the public and policy-makers to promote informed coastal decision-making for this site as well as for similar sites in the same biogeographic region.”

Massachusetts Department of Conservation and Recreation

“Exercise general care and oversight of the natural and cultural resources of the Commonwealth in an environmentally sound and cost effective manner for the benefit of Massachusetts citizens. Within the context, DCR investigates, analyzes, and promotes the wise stewardship of the Commonwealth’s natural and cultural resources; develops, implements, and maintains public access to resources and facilities in the rural, suburban, and urban areas of the Commonwealth; and protects and manages all lands, waters, resources and facilities that are committed to the Department by ensuring their environmental integrity for future generations.”

Massachusetts Department of Fish and Wildlife

“The conservation-including protection, restoration, and management-of Massachusetts’ fauna and flora is the statutory responsibility of the Division of Fisheries and Wildlife (MADFW). Specifically, the Division’s charge is the stewardship of all wild amphibians, reptiles, birds, mammals, and freshwater and diadromous fishes of the State, as well as endangered, threatened and special concern species, including native wild plants and invertebrates. This responsibility is established and articulated in the Constitution and General Laws of Massachusetts.”

Town of Falmouth

“To cooperate with the Mashpee NWR Management Committee to utilize town lands in order to promote the goals of the National Wildlife Refuge System, the Commonwealth of Massachusetts Outdoor Recreation and Open Space Plan, and the Comprehensive Plan of the Town of Falmouth. To coordinate land acquisition with the Management Committee to achieve the goal of 25 percent protected open space by the year 2010 and to preserve and enhance opportunities for passive and active recreation.”

Note: The Town of Falmouth Board of Selectmen has adopted a specific mission statement in regards to Mashpee NWR. There is a separate mission statement for the Town.

Town of Mashpee (Mashpee Conservation Commission)

“The Mashpee Conservation Department provides jurisdictional authority over Mashpee’s wetland resource areas and conservation lands for the protection of native flora and fauna and the recreational enjoyment of town residents and visitors.”

Falmouth Rod and Gun Club

- A. To maintain a Club with an ample game preserve and adequate facilities where hunters and fishermen can enjoy congenial company and the fellowship which comes from mutual interests.
- B. To promote the interest of all legitimate sport of rod, gun, and bow.
- C. To encourage the propagation and protection of fish and game through cooperation with State and local conservation officers, other authorities and with other sportsmen’s clubs.
- D. To assist in training the youth in this area in the use of firearms, fishing tackle, archery and the principles of sportsmanship.
- E. To promote respect for the rights of farmers and property owners.
- F. To assist, by appropriate means, in the improvement, conservation, and preservation of Cape Cod beach, lake, and forest areas.
- G. To promote, support and protect the interests and rights of legitimate gun owners.

Orenda Wildlife Land Trust

“Orenda Wildlife Land Trust protects wildlife and their habitat. By purchase and gift, Orenda acquires land to be held in perpetuity as protected open space wildlife sanctuaries.”

Mashpee Wampanoag Tribe, Natural Resources Department

The mission of the Mashpee Wampanoag Tribe Natural Resources Department include but are not limited to: “Developing a comprehensive plan to establish an illegal dumping prevention and monitoring program in the Mashpee Wildlife Refuge and on tribal lands. Providing training and employment opportunities to tribal members in the environmental and natural resources field, continuing our role as stewards of our ancestral lands.”

The Friends of Mashpee National Wildlife Refuge

“Preserve and protect natural resources associated with the Waquoit Bay Watershed for the production of waterfowl and protection of wildlife.”

Appendix D. Photographs of Mashpee NWR

Below are photographs of various partner lands throughout Mashpee NWR.



Cranberry Bog, Mashpee Conservation Commission



Crane Wildlife Management Area, MA DFW



Apple orchard, Falmouth Rod and Gun Club



Falmouth Rod and Gun Club Headquarters and
Picnic Area



Hamblin Pond, USFWS (Photo Credit: USFWS)



White Cedar Swamp (Photo Credit: USFWS)



Waquoit Bay at WBNERR Headquarters



Jehu Pond (Photo Credit: Town of Mashpee)



Witkus Property, USFWS (Photo Credit: USFWS)



Santuit Pond, Orenda (Photo Credit: Orenda)