



# **Environmental Assessment**

## **Marconi Area Facilities Improvements**

**Helipad Improvement  
Waterline and Hydrant Extension  
Transit Shelter Construction  
Fire Cache Construction**

**Cape Cod National Seashore**

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## 0.0 SUMMARY

This Environmental Assessment (EA) addresses a proposal of the National Park Service (NPS) to conduct four facility construction improvements in and near the Marconi Headquarters and Maintenance facilities in South Wellfleet, MA (commonly known as the Marconi Area). The purposes of these projects are to improve employee and visitor safety, contribute to regional transportation goals, produce a more efficient work place, and to enhance emergency response capabilities. These projects are being considered in a single EA to facilitate an integrated assessment of effects to the Marconi Area.

**Helipad Improvement:** The NPS proposes to improve the helicopter landing site (helipad) in the easternmost portion of the Marconi Headquarters rear employee parking lot at Cape Cod National Seashore (CCNS). Helipad regulations would be based on the Interagency Helicopter Operations Guide (IHOG). IHOG is based on the Federal Aviation Administration (FAA) regulations for heliport design.

**Hydrant Extension:** The NPS proposes to construct a waterline extension from the current water system to a proposed hydrant to be located near the State Highway Route 6 and Marconi Beach Road intersection (located just outside of the park boundary). The CCNS water source is located at the end of Marconi Residence Road in South Wellfleet. The extension would cover a distance of 700 feet.

**Transit Shelter Construction:** The NPS proposes to site and construct a transit bus stop and shelter for the Outer Cape public transportation system (FLEX Bus). The shelter and associated paving would provide a shelter to the weather for riders and be a focal point for drop-off and pick-up of mass transit users in South Wellfleet.

**Fire Cache Construction:** The NPS proposes to construct a new fire cache garage next to existing facilities at the Marconi maintenance area. The existing facilities are inadequate to support the fire management program. The new facility would have dedicated storage space and would consolidate all fire vehicles and fire equipment in one building thereby enhancing the efficiency and effectiveness of the fire management program.

The Marconi Area is a comparatively dry, flat area dominated by open, early successional stage vegetation. Immediately adjacent to the Atlantic Ocean, vegetation is dominated by American beachgrass (*Ammophila breviligulata*) and ericaceous shrubs and sub-shrubs. Much of the vegetation adjacent to and south of park headquarters consists of heathlands, with scattered patches and stands of pitch pine (*Pinus rigida*), beach plum (*Prunus maritima*), and bear oak (*Quercus ilicifolia*). Over time, the dominance of these woody species has increased. This heathland succeeding into pitch pine-bear oak habitat extends

northward from park headquarters approximately 900 feet and then transitions into oak (*Quercus spp.*) forest on the east and to a swamp dominated by Atlantic white cedar (*Chamaecyparis thyoides*) on the west. Wildlife found at the Marconi Area is typical of that found in successional heathland habitats on Cape Cod. The Natural Heritage and Endangered Species Program (NHESP) office of the Massachusetts Division of Fisheries and Wildlife has identified the Marconi Area as Priority and Estimated Habitat for Rare Species. Broom crowberry (*Corema conradii*) is listed by the State as a Species of Special Concern; this species occurs throughout the Marconi Area and would be impacted by several of the project alternatives evaluated in this Environmental Assessment. Mitigation for proposed impacts to this species is described in detail in Appendix A.

The Marconi Area contains CCNS Headquarters, Maintenance Division and Fire Program management and operations. Because of the historic uses by the NPS and the Army, much of the area has been previously disturbed and no known cultural resources would be adversely affected by the any of the proposed alternatives.

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## 1.0 INTRODUCTION

### 1.1 BACKGROUND

The Marconi Area of CCNS has had a long and varied history of human use and occupation. The proposed projects would be undertaken in and around developed areas commonly referred to as the Marconi Area (Figure 1). The project area has been in use for administrative, maintenance and operational purposes for the NPS since 1965. Prior to that use, the property was used as a military facility from 1943 to 1961, until military activity ceased and the United States Army transferred title to United States Department of Interior for inclusion in CCNS. While being used by the military, numerous buildings, and roadways were constructed. Many structures have been removed but much of existing infrastructure of the military base can still be found. Facilities currently available for fire management operations, transportation, water delivery and helicopter landing are consistent with the needs and uses identified in the 1960s. The needs and uses prescribed for today's operations have changed largely due to increased management responsibilities of CCNS and the increased demands that result.

Today the Marconi Area is used by CCNS as a recreation area providing the public with a recreational beach facility, the historic Marconi Station Site, hiking trails, and a wildlife management area. The area also contains the CCNS administrative headquarters, South District Maintenance facility, and nine employee housing units.

This EA considers four improvement projects that follow:

#### **Helipad Improvement:**

The helipad would serve as a safe site for helicopters to land when involved in reconnaissance operations, emergency medical situations, and emergency wildfire operations. The helipad would serve both the park and the community by providing increased safety and emergency response for the surrounding residents of the Outer Cape once upgraded to meet current design standards.

This EA evaluates the potential impacts of helipad improvements under the context of two alternatives.

**Alternative 1:** The No Action Alternative - The NPS would not construct an improved helipad. Helicopters would continue to land on a paved but non-regulated site in the Marconi Area that does not meet current safety standards.

**Alternative 2:** The NPS would improve the current helipad at the Marconi Area (Figures 2,3,4). Improvements would include: construction of a perimeter fence and perimeter lighting; construction of an equipment/aviation shed; installation of

underground electrical service; and placement of a swinging gate and wind sock stanchion. Additionally, the helipad landing area would be resurfaced with bituminous concrete. Improvements would take place in stages over a period of up to several years. Alternative 2 is the preferred action.

One additional alternative was considered, but rejected. The alternative to construct a helipad at a different site was deemed unrealistic and not cost effective. The proximity of the fire cache and the Marconi maintenance area to the proposed site provides personnel, communications, personal protective equipment, parking, supplies and other specialized equipment. Further, the proposed site utilizes a previously disturbed area that is paved and partially cleared of vegetation.

### **Waterline and Hydrant Extension:**

The current water and fire hydrant system serves the Marconi Area only. There are five hydrants that can be utilized by fire departments for mutual aid tanker shuttle operations, and all hydrants are located near NPS facilities. In the Marconi Area the closest hydrant to State Highway Route 6 is 0.26 miles (1,370 feet); however fire apparatus must drive 0.72 miles (3,800 feet) to effectively enter, access and exit hydrant site(s) and turnaround. This delay would be minimized by providing a new hydrant near the State Highway Route 6 and Marconi Beach Road intersection.

The NPS proposes to construct a waterline extension from the current water system to a proposed hydrant located near State Highway Route 6 (Figure 5). The CCNS water source is located at the end of Marconi Residence Road in South Wellfleet. The extension would cover a distance of 700 feet.

This EA evaluates the potential impacts of constructing a waterline and hydrant extension under the context of three alternatives.

**Alternative 1:** Under the No Action Alternative no waterline extension would occur. Emergency fire equipment would continue to fill from hydrants near the headquarters building. Turn-a-round times for refilling engines, tankers and tenders would remain at maximum intervals.

**Alternative 2:** The NPS would plumb into the current Marconi Area water system at an existing valve at the terminus of Marconi Maintenance Road and construct a waterline extension to Marconi Beach Road / State Highway Route 6 intersection. This alternative would utilize the shortest and most direct route. A fire hydrant would be placed at the end of the waterline extension. The waterline extension would run 700 feet under a former woods road. Construction would take place over several weeks and would be completed by NPS and Town of Wellfleet employees. Alternative 2 is the preferred action.



**Alternative 3:** The NPS would plumb into the current Marconi Area water system by adding a new valve near Marconi Maintenance Road and construct a waterline extension from the new valve to Marconi Beach Road / State Highway Route 6 intersection following the road shoulders of Marconi Beach and Marconi Residence roads (a distance of approximately 900 feet). A fire hydrant would be placed at the end of the waterline extension. Construction would take place over several weeks and would be completed by NPS and Town of Wellfleet employees.

### **Transit Shelter:**

A public transportation initiative to construct 8-12 public transportation shelters on the Outer Cape is underway as discussed in Section 5. Two shelters are being considered within Cape Cod National Seashore at this time – one in South Wellfleet and one at the existing bus stop at Salt Pond Visitor Center in Eastham.

A bus stop and shelter for the Outer Cape public transportation system is needed in South Wellfleet to provide more comfortable accommodations for passengers. A safe shelter with a resting place, schedule information, and protection from the elements is desired. A bus stop exists at Farrell's Market area, but it does not presently have a transit shelter. The natural beauty of the area and the lure of the beaches have resulted in an increase of visitors, contributing to traffic problems for the Outer Cape of Cape Cod and the CCNS. A new public transportation system was started in 2006 to help relieve the traffic and air quality problems using Federal Department of Transportation funds allocated to the NPS.

This EA analyzes the potential impacts of alternatives of constructing a bus stop and shelter under the context of three alternatives.

**Alternative 1:** Under the No Action Alternative neither a bus stop nor a shelter would be established.

**Alternative 2:** The NPS would construct a bus stop and shelter at the Marconi Area entrance (Figure 6). Alternative 2 is the preferred alternative.

**Alternative 3:** A bus stop and shelter would be located approximately 0.75 miles north of the Marconi entrance at the South Wellfleet Village Center.

### **Fire Cache:**

The proposed cache building would be a two-story structure with a footprint of 2,000 sq. feet (40 feet x 50 feet) (Figures 7, 8, 9). Additional paving around the building would directly impact an area of 0.14 acres. The cache would have architecture similar to other Marconi maintenance facility buildings, be cost effective and easily maintainable, and have the capacity to be expanded, moved, and/or outfitted with utilities depending on future needs. A supplemental heating

source, an outside wood-fired furnace, is proposed for the cache to minimize use of conventional heating fuels.

The proposed cache would have four garage bays, two on each side, to allow drive through access. The facility would be sited and designed to avoid disrupting vehicle operations at the South District Maintenance facility. Vehicle entry, egress, and line-of-sight, especially for larger trucks and truck/trailer combinations cannot be restricted.

This EA analyzes the potential impacts of alternatives of constructing a new fire cache under the context of three alternatives.

**Alternative 1:** Under the No Action Alternative no new construction or addition would be built. The fire management program would continue to operate with office, trucks, and equipment in dispersed locations.

**Alternative 2:** The NPS would construct a new two-story 2,000 sq. foot (footprint) fire cache building located at the current site of the manual fire weather station. Alternative 2 is the preferred alternative.

**Alternative 3:** The NPS would construct a new two-story 2,000 sq. foot fire cache building in the southwest corner of the Marconi maintenance yard.

Two alternatives were considered but rejected: a) construction of a new facility on the concrete pad adjacent to the rear headquarters parking lot, and b) relocation the fire cache to the Highlands Center in Truro, MA.

## **1.2 PURPOSE AND NEED**

These four projects are being considered within a single Environmental Assessment to facilitate integrated assessment of impacts to the Marconi Area, and public consultation on the projects. There are impacts to broom crowberry to consider together, and a proposed mitigation plan. There is an anticipated timetable for the completion of all four projects within two years.

### **Helipad Improvement**

The lower Cape communities and CCNS use various non-regulated sites for helicopter landing areas for medical emergencies, wildfire suppression and aerial reconnaissance. Although no accidents have occurred at any of the non-regulated landing sites at CCNS, potential safety hazards (rotor strikes, unauthorized personnel in landing area, and accidents at night due to lack of landing site lighting) exist. Emergency medical "Life Flights" are annually increasing from the lower Cape area. Although wildfire occurrence is low and usually localized, the chance for a catastrophic fire requiring air support exists. CCNS and local law enforcement units utilize helicopters for reconnaissance

operations including search and rescue, aerial detection for drug cultivation, and fire suppression.

A helicopter landing site, with improvements to meet federal IHOG operational and safety standards, would provide for more safe and efficient medical, wildland fire, and reconnaissance missions.

### **Waterline and Hydrant Extension**

CCNS and local fire departments currently utilize various hydrant locations within the surrounding towns. With the exception of the NPS Marconi Area hydrants, there are no other hydrants located in South Wellfleet. Some structures located in the South Wellfleet area are at risk of fire damage due to the challenge associated with accessing fire suppression water sources. Two of the five available hydrants located in the CCNS Marconi Area are located behind a gate that is locked during nights and weekends and have a difficult and time consuming turnaround area. The remaining three hydrants are located away from paved areas or are located in areas with little to no turnaround area. The proposed waterline extension to a new hydrant location on State Highway Route 6 would provide shorter turnaround times during emergency events. The decision to pursue this project is outlined in the *2004 Cooperative Fire Protection and Emergency Medical Services Agreement* between the town of Wellfleet and the NPS under article 3.19.

### **Transit Shelter**

The new FLEX system utilizes buses provided by the regional transit authority. Stops need to be sited at the safest or the most convenient locations. Since the Plymouth & Brockton Bus also uses the shelters, the new shelter needs to be in a location that meets the criteria of those buses as well - it must be near other forms of public transportation or a trail, and in an area near safe, well-lit parking.

Two locations of proposed Outer Cape shelters are being considered within the park. The South Wellfleet area, and the existing bus stop at Salt Pond Visitor Center. The South Wellfleet location is a proposed new bus stop with a transit shelter, and is therefore to be covered by this EA. The existing bus stop at the Farrell's Market area does not presently have a transit shelter.

The proposed prototype regional transit service bus shelter would be approximately 10 feet x 20 feet, with an approximate disturbance area of up to 0.20 acres. The shelter is meant to fit into the local landscape or building design, be cost effective and easily maintainable, and have the capacity to be expanded, moved, and/or outfitted with utilities depending on future needs.

## **Fire Cache**

CCNS documented the need for additional fire cache space in 1993 in response to a call for NPS Fire Facilities Construction projects. The documented need was for vehicle garage and equipment storage space near or adjacent to the current fire offices located at the Marconi Maintenance Area. Construction of offices, kitchen space and restrooms were not requested. Garage needs include adequate heated space to prevent freezing of fire engine tanks in winter, drive through access and egress, and 12 foot by 12 foot garage doors to provide adequate overhead clearance and to minimize backing and parking incidents. Additional needs are for storage space for fire equipment, supplies, power equipment and machinery. Since 1993 the CCNS prescribed fire program has increased from less than five acres burned each year to the current approved 300-500 acres (CCNS Fire Management Plan 2005) annually. Garage bays for four vehicles in one building and storage space for program equipment and supplies are needed.

The proposed cache building would be 2,000 sq. feet (40 feet x 50 feet). Additional paving around the building would impact an area of 0.14 acres. The cache as proposed would have architecture similar to other adjacent Marconi maintenance facility buildings, be cost effective and easily maintainable, and have the capacity to be expanded, moved, and/or outfitted with utilities, depending on future needs. A supplemental heating source, and outside wood fired furnace, is proposed for the cache to minimize use of conventional heating fuels.

The proposed facility has four garage bays, two on each side, to allow drive through access. The location would be sited and designed to avoid disrupting vehicle operations at the South District Maintenance facility. Vehicle entry, egress and line-of-sight, especially for larger trucks and truck/trailer combinations cannot be restricted.

### **1.3 PARK PURPOSE AND SIGNIFICANCE**

The CCNS General Management Plan (NPS 1998), or GMP, has identified that the purposes of the Seashore are to

- (1) preserve the nationally significant and special cultural and natural features, distinctive patterns of human activity, and ambience that characterize the Outer Cape, along with the associated scenic, cultural, historic, scientific, and recreational values; and
- (2) provide opportunities for current and future generations to experience, enjoy, and understand these features and values.

## 1.4 PROJECT ISSUES AND IMPACT ANALYSIS

Issues and concerns influencing projects proposed in this EA were identified from past NPS planning efforts and on-going discussions with the Town of Wellfleet Fire Department (Helipad Improvements and Waterline/Hydrant Extension). This EA also stems from the larger transit shelter siting initiative on the Outer Cape, and the need for a safe and efficient location in South Wellfleet (Transit Shelter). Finally, the park operational space needs have been an ongoing park management concern and are being considered to improve the effectiveness of the Fire Management Program (Fire cache addition).

Major issues are the conformance of the proposed projects with the CCNS GMP. Conformance issues include: impacts to surrounding community, public use and access, park operations, cultural resources, and natural resources. Conformance to natural resources includes impacts to threatened and endangered species (including species of special concern and rare/critical habitats), wetlands, water quality, and air quality.

Specific impact topics were developed for discussion to focus and to allow comparison of the environmental consequences of each alternative. These impact topics were identified based on federal laws, regulations, Executive Orders; 2001 NPS *Management Policies*; and NPS knowledge of limited or easily impacted resources. A brief rationale for the selection of each impact topic is given below as well as the rationale for dismissing specific topics from further consideration.

Impact topics included in this document are: natural resources, surrounding community, public use and access, park management and operations, and cultural resources (historical and archeological). Each of the impacts was chosen based on conformance issues as dictated by CCNS management personnel to be affected by the proposed helipad improvement, waterline and hydrant extension, transit shelter and fire cache construction projects.

Impact topics dismissed from further analysis for all projects include: environmental justice, recreational values, and wild and scenic rivers. Environmental justice was rejected because none of the alternatives considered in this document would result in substantial changes in the socioeconomic environment of the project area. Wild and scenic rivers were rejected because the distances from the project area to the two major stream systems within the Seashore (Herring and Pamet Rivers) are 3.8 miles and 7.0 miles respectively and are not formally designated as wild and scenic rivers. Recreational values were rejected based on decisions by park personnel that construction of the four activities would have no impact on recreational values within the park. Air quality values are only analyzed for the Fire Cache Construction (outdoor wood fired furnace) since the remaining three activities would have no impact on air quality within the park.

A discussion of project scoping meetings and other project consultations is included in Section 5.

## **2.0 PROPOSED ACTION AND ALTERNATIVES**

An environmental assessment (EA) analyzes the preferred alternative and other alternatives with respect to their impacts on the environment. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and regulations of the Council on Environmental Quality (40 CFR 1508.9), and the NPS's Director's Order (DO) – 12 (*Conservation Planning, Environmental Impact Analysis, and Decision-making*).

### **2.1 ENVIRONMENTALLY PREFERRED ALTERNATIVES**

In accordance with the NPS DO-12, the NPS is required to identify the “environmentally preferred alternative” in all environmental documents, including EAs. The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act (NEPA), which is guided by the Council on Environmental Quality (CEQ). The CEQ provides direction that the environmentally preferable alternative is the alternative that would promote the national environmental policy as expressed in Section 101 of NEPA. Generally, the criteria mean the environmentally preferable alternative is the alternative that causes the least damage to the biological and physical environment and that best protects, preserves, and enhances historic, cultural, and natural resources (Federal Register, 1981).

### **2.2 HELIPAD IMPROVEMENT**

This EA evaluates the potential impact of constructing a helicopter landing site in the Marconi Area within CCNS. Two alternatives have been analyzed and one alternative has been considered but rejected. They are the No Action Alternative and an alternative that would construct helipad improvements. The Marconi water storage tower is located approximately 880 feet to the east of the proposed helipad project, but would not obstruct air operations in either alternative.

IHOG and FAA regulations for a type 1 helicopter landing site require that a 110 foot safety circle needs to be cleared of all vegetation (NPS would propose a 120 foot safety circle) around a minimum 30 foot x 30 foot landing pad. An additional 300 foot radius needs to be thinned of trees and a take-off and landing path would need to be cleared of tall vegetation.

#### **No Action Alternative**

Under the No Action Alternative a new helipad would not be constructed and the current site used for rotary wing aircraft landing would not be improved. CCNS

would continue to use a landing site that does not provide safety measures and precautions for pilots, emergency responders and the public. The current helicopter landing site has poor drainage and lacks a safety circle and landing paths. Under No Action, medical emergency situations and prospective wildfire operations would continue to use the site as described above.

## **Alternative 2: Helipad Improvement (Preferred Alternative)**

The current helicopter landing site is located in the eastern most corner of the Marconi headquarters' rear employee parking lot. The proposed helipad improvements are to be located at the current site, but the site would be improved to meet IHOG and FAA regulations.

Improving and upgrading a helipad at the existing helicopter landing site at the Marconi Area is proposed. The helipad would provide a safe landing site for helicopters involved in park reconnaissance operations, wildland fire suppression, and emergency transport during medical emergencies.

The helipad improvement blueprint would be based on the IHOG design (Figure 2). The design for the proposed helipad improvement at CCNS would be based on the specifications for a Type 1 helicopter. The specifications include a 30 foot x 30 foot touchdown pad; a minimum 110 foot diameter safety circle (note: a 120 foot safety circle is planned), and a 300 foot area clear of any major obstructions. The flight paths would be oriented to the prevailing wind (SW) and would be cleared of tall brush and trees. The current paved area is 80 feet x 80 feet (~0.15 acres). Clearing of tall brush and trees to meet the 120 foot diameter safety circle requirement would involve mowing an additional 0.12 acres (Figure 3). The existing paved area would be slated for repaving when the convenient and cost-effective time presents itself. Underground electrical service would be installed from CCNS Headquarters. A post and rope fence would be built around the perimeter of the safety circle. Low-level lights would be installed at the corners of the landing area for illumination at night. An equipment/aviation shed for required first aid supplies, fire extinguisher, fire hose, and an electric panel would be constructed on site. A windsock, cargo scale, and warning signs would be installed on site (Figure 4).

Helipad maintenance would involve semi-annual mowing of the interior of the safety circle. Vegetation within the 300 foot safety circle would be trimmed as needed to maintain tree height below 25 feet. Trees and brush re-growth within the landing paths would require annual trimming or removal. The landing area would need to be kept free of obstructions such as rocks and gravel. Dust management would be accomplished through routine sweeping of the paved area.

The Marconi water storage tower is located approximately 880 feet to the east of the proposed helipad project, but would not obstruct air operations.

### **2.2.1 ENVIRONMENTALLY PREFERRED ALTERNATIVE – HELIPAD IMPROVEMENT**

As considered in this EA, the No Action Alternative is the environmentally preferred alternative because it would not entail any construction, yet that alternative would not satisfy the safety and operational needs of the park. The Preferred Alternative was not selected on this basis alone because constructed improvements are necessary to provide the most appropriate response for emergency services in the event of accidents and fires.

After review of potential resource and public use impacts and mitigations, the preferred helipad alternative achieves the greatest balance between the necessity of improving the helipad with long-term preservation of resources, visitor experience, and emergency services for the community.

Measures to mitigate possible adverse impacts of the helipad improvement alternative would involve non-soil disturbing practices involved with thinning and cutting. Broom crowberry would be avoided while mowing within the safety circle. The main goal of the safety circle is to have a cleared area with only low level vegetation for dust management. Since broom crowberry rarely grows above one foot in height it would not be disturbed under most circumstances. In addition, a number of measures would be implemented to mitigate for the effects of all the proposed projects on broom crowberry. These measures are discussed in detail in the Mitigation Plan. Site specific elements to mitigate the impacts from the helipad improvement project include avoidance to the extent possible and transplanting impacted plants back to their original location.

### **2.2.2 ALTERNATIVES CONSIDERED BUT REJECTED**

#### **Helipad Construction at an Alternate Location**

The alternative to construct a helipad at a different location was rejected based on environmental, economic, and convenience factors. A new helipad site would involve vegetation removal over an 80 foot x 80 foot area and require paving. The Marconi Area is most convenient because it is close to available water, equipment and personnel resources. The Marconi headquarters rear parking lot can be utilized as a parking area for emergency vehicles en route for medical airlift. There is no readily accessible site within CCNS that contributes all the components that can be provided by the Marconi Area.

### **2.3 WATERLINE AND HYDRANT EXTENSION**

#### **PROPOSED ACTION AND ALTERNATIVES**

This EA evaluates the potential impact of constructing a waterline extension in the Marconi Area within CCNS. Three alternatives have been analyzed. They



are the No Action Alternative, an alternative that would construct the waterline along the most direct route, and an alternative that would construct the waterline along the shoulder of an existing paved road (Figure 5).

### **Alternative 1: No Action Alternative**

Under the No Action Alternative, a waterline extension would not be constructed. The town of Wellfleet, CCNS fire resources and other town fire departments would continue to use the current hydrants located at the Marconi Area. An easily accessible hydrant in South Wellfleet would not be available.

### **Alternative 2: Waterline and Hydrant Extension – Direct route following old woods road (Preferred Alternative)**

Constructing a 700 foot waterline extension line extension from the Marconi Area to a hydrant located on State Highway Route 6 near the Marconi Beach Road and State Highway Route 6 intersection is proposed. The hydrant would provide an easily accessible water refill area for town owned emergency fire apparatus and NPS wildland fire engines.. The hydrant would ensure a more continuous water supply for engines involved in structure and wildland fire suppression activities.

The waterline extension would begin at the end of Marconi Residence Road adjacent to the Tartaglia House (NPS# W-135). A valve and tee were installed at this location specifically for extending the hydrant system during a waterline system-wide upgrade ca. 2001. From the Tartaglia House location the extension would continue 700 feet to the State Highway Route 6 location along a former woods road. The new hydrant would be located on the north side of Marconi Beach Road east of State Highway Route 6 and west of the Cape Cod Rail Trail (CCRT). An 80 foot section of waterline extension was placed under the CCRT prior to repaving in 2006.

The extension would require excavation of a trench, three to five feet wide and four feet deep. There would be selected vegetation (trees, shrubs, limbs and ground plants) removed for ten feet on each side of the water line extension (a 20 foot wide impact buffer).

### **Alternative 3: Waterline and Hydrant Extension - Road shoulder location following Marconi Residence and Marconi Beach Roads**

Constructing a 900 foot waterline extension line extension from the Marconi Area to a hydrant located on State Highway Route 6 near the Marconi Beach Road and State Highway Route 6 intersection along the shoulder of Marconi Area roads (Marconi Beach and Marconi Residence Roads) would occur. Use of this site requires an additional 200 linear feet of trenching and pipe compared to Alternative 2. Additionally, the waterline extension and would require tapping into

the main waterline to install valve and tee where the current waterline crosses under Marconi Maintenance Road. Alternative 2 already has the valve and tee installed underground adjacent to the Tartaglia House.

The new hydrant would be located on the north side of Marconi Beach Road, east of State Highway Route 6 and west of the Cape Cod Rail Trail. An 80 foot section of waterline extension was put in place under the CCRT prior to repaving in 2006.

The extension would require excavation of a ditch, three to five feet wide and four feet deep. There would be selected vegetation (trees, shrubs, limbs and ground plants) removed for ten feet on the off pavement side of the water line extension (a 10 foot wide impact buffer).

### **2.3.1 ENVIRONMENTALLY PREFERRED ALTERNATIVE – WATERLINE AND HYDRANT EXTENSION**

As considered in this EA, The No Action Alternative would be the environmentally preferred alternative, yet that alternative would not satisfy the emergency water needs of the Outer Cape towns or the NPS. In the event of an accidental fire (a fire that was not part of the planned prescribed burning program), waterline accessibility for fire departments is essential for timely response to prevent or minimize damage to structures and the environment.

After review of potential resource and public use impacts and mitigations, the preferred waterline extension line extension alternative achieves the greatest balance between the necessity of constructing the waterline extension with long-term preservation of resources, visitor experience, and emergency services for the community.

Measures to mitigate adverse impacts of the waterline extension alternative would involve non-soil disturbing practices involved with thinning and cutting within the 20 foot wide impact buffer. Adverse impacts due to digging for the waterline extension itself would be mitigated through thorough rehabilitation of the area after waterline extension excavation. A number of measures would be implemented to mitigate for the effects of all the proposed projects on broom crowberry. These measures are discussed in detail in the Mitigation Plan. Site specific elements to mitigate the impacts from the waterline and hydrant extension project include avoidance to the extent possible and transplanting impacted plants back to their original location.

### **2.3.2 Alternatives Considered but Rejected**

#### **Hydrant installation at an Alternate Location**

An alternative location for a hydrant at the town owned South Wellfleet Fire Station on State Highway Route 6 was rejected based on environmental, safety, and convenience factors. Installing the hydrant at the south fire station would require tunneling under the Cape Cod Rail trail and trenching to avoid underground utility electrical service. The south fire station is currently not staffed and has an inadequate paved turnaround area for filling fire apparatus during emergencies. Due to the aspect and slope of the south fire station excess water runoff would impact State Highway Route 6, requiring additional sanding and salting during cold weather which would require installation of catch basins (personal communication Wellfleet Fire Captain T. Ferreira).

### **2.4 TRANSIT SHELTER**

#### **PROPOSED ACTION AND ALTERNATIVES**

This EA evaluates the potential impact of constructing a transit bus shelter in South Wellfleet. Three alternatives have been analyzed. They are the No Action Alternative, constructing the shelter at the Marconi Area entrance, and constructing the shelter at the South Wellfleet Village Center.

#### **Alternative 1: No Action Alternative:**

The existing South Wellfleet bus stop is at Farrell's Market on the west and east sides of State Highway Route 6. Benches were installed that define the bus stop location. The area is well lit when the market is open. The location is directly adjacent to State Highway Route 6 and presents safety issues for bus users. Under this alternative, people would continue to use the bus stop at the Farrell's Market location near the corner of Route 6 and Old County Road. There would be no new bus stop or shelter on federal land at the Marconi Area.

#### **Alternative 2: Construct Transit Shelter at Entrance to Marconi Area (Preferred Alternative):**

A transit shelter would be built on a relatively flat area at the Marconi entrance area close to State Highway Route 6 to provide a new transit shelter in South Wellfleet. It would be sited close to State Highway Route 6 near the bicycle trail highway. The site is owned by the NPS. It is about 1 mile from the existing bus stop benches at Farrell's Market. Use of the Farrell's Market bus stops may be discontinued, or the site may become a regular but non-scheduled ("flag-down") stop. The location is a relatively flat area on the north side of the road that becomes increasingly wooded as the site extends further beyond the road shoulder. There would be a paved bus pullout that would be about 19 feet wide

extending about 140 feet along Marconi Beach Road to accommodate the turning radius of the bus. The pullout would be sited to be as close to the electric utility right-of-way to the west, as that area is already disturbed and because the shelter itself could not be sited under the power lines. The shelter would be sited about 40 feet off the road. Therefore, the shelter location would be approximately 230 to 370 feet from the Marconi Beach Road intersection with State Highway Route 6 (Figure 6).

### **Alternative 3: South Wellfleet Village Center Alternative:**

The South Wellfleet village center alternative is off of State Highway Route 6 in a complex with a post office, a village market and several other small businesses. A pull off for a 10 foot x 20 foot bus shelter could not be accommodated within the state right-of-way at this site because of the steep slope adjacent to the road shoulder. The property to the east is not within the highway right-of-way and is privately-owned. Use of this site would require property acquisition or use agreements and design modifications to separate the bus activity from the commercial activities in the parking lot. Use of the bus stops at Farrell's Market may be discontinued, or the site may become a regular but non-scheduled ("flag down") stop.

#### **2.4.1. ENVIRONMENTALLY PREFERRED ALTERNATIVE - TRANSIT SHELTER**

As considered in this EA, the No Action Alternative would be the environmentally preferred alternative because there would be no new construction, yet that alternative would not satisfy the need for a transit bus stop and shelter in the South Wellfleet area.

After review of potential resource and public use impacts and mitigations, the preferred location for a transit shelter near the Marconi Area entrance achieves the greatest balance between the necessity of providing a shelter consistent with the long-term preservation of resources, visitor experience, and visitor safety.

**Mitigation Measures of the Preferred Alternative:** Surveys conducted in July 2007 by NPS Plant Ecologist found broom crowberry in the immediate vicinity. Given the location of broom crowberry at that time, it was concluded that impacts to this species could be avoided due to careful siting. This was reconfirmed by specific measurements taken in January 2007 by NPS staff. If broom crowberry spreads to the disturbance footprint between the time of these measurements and construction, mitigation measures would need to be considered. At this time such mitigation measures are not anticipated to be needed.

## **2.4.2 ALTERNATIVE CONSIDERED BUT REJECTED:**

### **Construct shelter at Farrell's Market on State Highway Route 6**

There was initial investigation into how a bus shelter could be accommodated at the Farrell's Market area on State Highway Route 6. If one shelter was constructed here, a crosswalk with a flashing traffic signal would be needed to safely cross pedestrians; Mass Highway Department did not find this to be an acceptable, safe alteration to State Highway Route 6. A bus shelter and modest pull-off for the bus could be constructed within the state right-of-way. The pull-off would be wide enough to accommodate a FLEX bus, but the Plymouth & Brockton bus would extend into the roadway travel lane. For these reasons, the site does not address the criteria as outlined in the evaluation scoring for a safe, convenient location for a bus stop and shelter.

## **2.5 FIRE CACHE**

### **PROPOSED ACTION AND ALTERNATIVES**

This EA evaluates the potential impact of constructing a new fire cache building (Figures 8 and 9). Three alternatives have been analyzed. They are the No Action Alternative, constructing a new building at the current site of the fire weather station, and constructing a new building in the southwest corner of the Marconi maintenance facility.

#### **Alternative 1: No Action Alternative:**

No new construction would occur. Fire operations would continue using the existing fire cache which consists of two garage bays on the west end of the Marconi maintenance facility office building/garage complex and two garage bays on the east end of the same building/garage complex. Storage space would not be increased and would remain deficient. Vehicles and engines would continue to be backed into all garage bays through different sized garage doors (three of the four garage doors are different dimensions) furthering on-going safety concerns. The No Action Alternative would not provide the space necessary for vehicles, equipment and supplies to be safely garaged and stored.

#### **Alternative 2: Construct a new fire cache located at the current site of the outdoor fire weather station (Preferred Alternative).**

A two story structure with a 40 foot x 50 foot footprint (2,000 sq. feet) would be constructed adjacent to the existing fire cache in the open non-forested area currently occupied by two fire weather instrument shelters. An additional 6,000 sq. feet (0.14 acres) of pavement on the north and south ends of the proposed fire cache would be required. Both the footprint and required paving of the proposed cache would impact overstory pitch pine trees and heathland

vegetation (including broom crowberry). Construction would require removal of an 80 foot spilt rail fence and require moving fire weather instruments to another location. No impacts to existing pavement, curbs or gates would occur.

This alternative meets the garage space and storage needs for the fire program and is proximal to nearby office and restroom facilities. The area is bordered to the north and south with existing paved roads which would allow for drive-through access, and is near existing water and electrical utilities (Figure 7). The building would be built on previously disturbed lands. The site meets the needs documented in the 1993 call for NPS Fire Facilities Construction projects.

### **Alternative 3: Construct a new fire cache in the southwest corner of the Marconi maintenance facility**

The NPS would construct a two story structure with a 40 foot x 50 foot footprint in the southwest corner of the Marconi maintenance yard. The area was formerly employee parking and is currently used for outdoor vehicle and equipment storage and secondary access to the South District Maintenance facility. The footprint where the proposed cache would be located would impact: pavement, curb stops, fences and gates, median vegetation strips and 60 feet x 40 feet (0.05 acres) of pine forest adjacent to the maintenance yard perimeter fence. This site offers formerly disturbed (paved) area, close access to electric and water utilities and drive-through access. This site meets the needs documented in the 1993 call for NPS Fire Facilities Construction projects.

#### **2.5.1 ENVIRONMENTALLY PREFERRED ALTERNATIVE – FIRE CACHE CONSTRUCTION**

As considered in this EA, the No Action Alternative would be the environmentally preferred alternative because there would be no new construction, yet that alternative would not satisfy the need for additional garage and storage space needs of the Fire Management Program.

After review of potential resource and public use impacts and mitigations, the preferred location for new fire cache construction at the site of the manual weather station achieves the greatest balance between the necessity of providing a facility consistent with the long-term preservation of resources and continued efficient operation of the South District Maintenance facility.

A number of measures would be implemented to mitigate for the effects of all the proposed projects on broom crowberry. These measures are discussed in detail in the Mitigation Plan. Site specific elements to mitigate the impacts from the fire cache construction project include avoidance to the extent possible and transplanting impacted plants in an adjacent location.

## **2.5.2 ALTERNATIVES CONSIDERED BUT REJECTED:**

**Highlands Center, North Truro** - The Highlands Center site was considered due to the existence of a 4-bay garage on site; the structure would need full building rehabilitation and new plumbing, electrical and mechanical systems to meet building and energy codes as it is simply an non-insulated building shell that has not been used for many years. The size of that structure would accommodate the fire engine and support vehicles. A separate structure would be needed to house the offices, and there is not a proximate structure that would accommodate that use and still provide adequate access to the trucks and equipment in an emergency response situation.

**Marconi Area concrete pad, Wellfleet** - The concrete pad located to the east of the Maintenance complex was also considered because it is a disturbed site with road access. A new fire cache at this location would extend to the far limits of the pad itself and modifications would be needed to provide a proper building foundation. Additionally, because the last few bays of the garage would need to be converted to serve the office functions, this option does not easily satisfy the vehicle storage, equipment and office function needs.

The concrete pad exists from structures built by the military during ca 1943 - 1961. It is currently used for parking of vehicles and storage of metal storage units, portable toilets, and concrete barriers. This site is necessary for various storage needs that are otherwise unavailable at the Marconi maintenance facility. To allow for drive-through access at this location 3,000 sq. feet of paving would be required. For these reasons, the site does not address the criteria as outlined in the needs section as suitable location for new construction.

## **3.0 AFFECTED ENVIRONMENT**

This chapter presents the relevant baseline resource components of the existing environment. The environmental resources that would be affected by the alternatives considered in this EA are described, including natural resources, cultural resources, public use, the surrounding community and national seashore management and operations. This chapter does not present the impacts of these alternatives; these impacts are described in Chapter 4.

### **3.1 NATURAL RESOURCES**

#### **3.1.1 WATER RESOURCES**

CCNS has a wide variety of marine and fresh water resources formed by the geological events that created the landmass of Cape Cod. These diverse water resources are often interrelated, and each is an integral part of the ecology, history, and beauty of Cape Cod. Marine and fresh water resources are in near proximity to the Marconi Area, but not in the specific project areas.

The thick deposits of glacial sediments that make up Cape Cod have a large capacity to store water. Water fills the spaces between grains of sand and other materials, and forms a saturated zone. Thousands of years of precipitation filled these pore spaces with fresh water. The fresh groundwater layer extends several hundred feet below land surface in the sand and gravel deposits on the Outer Cape and floats on the underlying salty groundwater because saltwater is denser than freshwater. The thickness of the freshwater lens varies depending on the width of the Cape, the type of sediments, depth to bedrock, and rate of recharge from precipitation.

The entire layer or zone of fresh water underlying the Cape is referred to as an aquifer. Within this single Cape-wide aquifer are six separate lenses of groundwater, four of which underlie parts of the national seashore. Tidal rivers that cut across the Cape hydrogeologically separate these lenses from one another. From north to south, they are the Pilgrim, Pamet, Chequessett, and Nauset lenses. The freshwater contained in these lenses is vital to sustaining the Outer Cape's cultural and ecological resources. It is the Outer Cape's sole source of potable water, as well as the hydrologic source for water dependent natural resources (Cape Cod Commission 1998). It is generally understood that the extent of aquifer lenses, not political boundaries, is the key to managing units for groundwater development and protection.

The source of freshwater to the aquifers of the Outer Cape is precipitation. A little less than half the annual precipitation infiltrates the aquifer and recharges the groundwater system. Precipitation that is not recharged to the aquifer evaporates or is transpired by plants. Surface runoff is negligible because of the highly permeable soils of the Outer Cape. The greatest percentage of the recharge passes slowly through the aquifer and is discharged into the ocean. Every day, millions of gallons of fresh groundwater seep out of the ground directly into the ocean.

### **3.1.2 SURFACE WATERS AND WETLAND RESOURCE AREAS**

Various drainages intersect the Outer Cape, generally running in an east to west direction. These drainages are the result of water coursing off the ice front and over outwash material that abutted the massive glaciers located in the area some 18,000 years ago. When these glaciers melted and the sea level rose, these drainages became estuarine at their western terminus. Blackfish Creek is one such notable feature in the Marconi Area. Blackfish Creek is approximately 0.7 miles northwest of the proposed projects. Blackfish Creek is tidally influenced up to its intersection with State Highway Route 6 and an old railroad berm where it becomes more heavily influenced by freshwater runoff and groundwater discharge. The Marconi Site is upstream of this segment of the creek.

Atlantic white cedar is restricted to wet areas and the conditions for seed germination (open peat and sunlight) are no longer common on Cape Cod due to



ecological succession. Historic logging and cranberry bog development also eliminated many sites. As a result, the Atlantic White Cedar Swamp near the Marconi Site in South Wellfleet (approximately 6.0 acres), a young stand in the Province Lands, and two stands south of the Marconi Area are the only four areas of this community within the seashore.

The remaining water resources present in the area represent coastal waters along the Atlantic Ocean. Marconi Beach is the closest bathing beach to the project area and is 1.25 miles southeast of the proposed projects. These shallow coastal waters around Cape Cod have fairly constant salinity, averaging 33 to 35 parts per thousand, are weakly alkaline, and are strongly buffered. Shallow marine waters are influenced by the offshore ocean environment, as well as by the nutrient rich estuarine waters. Longshore currents, wave action, and rip currents transport sediments. Longshore drift on the east shore is an important factor in reshaping the shoreline.

The marine shore within the CCNS is generally flat, sloping gently to deeper waters. The substrate is bare sand, with some silt and clay plus organic remains such as shell deposits. Submerged eelgrass beds occur in sheltered coastal areas. They are productive communities that supply nutrients to marine organisms. The shallow coastal environment provides habitat for young and adult forms of many species of shellfish and finfish.

### **3.1.3 GEOLOGY AND SOILS**

The soils of Cape Cod have been classified as excessively drained outwash and are derived from glacial outwashes and moraines. They vary in composition and include glacial till, sand, gravel, interspersed layers of clay and silt, and scattered large boulders. In several areas of the Cape, dune deposits overlie the glacial soils. Many of these dunes are formed from beach material that was transported inland by winds.

The general soil map of Barnstable County shows four general soil types on the Outer Cape. These soil types are referred to as general soil map units. More detailed soil map units are described in the Soil Survey of Barnstable County (Soil Conservation Service, 1993).

### **3.1.4 VEGETATION**

The Marconi Area is a comparatively dry, flat area dominated by open, early successional stage vegetation. Immediately adjacent to the Atlantic Ocean, vegetation is dominated by American beachgrass and, moving inland, false heather (*Hudsonia ericoides*). Much of the vegetation adjacent to and south of park headquarters consists of heathlands, with scattered patches and stands of pitch pine, beach plum, and bear oak. Over time, the dominance of these woody species has increased. This heathland succeeding into pitch pine-bear oak

habitat extends northward from park headquarters approximately 900 feet and then transitions into oak forest on the east and white cedar swamp on the west.

A variety of heathland type environments can be found at the Marconi Area. Heathlands are composed of diverse plant communities with their exact composition strongly affected by local factors. The inland area directly adjacent to the existing maintenance facilities is dominated by bearberry (*Arctostaphylos uva-ursi*) with beach heather (*Hudsonia tomentosa*) and false heather as subdominants (Carlson, et al., 1992). Grasses (little blue stem (*Schizachyrium scoparium*), hairgrass (*Deschampsia spp.*), danthonia (*Danthonia spp.*)) and lichens (*Cladonia spp.*) are common, as are additional species, which include asters (*Aster spp.*), and pinweed (*Lechea spp.*). The Natural Heritage and Endangered Species Program (NHESP) office of the Massachusetts Division of Fisheries and Wildlife has identified the Marconi Area as Priority and Estimated Habitat for Rare Species. Broom crowberry is listed by the State as a Species of Special Concern; this species occurs throughout the Marconi Area and would be impacted by several of the project alternatives evaluated in this Environmental Assessment.

### **3.1.5 WILDLIFE**

As with all areas, the wildlife found in the Marconi Area is a product of the habitats present and typical of that found in successional heathland habitats on Cape Cod. While some formal, standardized inventory work has occurred in and around the Marconi Area, much of what is known about the wildlife there is based on incidental observations or general knowledge of the park's wildlife.

Amphibians and reptiles do not appear to be very abundant in the Marconi Area. Sampling cover boards in summer/fall 2000 and spring 2001 did not collect any specimens. Common, widespread species such as Fowler's toad (*Bufo fowleri*), black racer (*Coluber constrictor*), hognose snake (*Heterodon nasicus*) and Eastern box turtle (*Terrapene carolina*) likely occur.

A systematic, park-wide inventory of small mammals using live traps recorded white-footed mouse (*Peromyscus leucopus*), meadow vole (*Microtus pennsylvanicus*) and masked shrew (*Sorex cinereus*). Of ten sites sampled at CCNS, the Marconi Area had one of the lowest rate of capture (2.07 individuals/100 trap nights), and was tied for last place in CCNS for fewest number of species recorded (three species recorded). Other mammal species observed there include cottontail rabbit (*Sylvilagus floridanus*), white-tailed deer (*Odocoileus virginianus*), and chipmunk (*Tamias striatus*).

Other common, wide-ranging species of mammals, such as raccoon (*Procyon lotos*), skunk (*Mephitis mephitis*), possum (*Didelphis virginiana*), red fox (*Vulpes vulpes*) and coyote (*Canis latrans*) are probably also present.

The birds of the Marconi Area were surveyed in 2000, as part of a survey of grassland birds (Kearney and Cook, 2001). The following species were recorded there during the breeding season (June) and are presumed either to breed there or to breed nearby and forage there: Northern flicker (*Colaptes auratus*), Northern harrier (*Circus cyaneus*), mourning dove (*Zenaida macroura*), Eastern phoebe (*Sayornis phoebe*), Eastern kingbird (*Tyrannus tyrannus*), brown thrasher (*Toxostoma rufum*), Northern mockingbird (*Mimus polyglottos*), black-capped chickadee (*Poecile atricapillus*), prairie warbler (*Dendroica discolor*), red-winged blackbird (*Agelaius phoeniceus*), brown-headed cowbird (*Molothrus ater*), rufous-sided towhee (*Pipilo spp.*), American goldfinch (*Carduelis tristis*), song sparrow (*Meospiza melodia*), chipping sparrow (*Spizella passerina*), field sparrow (*Spizella pusilla*), and vesper sparrow (*Pooecetes gramineus*). Of these, the Northern harrier and vesper sparrow are the most noteworthy, since both are Massachusetts state-listed threatened species. The Northern harrier is a wide ranging grassland-heathland species with a large home range, and the Marconi Area is one Cape Cod area where this species forages. In 2004, a two-year study of Northern harrier use of the park found a nest in oak scrub south of the Marconi Beach parking area (Bowen 2006).

The Marconi Area is well known as one of the last places on Cape Cod where vesper sparrows breed (Bailey 1968, Cape Cod Bird Club, 1990). A 1995 survey of grassland birds found that 25% of all vesper sparrows recorded in Massachusetts were at CCNS (Massachusetts Audubon Society, 1995). From 1995 to 2000, total vesper sparrow singing males at CCNS declined from 34 to 17, but appeared to remain stable at Marconi Area, with 10 singing males recorded in both 1995 and 2000. Thus, the Marconi Area is a significant site for this Massachusetts threatened species.

During coordination with the Massachusetts Natural Heritage and Endangered Species Program (NHESP) in 2001 on the Marconi Area water tower, NHESP reported that broom crowberry was known to occur in the Marconi Area. NHESP also identified the Marconi Area as estimated habitat for the state threatened, Eastern spadefoot toad (*Scaphiopus holbrookii*) and vesper sparrow, and for several species of special concern including: coastal heathland cutworm (*Abagrotis crumbi benjamini*), Gerhard's underwing moth (*Catocala herodias gerhard*), Eastern box turtle, sharp-shinned hawk (*Accipiter striatus*), and Southern hairstreak (*Fixsenia ontario*). The Massachusetts Natural Heritage Atlas, 12<sup>th</sup> Edition, published in October of 2006 identified the Marconi Area as priority and estimated habitat for rare plant and wildlife species. Surveys by park biologists and fire program staff have confirmed that broom crowberry occurs throughout the Marconi Area, and is within or is adjacent to several of the project sites evaluated in this EA. State threatened vesper sparrows and spadefoot toads, and the other species of special concern noted above have not been observed in the immediate project area. There are no Federally listed species or critical habitats in the Marconi Area.

### **3.1.6 AIR QUALITY**

CCNS has been designated a Class II area under the Clean Air Act. The state may permit a moderate amount of air pollution as long as neither national ambient air quality standards nor the maximum allowed increase over established baseline concentrations are exceeded. The major air pollutants originating in the seashore are vehicle emissions (primarily hydrocarbons, carbon monoxide, and nitrogen oxide), most of which are generated during periods of high visitation (NPS, 1999).

Ozone monitoring has been conducted annually on Cape Cod since the early 1990s in cooperation with the Massachusetts Department of Environmental Protection (DEP) and the Environmental Protection Agency (EPA).

## **3.2 SURROUNDING COMMUNITY**

### **3.2.1 ADJACENT LANDS**

The lands adjacent to the proposed Marconi Area Facilities Improvements are federally owned park lands, consisting of an area containing the CCNS administrative headquarters building, South District Maintenance facility, park housing, the site representing Marconi's 1903 transatlantic radio transmission, a water storage tower, and the Marconi Beach area and parking lot.

The Marconi Area obtained its name from the famous Italian inventor, Guglielmo Marconi. At this site, Marconi successfully completed the first transatlantic wireless communication between the U.S. and England in 1903. Marconi Station is situated on a cliff that rises 85 feet above the beach. An observation platform at the Marconi Station offers an excellent view of the Atlantic. Marconi chose the site because of its barrenness and its elevated land surface overlooking the ocean.

Just before World War II, the US military established Camp Wellfleet, which served as an artillery training facility. The US Army erected barracks, mess halls, and other buildings to support the thousands of troops that were stationed here. The property was transferred to the NPS with the creation of CCNS in 1961. The CCNS administrative headquarters and South District Maintenance area has been located here since 1965.

Approximately 600 private residential properties covering more than 16,000 acres are included within the national seashore. The NPS is required by legislation to preserve privacy and property values for these owners, while allowing public access to publicly owned lands, consistent with resource protection. None of these private homes are adjacent to the proposed Marconi Area Facility Improvements; however, several seashore-owned homes are

situated near the existing maintenance facility. Both seasonal employees and permanent year-round employees occupy these seashore-owned homes.

### **3.2.2 SOCIOECONOMIC ENVIRONMENT**

CCNS is within Barnstable County and includes large areas of six communities on the Outer Cape: Chatham, Orleans, Eastham, Wellfleet, Truro and Provincetown, all in Barnstable County, whose jurisdiction covers all of Cape Cod.

The 1992 distribution of employment by industry on the Outer Cape was concentrated in three major areas – wholesale and retail trade (42%) services (25%) and government (25%). Retail trade is the leading employer in both Wellfleet and Truro, followed by government. While the Outer Cape economy primarily depends on the seasonal vacation industry, entertainment, the arts, and the local fishing industry also make small but significant contributions (Cape Cod Commission, 1998).

According to the U.S. Census, between 1989 and 1999 Barnstable County led the 14 Massachusetts counties both in the rate of median household income growth and in the decline in percent of families with income below poverty level. U.S. Census data indicate Cape median household income increased 44.6 percent (from \$31,766 in 1989 to \$45,933 in 1999), compared with statewide growth of 36.7 percent (from \$36,952 in 1989 to \$50,502 in 1999). Among the 15 Cape towns, median household income ranged between \$32,716 in Provincetown and \$61,250 in Sandwich.

Income growth over the 1989–1999 decade in Barnstable County exceeded the statewide growth, as did the growth in 13 of the county's 15 towns. During that period, income growth ranged from 80.4 percent in Wellfleet to 40.1 percent in Barnstable, with Eastham and Bourne income growth below the state rate (36.7 percent), at 36 percent and 32.1 percent, respectively. Wellfleet's 80-percent growth in median household income from \$24,149 in 1989 to \$43,558 in 1999 was the highest growth rate among Cape towns, while Bourne's 32-percent growth from \$34,159 to \$45,113 was the lowest.

The 2003 U.S. Census Bureau – Resident Population Estimate placed the total year-round population of the six Outer Cape towns (Chatham, Orleans, Eastham, Wellfleet, Truro and Provincetown) at 27,454, roughly 12% of the total county population. The population of the six Outer Cape towns increased an average of 1.0% from July 2002 to July 2003. (Cape Cod Commission, 2003).

The Cape Cod population is estimated to nearly triple from winter to summer as a result of the influx of summer residents and tourists. The National Seashore was estimated to have 4.51 and 4.38 million visits in 2006 and 2007 respectively.

including those by residents and repeat visitors. Approximately 38% of these visits occurred during July and August.

### **3.3 PUBLIC USE**

CCNS and adjacent towns provide a wide variety of opportunities for visitors to enjoy recreational, touring, and educational activities. CCNS has two visitor centers, two environmental education centers, trails, picnic areas, historic buildings and numerous beach facilities available to the public.

The Marconi Area contains a recreational beach area. There is a 525-space parking lot, bathhouse, restrooms, and lifeguard shack. The beach area received 288,018 visits in 2007. There are also old woods roads used as hiking trails near the beach area. The restrooms and bathhouse are open from April until October each year.

The historic Marconi Site has an observation platform, interpretive pavilion, and restrooms. There is a 60-space paved parking lot that serves the area. The trailhead for the Atlantic White Cedar Swamp Trail begins at the parking lot. There were approximately 93,000 visits to the Marconi Site in 2006. The restrooms are open from April until October each year.

### **3.4 PARK MANAGEMENT AND OPERATIONS**

CCNS maintains 300 park-owned buildings and structures, 45 water systems, 36.5 miles of trails, 24 miles of roads, 145 vehicles and pieces of equipment, on 43,590 acres of national seashore property. The South District Maintenance area is the major staging area and work area for the maintenance being done at CCNS. Maintenance and fire management offices, trade shops, supply, vehicle and equipment storage, and the auto repair shops are staged out of South District Maintenance. Up to 25 permanent employees and 30 seasonal employees work out of South District Maintenance including: roads and trails crews, carpenters, painters, trade journeymen, custodial crews, auto mechanics, fire management personnel and special project crews.

There are nine employee-housing units located in the Marconi Area. The housing units provide year round and seasonal housing for NPS employees.

The CCNS headquarters administrative building is located in the Marconi Area. There are 25 permanent employee offices in the building. The office is utilized for public and employee meetings throughout the year.

### **3.5 CULTURAL RESOURCES**

The Marconi Area has had a long and varied history of human use and occupation. Isolated prehistoric sites in the northern part of the area were

documented in the 1980s and date to the Woodland and Late Archaic period. In the late eighteenth to early nineteenth century, a small settlement in the southern part of the area known as Fresh Brook Village existed, with only cellar holes remaining today. Marconi's first transatlantic wireless message was sent from his station on the northern edge of the area on the ocean bluff. Only concrete pads and brick supports remain.

The inland area directly adjacent to the existing water storage tower is on the lands of the former Camp Wellfleet. In 1943, the War Department leased these lands for use as an anti-artillery training center, and later as a bomb target site. Within the first year, barracks, mess halls, administrative, supply and recreation buildings, and ammunition storehouse, sewage system and roadways were constructed. By 1954, Camp Wellfleet served as a satellite installation of Fort Devens (Shirley, MA) for the training of guardsmen and reservists. Military activity ceased in 1961 when the United States Department of Interior acquired title to the land for inclusion in CCNS. Most of Camp Wellfleet's building features were demolished, except for some roads and underground pipes and hydrants. The current South District Maintenance facility buildings stand in an area once occupied by military barracks and mess halls.

During an ordnance removal project Old Camp Wellfleet funded by the US Army Corps of Engineers (May 2003) archeological artifacts from the dump site of Camp Wellfleet, located off the straight managed CCNS trail from the Marconi Site parking area, were retrieved and cataloged as Accession #434. Included were a large enameled pitcher (kitchenware), complete soft drink bottles, a light bulb, several bowls and one bowl fragment from the mess halls of the camp dating to the 1940s. Additionally, one recorded prehistoric site also is located further beyond the Camp Wellfleet dump along the same trail.

The Marconi Area contains a site listed in the National Register of Historic Places, the Marconi Station Site. This wireless transmission site is approximately 0.60 miles northeast from the proposed projects. Known prehistoric archeological sites exist on the northern edge of the area, which are potentially eligible pending further analysis. No other structures, sites or landscapes in the area have been identified as eligible for or listed on the National Register.

#### **4.0 ENVIRONMENTAL CONSEQUENCES**

This section describes the environmental consequences associated with the alternatives. It is organized by impact topics, which distill the issues and concerns pertaining to natural resources, public use, park management and operations, and cultural resources. NEPA requires consideration of context, intensity and duration of impacts, indirect impacts, cumulative impacts, and measures to mitigate for impacts. NPS policy also requires that "impairment" of resources be evaluated in all environmental documents.

Overall, the NPS based these impact analyses and conclusions on the review of existing literature, CCNS fire management studies, information provided by experts within CCNS and other agencies; professional judgments and seashore staff insights; and public input.

**General Definitions.** The following definitions were used to evaluate the context, intensity, duration, and cumulative nature of impacts associated with project alternatives:

**Context** is the setting within which an impact is analyzed, such as the affected region, society as a whole, the affected interests, and/or a locality. In this EA, the intensity of impacts is evaluated within a local context, while the intensity of the contribution of effects to cumulative impacts is evaluated in a regional context where the region is outer Cape Cod.

### **Impact Intensity**

For this analysis, intensity, or level of the impact is defined as follows:

*Negligible* – impact to the resource or discipline is barely perceptible and not measurable and confined to a small area.

*Minor* – impact to the resource or discipline is perceptible and measurable and is localized.

*Moderate* – impact is clearly detectable and could have appreciable effect on the resource or discipline.

*Major* – impact would have a substantial, highly noticeable influence on the resource or discipline on a regional scale.

### **Duration**

The duration of the impacts in this analysis is defined as follows:

*Short term* - when impacts occur only during treatment or last less than one year;  
or

*Long term* - impacts that last longer than one year.

### **Direct versus Indirect impacts**

The following definitions of direct and indirect impacts were used in this evaluation:



*Direct* – an effect that is caused by an action and occurs at the same time and place.

*Indirect* – an effect that is caused by an action but occurs later in time or farther removed in distance, but still reasonably foreseeable.

### **Cumulative Effects**

The CEQ regulations, which implement NEPA, require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). In this EA, cumulative effects are considered within the Outer Cape including the four actions in this EA.

### **IMPAIRMENT OF (PARK) RESOURCES OR VALUES**

The 2006 NPS Management Policies and other policy guidance require analysis of potential effects to determine if actions would impair (park) resources. Initially, the NPS was established by its Organic Act of 1916 which charged the NPS, as the Federal administrative bureau with the authority and responsibility, for promoting and regulating the use of national parks, monuments and reservations, by means and measures, to conserve the scenery, natural and historic objects and wild life therein as being the purpose [in part] for which each park, monument, and reservation [having nationally significant resource values] was authorized. The General Authorities Act of 1970, as amended in 1978, recognized such federal areas administered by the NPS, as being a National Park System comprised of nationally significant resource values, and reaffirmed the conservation of those values to prevent their impairment, as provided for in the Service's Organic Act. NPS managers must always seek ways to avoid or minimize to the greatest degree practicable adverse impacts on park resources and values. However, the laws do give NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given NPS management discretion to allow certain impacts within parks, that discretion is limited by statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibition on impairment includes impacts that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may constitute impairment. However, an impact would more likely constitute impairment to the extent it impacts a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- Identified as a goal in the seashore's Master Plan or General Management Plan or other relevant NPS planning documents.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operation in the park.

A determination of impairment is made for each impact topic within each "Cumulative Impact" section of this EA under "Environmental Consequences."

## **4.1 HELIPAD IMPROVEMENT**

### **4.1.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE**

#### **4.1.1.1 IMPACT ON NATURAL RESOURCES**

**Analysis.** Negligible vegetation disturbance would occur during take off and landings. Short term minor impacts to vegetation would occur during maintenance mowing and thinning of the safety zone and take off and landing paths.

**Conclusion.** Under the No Action Alternative there would be negligible to minor impacts to natural resources within the park

#### **4.1.1.2 SURROUNDING COMMUNITY**

**Analysis.** The economy of the Outer Cape communities is largely based on the seasonal vacation industry and tourism. The tourism season brings thousands of visitors to Cape Cod who engage in a variety of activities ranging from boating to kayaking to cycling. The nearest major emergency room hospital is located in Hyannis, MA and is approximately 30 miles / 50 minutes driving distance. Due to the travel time and distance to Cape Cod Hospital emergency response management often call for medical airlift "Life Flights" especially during the summer months when local roads and highways have increased traffic congestion.

The No Action Alternative would not provide a regulation landing site for the Wellfleet area which could, at times, preclude having medical airlift options for individuals with serious injuries associated with common summertime activities.

The No Action Alternative would have a negative effect on the surrounding community by not providing a safe landing site for medical emergency airlifts.

The No Action Alternative would hamper or negate reconnaissance missions, which help provide safety and lawfulness for the surrounding community.

In the event of a severe wildland fire event a regulation helicopter landing site would be key in protecting the public and private resources. Helicopter operations would be used for aerial water bucket drops during wildfire suppression on forest vegetation fuels or on structures. Without a safe landing area, helicopter suppression operations would be curtailed. Damage to natural resource communities may result from the potential for larger wildfires.

**Conclusion.** This alternative would have potential moderate indirect impacts on the surrounding community of the Outer Cape by failing to provide an airlift option for medical emergencies, by impeding reconnaissance efforts, and by hindering wildfire suppression efforts.

#### **4.1.1.3 IMPACT ON PUBLIC USE AND ACCESS**

**Analysis.** The No Action Alternative would have few, if any direct impacts on public use and access, however indirect impacts to traffic flow may result from helicopters landing on or near roads at medical emergencies and individuals may be restricted from temporary helicopter landing zones and actual burned areas during wildfire occurrence. A non-regulation helipad may indirectly contribute to unsafe helicopter flights for activities such as: victim evacuation for emergency medical care, wildland fire suppression, reconnaissance (including drug flyovers which can reveal non-native plant growth) and NPS aerial photographic missions.

**Conclusion.** There would be little direct impact if the No Action Alternative is implemented. Indirect impacts may result from medical and wildfire emergencies. Minimal impacts to use and access can be attributed to current “no action.”

#### **4.1.1.4 IMPACT ON PARK MANAGEMENT AND OPERATIONS**

**Analysis.** The No Action Alternative could have adverse direct impacts to park management and operations in the event of helicopter landing incident or accident at a non-regulation helipad. In order to effectively manage the park, a regulation helipad is needed to carry out operations in a safe and efficient manner. A non-regulation helipad is a detriment to the safety policies of the park.

Law enforcement operations involved in investigation procedures depend, at times, on aerial reconnaissance. Loading and unloading of specialized equipment and transportation of personnel is safer and more efficient at developed landing sites. This contributes to employee safety. It is detrimental for reconnaissance missions not to be executed in a safe and effective manner.

The fire management program would depend on a regulation helicopter landing site in the event of a wildland fire. Helicopters can shuttle and aerial drop thousands of gallons of water to during suppression efforts. A non-regulation helipad would not allow for expedient helicopter operations in the event of a wildfire. This would be a moderate or adverse impact to fire management operations during wildland fire emergencies.

**Conclusion.** The No Action Alternative would have moderate direct impacts on park management and operations by impeding safe and regulatory procedures for law enforcement and fire management procedures.

#### **4.1.1.5 IMPACT ON CULTURAL RESOURCES**

**Analysis.** The No Action Alternative would have no direct impacts to cultural resources.

**Conclusion.** There are no historic properties affected with this alternative.

#### **4.1.1.6 CUMULATIVE IMPACTS**

There would be no anticipated long-term cumulative impacts of the No Action Alternative in combination with the three other projects under consideration to vegetation, wildlife, or cultural resources. Similarly, the no action alternative is not anticipated to contribute to impacts when considered cumulatively with other known projects on Cape Cod.

The Marconi Area was extensively disturbed by construction of roads and buildings by the military prior to the creation of CCNS. No resources and values of the greatest significance to the national seashore would be adversely affected. This project would not impair the resources and values of CCNS.

### **4.1.2 ALTERNATIVE 2 – HELIPAD IMPROVEMENT (PREFERRED ALTERNATIVE)**

#### **4.1.2.1 IMPACT ON NATURAL RESOURCES**

**Analysis.** The location proposed for the helipad improvement project encompasses a previously disturbed area and utilizes a paved dead end road. The vegetation management described below may remove habitat used by forest-dependent species. However, as forest habitat dominates much of the Marconi Area, this is expected to be a negligible impact. Species that rely on open heath and grassland habitats may benefit from the vegetation management around the helicopter landing pad. The proposed helipad improvements would not affect wildlife habitat or wildlife migration patterns.

Long term moderate impacts to 5.3 acres of vegetation (emergent pitch pine forest) would be disturbed under this alternative. Clearing and thinning of trees and shrubs may provide long term moderate favorable conditions for state listed broom crowberry.

IHOG and FAA regulations for a type 1 helicopter landing site require that a 110 foot safety circle needs to be cleared of all vegetation (NPS would propose a 120 foot safety circle) around a minimum 30 foot x 30 foot landing pad. An additional 300 foot radius needs to be thinned of trees and a take-off and landing path needs to be cleared of tall vegetation.

The existing paved area used for the landing pad measures approximately 80 feet x 80 feet and would require an additional 4 to 20 feet of vegetation clearing and mowing outside of the paved area to meet the needs of the safety circle.

Numerous trees (mostly pitch pine (~95%), red cedar (*Juniperus virginiana*) (3%) and oak (2%)) and tall shrubs within the 300 foot radius require removal. Take off and landing paths require 0.90 acres of clearing. The remaining area within the 300 foot radius where tree thinning to heights of less than 20 feet would be required is 4.3 acres

Therefore, an area approximately 4900 sq. feet (0.10 acres) would need to be mowed for the 120 foot safety circle; an area of 0.90 acres would be cleared for the take off and landing zone; and 4.3 acres would be thinned within the 300 foot radius.

During initial construction, the area within the 120 foot safety circle would be mowed. Broom crowberry occurring in this area would be identified and left undisturbed. Short term adverse impacts to broom crowberry would be minor to negligible. Initial construction would require the construction of a post and rope fence around the perimeter of the safety circle. Holes dug for the installation of the fence would have localized impacts on soil and vegetation. Some broom crowberry may be disturbed, but any effects would be minor. Placement of the 8 x 10 foot equipment/aviation shed would avoid broom crowberry. Trenching for underground electric service to the aviation shed and around the perimeter posts would be localized resulting in minor short term effects to surface vegetation. Pitch pine trees within the approach-departure paths would be removed with little disturbance to the shrub and surface vegetation understory. Tall brush (predominantly oaks) would be removed as needed. Trees (predominantly pitch pine) located within the 300 foot radius buffer zone over 20 feet tall would be trimmed or removed. Maintenance mowing within the 120 foot safety zone, clearing of tall trees from the take off and landing paths and thinning of the trees in the 300 foot radius buffer zone would occur annually.

Minor adverse effects to trees and possibly broom crowberry would result from mowing and vegetation management within the safety circle and approach-

departure paths. However, tree and brush removal within this area would be expected to encourage the growth of heathland and grassland species, including broom crowberry. Although numerous trees would be removed, a favorable effect for heathland sustainability would result. Less than 2% (0.1 acres) of the area within the 300 foot buffer zone contains broom crowberry. Most of the broom crowberry plants located in the improvement area would not be disturbed.

An electrical upgrade would be needed to power helipad lighting. This would require 850 feet of wiring in underground conduit to connect to an existing service. The underground wire would run along the parking lot to the helipad entrance and continue along the perimeter fence. The electrical wiring would power ground-level lights to illuminate the landing area at night. The new electrical line would be installed by direct burial and would be placed parallel to the existing road and parking lot pavement and then along the existing water line. The placement would require trenching an approximately 12 inch wide x 30 inch deep trench. Trenching may produce minor and localized impacts to soil and vegetation. Non-native plants that subsequently are found in the electrical line footprint would be identified and removed (pulled and/or treated with herbicide) annually.

Water resource impacts in this area of Cape Cod are only associated with surface water bodies that are connected to and fed by groundwater. There are no surface water bodies of this type adjacent to the proposed construction site. There would be no adverse wetland impacts because no wetland resource areas have been identified within one-quarter mile of the existing facility.

Vegetation clearing would negligibly alter run-off due to high soil porosity in the area. Any vegetation removal or thinning would enhance the area as a fire break and would encourage growth of heathland species.

**Conclusion.** Under the helipad improvement alternative there are no direct adverse impacts to wildlife at the Marconi Site. There are long term adverse impacts to forest trees and both potential short-term adverse impacts to individual broom crowberry plants and potential long term beneficial impacts to broom crowberry habitat. Some minor localized impacts to vegetation and soil may occur due to mowing, cutting, post installation and trenching for electrical service. Minor to negligible impacts would occur from annual tree thinning, pruning and/or clearing. Adverse impacts to broom crowberry would be avoided or mitigated. No impacts are envisioned for wildlife or water resources.

#### **4.1.2.2 IMPACT ON SURROUNDING COMMUNITY**

**Analysis.** The proposed helipad improvements would provide favorable impacts for the surrounding community. Residents and tourists on the Outer Cape would have access to a medical airlift option in the case of serious injury or illness. The nearest hospital emergency room is located at Cape Cod Hospital in Hyannis,

approximately 30 miles from the Marconi Area and 50 minutes driving time. Driving times may increase considerably during the late summer months due to marked increases in traffic volume. A regulation helipad would provide more timely medical evacuation response.

Under this alternative wildfire suppression efforts would be aided by a regulation helicopter landing site. Helicopters would have the option to utilize the regulation site to conduct water bucket drops on wildfires and transport personnel and equipment.

Minimal noise impacts would result from increases in helicopter traffic. No marked increase is anticipated and helicopter noise would be only a short-term effect.

**Conclusion.** Helipad improvements would have moderate beneficial impacts for the surrounding community by providing increased safety in the event of a wildfire and providing increased efficiency for emergency medical response. This alternative may result in minor, short-term impacts to the surrounding community concerning increases in helicopter traffic and related noise, however any increase in future traffic is perceived as negligible.

#### **4.1.2.3 IMPACT ON PUBLIC USE AND ACCESS**

**Analysis.** Public use and access would be directly restricted at the site of the helicopter landing pad, but the restriction is a small localized area. Pedestrians would not be allowed to pass within the safety circle, which would be fenced and gated. Warning signs would be placed around the safety circle. The area would be off-limits except for authorized personnel.

Although several public use areas are located in the vicinity of the proposed helipad improvements (Atlantic White Cedar Swamp Trail – 0.40 miles, Marconi Site - 0.60 miles, Marconi Beach – 1.20 miles, bike trail – 0.35 miles) the area is not heavily used by pedestrians and is not adjacent to any public parking area or marked trails. The off-limits area would have a negligible adverse impact on public use in this area.

**Conclusion.** This alternative would have a negligible adverse impact on overall public use and access due to the insignificant visitation experienced in this area. Pedestrian access would be directly restricted in the immediate area (within the safety circle) of the proposed helipad, but negligible adverse impacts are perceived due to low visitor use.

#### **4.1.2.4 IMPACT ON PARK MANAGEMENT AND OPERATIONS**

**Analysis.** Initial improvements to the helipad would require the work of the fire management staff and maintenance division. The initial construction would have

direct, yet minor and short-term operational impacts for the maintenance division. Electric wiring and light installation would require the services of the park electrician. Fence construction may require the help of other maintenance workers. Minor, short-term operational impacts to the fire management division would result during the construction phase due to brush and tree removal. Other helipad improvement elements would be implemented by the fire management team such as equipment/aviation shed construction, painting, and mowing. Negligible, long-term impacts to the fire management team concerning routine maintenance of the helipad are projected. Sweeping and vegetation removal at the helipad site would be part of the routine work of the fire technicians and would not negatively impact the team's scope of work.

Safety of park staff and the public are a high priority of CCNS park management. Helipad improvements would have favorable long-term impacts for park management and the surrounding community by providing a safe regulation landing area for routine and emergency helicopter operations.

**Conclusion.** Under this alternative, the adverse impact on scheduling park management and operations would be negligible. The CCNS fire crew would construct and implement the majority of necessary helipad improvement elements. Assistance from the maintenance division would be required only during the initial construction phase. Favorable long-term impacts for park management and operations would result from increased safety procedures.

#### **4.1.2.5 IMPACT ON CULTURAL RESOURCES**

**Analysis.** There are no structures, sites or landscapes eligible for or listed on the National Register in the vicinity of this project. The nearest National Register property, the Marconi Station Site, is approximately 0.60 miles northeast of the proposed helipad improvement project site. Archeological assessment and DIGSAFE compliance of the proposed electrical line would be implemented before trenching takes place.

**Conclusion.** Alternative 2 would not affect any known cultural resources. The CCNS cultural resource division has assessed the site and found it to be previously disturbed. Therefore, there is No Adverse Effect on cultural resources for this alternative.

#### **4.1.2.6 CUMULATIVE IMPACTS**

Under the helipad improvements alternative there would be minor long-term cumulative adverse impacts to park resources in combination with the three other construction projects under consideration. As discussed above, the greatest potential for adverse impacts to park resources is associated with impacts to broom crowberry. Broom Crowberry mitigation for all the projects is described in the Mitigation Plan; site specific elements to mitigate the impacts from the



helipad improvement project include avoidance to the extent possible and transplanting impacted plants impacted by the electrical service trenching back to their original location. When the construction alternatives for all four projects are considered together with other known or anticipated projects in the outer Cape Cod region, the cumulative impact is expected to also be minor.

The Marconi Area was extensively disturbed by construction of roads and buildings by the military prior to the creation of CCNS. No resources and values of the greatest significance to the national seashore would be adversely affected. This project would not impair the resources and values of CCNS.

## **4.2. WATERLINE and HYDRANT EXTENSION**

### **4.2.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE**

#### **4.2.1.1. IMPACT ON NATURAL RESOURCES**

**Analysis.** The No Action Alternative would have no impact to natural resources. There would be no ground disturbance under this alternative and no impacts to associated natural resources.

**Conclusion.** No impacts to natural resources would result from the No Action Alternative.

#### **4.2.1.2 SURROUNDING COMMUNITY**

**Analysis.** The No Action Alternative may have an indirect impact on the surrounding community by not providing a readily accessible water source in the South Wellfleet area. In the event of a structure fire or wildland fire in South Wellfleet, engines fill at one of the five hydrants located in the Marconi Area. All five hydrants are at least 0.26 miles from State Highway Route 6 and are located in areas that have difficult turnaround clearances for structural fire engines. The difficulty of the turnaround and the distance from State Highway Route 6 increases response times from the hydrants to the fire scene. Water may not be able to be shuttled to the site in an efficient manner.

In the event of a structure or wildland fire the surrounding community may be directly adversely impacted by the absence of an easily accessible water source. Failure to provide a supply of water from a hydrant to a fire emergency can slow suppression efforts.

**Conclusion.** This alternative would have potential moderate indirect adverse impacts on the surrounding community of South Wellfleet by failing to provide a readily available source of water for fire suppression efforts.

#### **4.2.1.3 IMPACT ON PUBLIC USE AND ACCESS**

**Analysis.** The need to supply water to suppress an on-going fire to protect lives or property is an immediate requirement during a fire. Incident commanders would send personnel and equipment any required distance to acquire needed water. Under the No Action Alternative water for fire suppression would continue to be obtained from the existing hydrants in the Marconi Area. Minor, short term direct impacts to public use from Marconi Area fire hydrants (or other water filling resources) and the fire location would be restricted during fire emergencies.

Indirect short- to long-term adverse impacts to public use and access might occur at off-site fire locations where damage, rebuilding, or rehabilitation to/of structures and resources occurs.

**Conclusion.** Indirect short- or long-term adverse impacts may result from structural fire and wildfire emergencies, and these effects would be minor. Minor short-term direct impacts to public use and access can be expected to continue under the No Action Alternative.

#### **4.2.1.4 IMPACT ON PARK MANAGEMENT AND OPERATIONS**

**Analysis.** This alternative would have no direct impacts to park management and operations. The current state of no action has negligible effects on park management and operations, but does contribute to difficult refilling operations for town and NPS fire engines.

**Conclusion.** Any impacts of the No Action Alternative would have a negligible effect on park management and operations.

#### **4.2.1.5 IMPACT ON CULTURAL RESOURCES**

**Analysis.** The No Action Alternative would have no impacts to cultural resources. No ground disturbance would take place under this alternative.

**Conclusion.** No historic properties would be affected under this alternative.

#### **4.2.1.6 CUMULATIVE IMPACTS**

There would be negligible anticipated cumulative impacts of the No Action Alternative to vegetation, wildlife, or cultural resources in combination with the three other no action alternatives under consideration. When the construction alternatives for all four projects are considered together with other known or anticipated projects in the outer Cape Cod region, the cumulative impact is expected to also be negligible.

The Marconi Area was extensively disturbed by construction of roads and buildings by the military prior to the creation of CCNS. No resources and values of the greatest significance to the national seashore would be adversely affected. This project would not impair the resources and values of CCNS.

#### **4.2.2. ALTERNATIVE 2 – WATERLINE and HYDRANT EXTENSION WOODS ROAD EXTENSION (PREFERRED ALTERNATIVE)**

##### **4.2.2.1 IMPACT ON NATURAL RESOURCES**

**Analysis.** The location proposed for the waterline extension encompasses a linear 700 foot x 20 foot wide area that would be cleared of vegetation along a former and now abandoned woods road from the Marconi residence area to State Highway Route 6. In order to accommodate the proposed waterline extension an 8.0 foot wide x 4.0 foot deep x 700 foot long trench would be dug under the abandoned woods road and an 8.0inch PVC pipe would be installed. The trench would be backfilled with removed sand and soil, no additional backfill would be imported.

Forest and understory vegetation would be removed to facilitate trenching and waterline pipe installation; however there would be no future effort to maintain open conditions along the alignment of the buried pipe. Non-native plants would not be expected to invade the trench footprint, however alien plants that became established after excavation and trenching would be identified and removed. As forest habitat dominates much of the Marconi Area, vegetation removal would be a negligible and temporary impact to wildlife and vegetation.

Approximately 10 percent (1,400 sq. feet) of the proposed buffer area contains broom crowberry. Most of the plants located in the construction area would not be disturbed. Broom crowberry plants directly impacted would be removed before trenching and re-planted immediately after backfilling in the same location on the same day.

Water resource impacts in this area of Cape Cod are only associated with surface water bodies that are connected to and fed by groundwater. There are no surface water bodies of this type adjacent to the proposed construction site. Wetland impacts are not anticipated, because no wetland resource areas have been identified within one-quarter mile of the proposed construction site. The nearest wetland is the Atlantic White Cedar Swamp which is located over 0.25 miles from the site. No adverse effects are anticipated from trenching operations from this distance therefore this alternative would have no impacts on water resources.

**Conclusion.** Under the waterline extension alternative there would be negligible and temporary impact to wildlife and vegetation. No adverse impacts are envisioned for water resources.

#### **4.2.2.2 IMPACT ON SURROUNDING COMMUNITY**

**Analysis.** Construction of the waterline extension would provide favorable impacts for the surrounding community. Residents and businesses in the South Wellfleet area would be positively impacted by the readily available water source on State Highway Route 6. Town fire engines would normally have to return to the Wellfleet Fire Station for refilling capabilities, a 3.5 mile drive from the South Wellfleet Station, or drive a 0.75 mile loop into the Marconi Area. There would be a moderate beneficial impact for structure, car, and wildland fire suppression operations in this vicinity under this alternative.

**Conclusion.** Waterline extension construction would have a beneficial impact on the surrounding community by providing an emergency water source for South Wellfleet.

#### **4.2.2.3 IMPACT ON PUBLIC USE AND ACCESS**

**Analysis.** Public use and access of the area would be negligibly impacted during construction. Public use and access would be restricted for a short time during initial construction. Construction would be planned to occur in the off-season to avoid high traffic volume on Marconi Area roads.

The Cape Cod Rail Trail (CCRT), a paved bike trail managed by the Massachusetts Department of Recreation and Conservation (DCR), runs along the former railroad right of way. The CCRT crosses directly in the path of the proposed waterline extension near State Highway Route 6. In the fall of 2006, prior to re-paving the CCRT, NPS and Town of Wellfleet employees placed an 80 foot section of waterline under the bicycle trail so no disruption of the new trail surface or public use would occur under this alternative.

**Conclusion.** This alternative would have a negligible impact on overall public use and access due the localized character of the project, but impacts would be mitigated through off-season construction if possible.

#### **4.2.2.4 IMPACT ON PARK MANAGEMENT AND OPERATIONS**

**Analysis.** Minor adverse impacts would result to park management and operations during the initial construction of the proposed waterline extension. Fire management staff would be responsible for initial vegetation clearing for the proposed buffer. If non-native plants become established in the trench footprint, fire management staff would be responsible for bi-annual removal. NPS maintenance staff would need to assist with trenching and plumbing. The NPS archaeologist would have to survey the area for cultural resources. No other divisions are proposed for involvement.

**Conclusion.** Under this alternative, the impact on park management and operations would be negligible. Work load for the fire crew and maintenance staff would be under normal work duties. Town of Wellfleet employees and equipment may assist with the remainder of the construction needs.

#### **4.2.2.5 IMPACT ON CULTURAL RESOURCES**

**Analysis.** There are no structures, sites or landscapes eligible for or listed on the National Register in the vicinity of this project. The nearest National Register property, the Marconi Station Site, is approximately 0.8 miles northeast of the proposed waterline extension site.

An artifact scatter was located, mapped and documented by the park archeologist directly east of the CCRT along the proposed trench footprint during an archeological review of the proposed waterline and hydrant extension. No further archeological testing is needed.

DIGSAFE will be contacted before any trenching begins.

**Conclusion.** Alternative 2 would cause No Adverse Effect to cultural resources.

#### **4.2.2.6 CUMULATIVE IMPACTS**

Under the waterline extension and hydrant construction alternative there would be minor localized cumulative adverse impacts to vegetation in combination with the three other construction projects under consideration. The Broom Crowberry impacts and mitigations are described in the Mitigation Plan, and avoidance and transplanting of plants could be undertaken to minimize impacts. When the construction alternatives for all four projects are considered together with other known or anticipated projects in the outer Cape Cod region, the cumulative impact is expected to be negligible to minor.

The Marconi Area was extensively disturbed by construction of roads and buildings by the military prior to the creation of CCNS. No resources and values of the greatest significance to the national seashore would be adversely affected. This project would not impair the resources and values of CCNS.

### **4.2.3 ALTERNATIVE 3 – WATERLINE and HYDRANT EXTENSION ROAD SHOULDER ALTERNATIVE**

#### **4.2.3.1 IMPACT ON NATURAL RESOURCES**

**Analysis.** The location proposed for the waterline extension encompasses an area 900 feet long x 10 feet wide where roadside trees (predominantly pitch pine) and tree limbs would be cleared to allow waterline extension construction.

In order to accommodate the proposed waterline extension an 8.0 foot wide x 4.0 foot deep x 900 foot long trench would be dug along Marconi Beach and Marconi Residence roads to State Highway Route 6.

The vegetation removal needs may remove habitat used by forest-dependent species. However, as forest habitat dominates much of the Marconi Area, and the proposed project would be located adjacent to a paved roadway, this is expected to be a negligible impact. Species that rely on open heath and grassland habitats may benefit from the vegetation management associated with proposed project. Therefore, impacts to wildlife at the Marconi Site are not anticipated under this alternative.

Minor adverse effects to the forest overstory and surface vegetation would result from vegetation clearing within the 10 foot buffer zone. The zone borders approximately 800 feet of pitch pine forest. At least 12 trees would require removal. This area is predominantly pitch pine forest with a grass understory. One broom crowberry plant lies in the proposed trench footprint.

Non-native plants that became established after excavation and trenching would be identified and removed by mechanical or chemical methods. Because of the roadside location for the proposed waterline extension under this alternative, non-native plants would be much more difficult to control in the trench footprint than expected in Alternative 2. The proposed trench would bisect a shrub layer of non-native moderately invasive bristly locust (*Robinia hispida*).

Water resource impacts in this area of Cape Cod are only associated with surface water bodies that are connected to and fed by groundwater. There are no surface water bodies of this type adjacent to the proposed construction site. Wetland impacts are not anticipated, because no wetland resource areas have been identified within one-quarter mile of the proposed construction site. The nearest wetland is the Atlantic White Cedar Swamp which is located over 0.25 miles from the site. No adverse effects are anticipated from trenching operations from this distance therefore this alternative would have no impacts on water resources.

**Conclusion.** Under the waterline extension alternative there would be minor short- and long-term adverse impacts to forest overstory and plants located in the direct path of the trench. Minor adverse impacts of non-native plant establishment may occur. No adverse impacts are envisioned for wildlife or water resources.

#### **4.2.3.2 IMPACT ON SURROUNDING COMMUNITY**

**Analysis.** Construction of the waterline extension would provide favorable impacts for the surrounding community. Residents and businesses in the South Wellfleet area would be positively impacted by the readily available water source

on State Highway Route 6. Town fire engines would normally have to return to the Wellfleet Fire Station for refilling capabilities, a 3.5 mile drive from the South Wellfleet Station, or drive a 0.75 mile loop into the Marconi Area. There would be a moderate beneficial impact for structure, car, and wildland fire suppression operations in this vicinity under this alternative.

**Conclusion.** Waterline extension construction would have a beneficial impact on the surrounding community by providing an emergency water source for South Wellfleet.

#### **4.2.3.3 IMPACT ON PUBLIC USE AND ACCESS**

**Analysis.** Public use and access of the area would be negligibly impacted during construction. Public use and access would be restricted for a short time during initial construction. Construction would be planned to occur in the off-season to avoid high traffic volume on Marconi Area roads.

The CCRT, a paved bike trail managed by the Massachusetts DCR, runs along the former railroad right of way. The CCRT crosses directly in the path of the proposed waterline extension near State Highway Route 6. In the fall of 2006, prior to re-paving the CCRT, NPS and Town of Wellfleet employees placed an 80 foot section of waterline under the bicycle trail so no disruption of the new trail surface or public use would occur under this alternative.

The proposed road shoulder project is 200 feet longer and has three more bends than the Preferred Alternative. The additional 200 feet and the waterline angles (bends) would have a minor adverse impact to available water flow at the hydrant.

**Conclusion.** This alternative would have a negligible impact on overall public use and access due the localized character of the project, but impacts would be mitigated through off-season construction if possible.

#### **4.2.3.4 IMPACT ON PARK MANAGEMENT AND OPERATIONS**

**Analysis.** Minor adverse impacts would result to park management and operations during the initial construction of the proposed waterline extension. Fire management staff would be responsible for initial vegetation clearing and removal of non-native plants that establish in the trench footprint. NPS maintenance staff would need to assist with trenching, plumbing and installation of a new valve and tee. The NPS safety officer would have to investigate the status of a roadside monitoring well that would be impacted. Paving and construction of the proposed transit shelter (See 4.3) would partially cover the proposed waterline extension in this alternative creating an adverse impact if problems occur underground. No other divisions are proposed for involvement.

**Conclusion.** Under this alternative, the impact on park management and operations would be negligible. Work load for the fire crew and maintenance staff would be under normal work duties. Town of Wellfleet employees and equipment may assist with the remainder of the construction needs. Possible adverse impacts may occur: 1) to a roadside monitoring well during trenching, and 2) from the proposed transit shelter during construction or waterline repairs.

#### **4.2.3.5 IMPACT ON CULTURAL RESOURCES**

**Analysis.** There are no structures, sites or landscapes eligible for or listed on the National Register in the vicinity of this project. The nearest National Register property, the Marconi Station Site, is approximately 0.8 miles northeast of the proposed waterline extension site.

An artifact scatter was located, mapped and documented by the park archeologist directly east of the CCRT along the proposed trench footprint during an archeological review of the proposed waterline and hydrant extension. No further archeological testing is needed.

DIGSAFE will be contacted before any trenching begins.

Conclusion. Alternative 2 would cause No Adverse Effect to cultural resources.

#### **4.2.3.6 CUMULATIVE IMPACTS**

Under the waterline extension and hydrant construction roadside alternative there would be minor localized cumulative adverse impacts to vegetation and possible to park operations in combination with the three other construction projects under consideration. The Broom Crowberry impacts and mitigations are described in the Mitigation Plan, and avoidance and transplanting of plants would be undertaken to minimize impacts. When the construction alternatives for all four projects are considered together with other known or anticipated projects in the outer Cape Cod region, the cumulative impact on natural resources, the surrounding community and park operations is expected to be negligible to minor.

The Marconi Area was extensively disturbed by construction of roads and buildings by the military prior to the creation of CCNS. No resources and values of the greatest significance to the national seashore would be adversely affected. This project would not impair the resources and values of CCNS.



## **4.3 TRANSIT SHELTER:**

### **4.3.1 ALTERNATIVE 1- NO ACTION ALTERNATIVE**

#### **4.3.1.1 IMPACT ON NATURAL RESOURCES**

**Analysis.** The No Action Alternative proposes no new construction therefore there would be no new impact to natural resources. The current South Wellfleet bus stop at Farrell's Market is primarily located in the sandy and grassy road shoulder. There are no sensitive plants or wildlife species or habitat areas in this shoulder area of State Highway Route 6.

**Conclusion.** Under the No Action Alternative, no new impacts to natural resources would occur.

#### **4.3.1.2 IMPACT ON SURROUNDING COMMUNITY**

**Analysis.** The No Action Alternative presents no new impacts to the surrounding community. The existing bus stop functions with the minor adverse impacts of noise and traffic flow on the adjacent residential neighborhood. This alternative potentially poses minor economic benefit to Farrell's Market and other area small businesses from passengers seeking information who may make a purchase or make an inquiry when while they are waiting for a bus.

**Conclusion.** Minor adverse impact to the surrounding residential community and minor economic benefit to the surrounding commercial community may result from continued service from the current South Wellfleet bus stop at Farrell's Market.

#### **4.3.1.3 IMPACT ON PUBLIC USE AND SAFETY**

**Analysis.** The No Action Alternative does not change any public use patterns or facilities. There is a moderate potential minor adverse impact to public safety due to the exposure of the bus stop sites to the travel lanes of State Highway Route 6.

**Conclusion.** The No Action Alternative may produce minor adverse impact to public safety, due to the proximity of Farrell's Market to the highway.

#### **4.3.1.4 IMPACT ON PARK MANAGEMENT AND OPERATIONS**

**Analysis.** The No Action Alternative would not meet the criteria as outlined in the scope evaluation scoring for a safe, convenient location for a bus stop and shelter due to the nearness to the State Highway Route 6 roadway. This alternative also does not provide the potential for an easy connection to a future Marconi Beach shuttle.

**Conclusion.** The No Action Alternative could have minor adverse impact on the operation and management of the Outer Cape public transportation system.

#### **4.3.1.5 IMPACT ON CULTURAL RESOURCES**

**Analysis.** The No Action Alternative involves no new construction. There would be no impact to historic, cultural heritage, or archeological resources.

**Conclusion.** No historic properties or cultural resources would be affected by the No Action Alternative.

#### **4.3.1.6. CUMULATIVE IMPACTS**

Under the No Action Alternative, the existing Farrell's Market bus stop would remain, no new construction would occur, and facilities would not be changed. There would be no adverse impacts upon natural or cultural resources. There would be potential minor adverse impact upon public safety, surrounding community, and park management and operations. This impact would not constitute impairment of park resources.

### **4.3.2 ALTERNATIVE 2 - MARCONI AREA – (PREFERRED ALTERNATIVE)**

#### **4.3.2.1 IMPACT ON NATURAL RESOURCES**

**Analysis.** As discussed in section 2.4.1, it was concluded that impacts to broom crowberry in the immediate vicinity could be avoided due to careful siting. This was based on surveys conducted in July 2007 by NPS Plant Ecologist and confirming measurements taken by NPS staff in January 2008. If broom crowberry spreads to the disturbance footprint between the time of these measurements and construction, mitigation measures would need to be considered. At this time such mitigation measures are not anticipated to be needed.

**Conclusion.** Under the Preferred Alternative, no new impacts to natural resources would occur.

#### **4.3.2.2 IMPACT ON SURROUNDING COMMUNITY**

**Analysis.** The Preferred Alternative presents no new adverse impacts to the surrounding community in the Marconi Area due to its location on Marconi Beach Road fully surrounded by park lands. The bus stop may have a negligible to minor long-term beneficial economic impact for several food service businesses in the Marconi area on the west side of State Highway Route 6 if bus passengers use their services before or after riding the bus. This alternative potentially poses minor adverse economic impact to Farrell's Market due to a loss of purchases by passengers who used the market while seeking information or waiting for a bus.

Passengers may continue to embark and disembark at Farrell's Market on a non-scheduled basis, which could lessen the loss of business traffic from bus riders.

**Conclusion.** Under the Preferred Alternative, there would be negligible to minor long-term beneficial economic impact for several businesses in the Marconi area and minor adverse economic impact to Farrell's Market.

#### **4.3.2.3 IMPACT ON PUBLIC USE AND SAFETY**

**Analysis.** The Preferred Alternative would change public use patterns by shifting bus ridership to the Marconi Area. There would be moderate beneficial impacts for people traveling to use park facilities at Marconi Site or Marconi Beach, or to access park headquarters area. And, there would be minor to moderate adverse or beneficial impacts to bus passengers traveling to the South Wellfleet stop in a new location depending on the location of their final destination.

This alternative could provide a minor beneficial impact to public use because there are several food services in short walking distance across State Highway Route 6 at a signalized intersection. This alternative would provide moderate beneficial impacts to public safety by moving the bus stop off of State Highway Route 6.

**Conclusion.** The Preferred Alternative would change public use patterns, creating minor to moderate adverse or beneficial impacts to riders, depending on their use patterns. The alternative would have a moderate beneficial impact on public safety by moving the bus stop to an area farther removed from State Highway Route 6.

#### **4.3.2.4 IMPACT ON PARK MANAGEMENT AND OPERATIONS**

**Analysis.** The Marconi option for the new bus stops and shelters in Cape Cod National Seashore would address operational and safety issues. There would be a moderate beneficial impact on park operations because it is a safe and efficient location that would serve visitors to the park. This site is close to the intersection with Highway 6 and the Cape Cod Rail Bike Trail, there is street lighting at the intersection, and the utility connection will not require a new line. This site is far enough away from the intersection that there would not be an adverse impact on public safety. The site meets engineering requirements and evaluation criteria for a safe, convenient location for a bus stop and shelter. The Preferred Alternative provides a beneficial impact for both the regional transit system and the park through a safe and usable site for the public transportation system. It also provides a future transfer point for a beach shuttle to Marconi Beach.

**Conclusion.** The Preferred Alternative would have a moderate beneficial impact on park operations by providing a safe and efficient location for a transit shelter as part of a regional transit system in the park.

#### **4.3.2.5 IMPACT ON CULTURAL RESOURCES**

**Analysis.** The Preferred Alternative will result in No Adverse Effect to cultural resources. The area of the proposed site is previously disturbed, and there are no other cultural resources in the area of this alternative.

**Conclusion.** No historic properties or cultural resources would be affected by the Preferred Alternative.

#### **4.3.2.6 CUMULATIVE IMPACTS**

Under the Preferred Alternative, a bus stop and transit shelter would be constructed at the Marconi Area entrance. There would be no adverse cumulative impacts upon natural or cultural resources. There would be minor to moderate beneficial cumulative impacts to public safety and park management and operations. The alternative would have a negligible to minor cumulative long-term beneficial economic impact on businesses in the Marconi area and minor adverse economic impact to Farrell's Market. Impact on public use would have minor to moderate adverse or beneficial impacts to riders; the nature of the impact dependent on the use patterns of the individual. When the construction alternatives for all four projects are considered together with other known or anticipated projects in the outer Cape Cod region, the cumulative impact to public use is expected to be negligible to minor.

The Marconi Area was extensively disturbed by construction of roads and buildings by the military prior to the creation of CCNS. No resources and values of the greatest significance to the national seashore would be adversely affected. This project would not impair the resources and values of CCNS.

#### **4.3.3 ALTERNATIVE 3 – SOUTH WELLFLEET VILLAGE ALTERNATIVE**

##### **4.3.3.1 IMPACT ON NATURAL RESOURCES**

**Analysis.** This alternative would involve construction of a shelter, but not a pull off. The area is already disturbed by vehicle use in paved and unpaved areas. There are no known sensitive plants or wildlife species that would be adversely affected by bus shelter construction in this area.

**Conclusion.** Under the Alternative 3, no new impacts to natural resources would occur.

##### **4.3.3.2 IMPACT ON SURROUNDING COMMUNITY**

**Analysis.** This alternative could present a new adverse impact to the commercial businesses at the South Wellfleet village center in the busy summer season if the bus stop caused traffic congestion. However, moving the bus shelter to this area

could increase the convenience of passengers without adverse impact on the area businesses. The bus stop may have a minor long-term beneficial economic impact for several adjacent food service businesses if bus passengers use their services before or after riding the bus.

This alternative potentially poses minor adverse economic impact to Farrell's Market due to a loss of purchases by passengers who used the market while seeking information or waiting for a bus. Passengers may continue to embark and disembark at Farrell's Market on a non-scheduled basis, which could lessen the loss of business traffic from bus riders.

**Conclusion.** Alternative 3 could have the new adverse impact of increased traffic congestion in South Wellfleet Village and a minor long-term beneficial impact on businesses and consumers by increasing exposure to area businesses in the area. It could have a minor adverse economic impact to Farrell's Market.

#### **4.3.3.3 IMPACT ON PUBLIC USE AND SAFETY**

**Analysis.** The Preferred Alternative would change public use patterns by shifting bus ridership to the South Wellfleet Village Center area. There would be lesser beneficial impacts for people traveling to use park facilities at Marconi Site or Marconi Beach, or to access park headquarters area than under the Preferred Alternative. There would be minor to moderate adverse or beneficial impacts to bus passengers traveling to the South Wellfleet stop in a new location depending on the location of their final destination.

This alternative could provide a minor or moderate impact to public use because there are several food services and a post office and information center directly adjacent to any potential bus shelter construction site. This alternative would provide moderate beneficial impacts to public safety by moving the bus stop off of State Highway Route 6.

**Conclusion.** Alternative 3 would change public use patterns, creating minor to moderate adverse or beneficial impacts to riders, depending on their use patterns. The alternative would have a moderate beneficial impact on public safety by moving the bus stop to an area farther removed from State Highway Route 6.

#### **4.3.3.4 IMPACT ON PARK MANAGEMENT AND OPERATIONS**

**Analysis.** The South Wellfleet Village Center location for the new bus stops and shelters in Cape Cod National Seashore would address operational and safety issues. This site is close to the intersection with State Highway Route 6 and the Cape Cod Rail Bike Trail, there is street lighting, and the utility connection would not require a new electric line. The site meets engineering requirements and evaluation criteria for a safe, convenient location for a bus stop and shelter. The

alternative provides a beneficial impact for both the regional transit system and the park through a safe and usable site for the public transportation system. It does not provide a convenient future transfer point for a beach shuttle to Marconi Beach.

**Conclusion.** The Preferred Alternative would have a minor beneficial impact on park operations by providing a safe and efficient location for a transit shelter, but without a convenient future transfer point for a beach shuttle to Marconi Beach.

#### **4.3.3.5 IMPACT ON CULTURAL RESOURCES**

**Analysis.** This Alternative will have no known adverse impacts on cultural resources. There would be no impact to historic or cultural heritage resources from construction of the shelter as it would be architecturally compatible with the businesses. The area around the parking lot and businesses is heavily disturbed and, while it is outside the park boundary, there would be no known adverse impact to archeological resources.

**Conclusion.** No historic properties or cultural resources would be affected by the Preferred Alternative.

#### **4.3.3.6 CUMULATIVE IMPACTS**

Under Alternative 3, a bus stop and transit shelter would be located approximately 0.75 miles north of the Marconi entrance at the South Wellfleet Village Center. There would be no adverse impacts upon natural or cultural resources. There would be moderate beneficial impacts to public safety and minor beneficial impacts to park management and operations. The alternative would have a negligible to minor beneficial economic impact on surrounding businesses in the South Wellfleet Village area, and potential minor adverse impact upon traffic in the directly surrounding area. There could be minor adverse economic impact to Farrell's Market. The cumulative impact on public use would have minor to moderate adverse or beneficial impacts to riders. When the construction alternatives for all four projects are considered together with other known or anticipated projects in the outer Cape Cod region, the cumulative impact is expected to be negligible to minor.

The Marconi Area was extensively disturbed by construction of roads and buildings by the military prior to the creation of CCNS. No resources and values of the greatest significance to the national seashore would be adversely affected. This project would not impair the resources and values of CCNS.

## **4.4. FIRE CACHE CONSTRUCTION**

### **4.4.1 ALTERNATIVE 1 — NO ACTION ALTERNATIVE**

#### **4.4.1.1 IMPACT ON NATURAL RESOURCES**

**Analysis.** Under the No Action alternative, the Marconi Maintenance Area Fire Cache would remain in its current state, no new construction would occur and facilities would not be changed, therefore there would be no new impacts to natural resources. The fire cache offices, garages and equipment would continue to serve at their existing level. The park would continue to be able to provide fire management services (suppression, prescribed fire, and fuels management) at current efficiency.

Vegetation and wildlife impacts at the Marconi Site are not anticipated under this alternative. Current fire cache operations do not affect vegetation, wildlife habitat or wildlife migration patterns.

Water resource impacts to wildlife in this area of Cape Cod are associated with surface water bodies that are connected to and fed by groundwater. There are no surface water bodies of this type adjacent to the facility. Wetland impacts are not anticipated, because no wetland resource areas have been identified within one-quarter mile of the existing facility.

**Conclusion.** The existing fire cache would not affect groundwater or surface water resources, soils, vegetation or wildlife.

#### **4.4.1.2 IMPACT ON SURROUNDING COMMUNITY**

**Analysis.** The No Action Alternative presents no new impacts to the surrounding community. There would be moderate potential long-term adverse impact to structures and wildland vegetation in the event emergency fire response is hindered due to less efficient operations associated with the existing fire cache. There would be potential indirect long term adverse impacts to maintaining early successional vegetation communities in CCNS as fewer fuel reduction projects may be scheduled using the current undersized and inefficient fire cache for base operations and vehicle and equipment maintenance and garaging.

**Conclusion.** Without new fire cache construction long term adverse impacts to the structures and vegetation in the surrounding community may occur.

#### **4.4.1.3 IMPACT ON PUBLIC USE AND SAFETY**

**Analysis.** The No Action Alternative does not change any public use patterns or facilities. There would be moderate potential long-term adverse impacts to public safety in the event that emergency fire suppression response is hindered by less

efficient operational mobilization associated with the existing inadequate fire cache.

**Conclusion.** Long term adverse impacts to public use and safety may result from less efficient mobilization during emergencies.

#### **4.4.1.4 IMPACT ON PARK MANAGEMENT AND OPERATIONS**

**Analysis.** The No Action Alternative would not meet the criteria as outlined in the CCNS Fire Management Plan that calls for an increase in the number of acres treated by the fire crew to increase from the current ~40 acres per year to 300-500 acres annually. Staging fire management operations out of the existing cache facilities would be inadequate to meet this goal.

The fire cache operation is currently using four garage and storage areas in three different towns to conduct fire management operations. There is no existing room available in CCNS facilities to consolidate the fire management vehicles, equipment and supplies near available office space.

**Conclusion.** Fire cache operations and associated vehicles and equipment would continue to serve at their existing level. The park would continue to be able to provide the current level of fire management services (suppression, prescribed fire and fuel reduction) but would not be able to effectively increase services as called for in the 2005 Fire Management Plan. This alternative would risk a long-term adverse effect on CCNS vegetation management projects because of the lost operational efficiency associated with current fire cache limitations.

#### **4.4.1.5 IMPACT ON CULTURAL RESOURCES**

**Analysis.** The No Action Alternative involves no new construction. There would be no impact to historic, cultural heritage, or archeological resources. There are no buildings, structures, landscapes or sites eligible for or listed on the National Register of Historic Places in the vicinity of this project. The nearest National Register site, the Marconi Station Site (administered by CCNS), is approximately 0.7 miles northeast of the proposed fire cache.

**Conclusion.** The No Action Alternative involves no new construction and no historic properties would be affected by the alternative.

#### **4.4.1.6. CUMULATIVE IMPACTS**

There would be no anticipated long-term cumulative impacts of the No Action Alternative in combination with the three other projects under consideration to vegetation, wildlife, public use, or cultural resources. When the construction alternatives for all four projects are considered together with other known or



anticipated projects in the outer Cape Cod region, the cumulative impact is expected to be negligible to minor.

The Marconi Area was extensively disturbed by construction of roads and buildings by the military prior to the creation of CCNS. No resources and values of the greatest significance to the national seashore would be adversely affected. This project would not impair the resources and values of CCNS.

#### **4.4.2. ALTERNATIVE 2 - FIRE CACHE CONSTRUCTION (NEW) AT EXISTING WEATHER STATION (PREFERRED ALTERNATIVE)**

##### **4.4.2.1 IMPACT ON NATURAL RESOURCES**

**Analysis.** Negligible wildlife impacts at the Marconi Site are anticipated under this alternative. Any vegetation removed during fire cache construction may remove habitat used by forest-dependent species. However, as forest habitat dominates much of the Marconi Area and proposed cache is directly adjacent to existing facilities, this is expected to be a negligible impact. The proposed fire cache construction would not affect wildlife habitat or wildlife migration patterns.

Wetlands in this area of Cape Cod are associated with surface water bodies that are connected to and fed by groundwater. There are no surface water bodies of this type adjacent to the facility. Wetland impacts are not anticipated, because no wetland resource areas have been identified within one-quarter mile of the existing facility.

The proposed location of the new fire cache construction is the area currently occupied by the CACO fire weather station. The weather station area has undergone repeated periodic removal of overstory and regenerating pitch pine trees since the 1960s. Tree clearing was necessary to maintain the required open canopy required for weather instruments.

The periodic clearing of trees has resulted in a dense heathland plant cover dominated by bearberry, *Hudsonia*, sweet fern (*Comptonia peregrina*), broom crowberry, various grasses and pitch pines. Adjacent landscapes have the same vegetation components; however pitch pine dominates on non-cleared areas and significantly shades heathland species. Broom crowberry specifically diminishes in vigor and can be expected to disappear over time when shaded by pine trees and covered by associated pine needle litter.

The proposed fire cache foundation and associated paved areas would have a moderate adverse impact on heathland vegetation, pitch pine trees and broom crowberry plants. Removal and transplanting of 22 broom crowberry plants would occur. Removal of 25 pitch pine trees would be required.

The fire weather station would be relocated approximately 110 feet to the west of the proposed cache. Thirty-eight pitch pine trees would be removed from the new weather station location to open the canopy to widths required for the weather station instruments. Twelve broom crowberry plants in the vicinity of the new weather station location would have long term beneficial impact from the tree canopy opening and release from future pine needle accumulations. The 22 broom crowberry plants removed from the proposed cache footprint would be transplanted in the new weather station site.

Minor short term adverse impacts to air quality may occur under this alternative because an outdoor wood-burning furnace is proposed as an alternative fuel secondary heating source for the proposed fire cache. The primary heating for the proposed fire cache would be oil-fired floor radiant heat.

The outdoor wood furnace or outdoor wood-fired boiler (OWB) would utilize forest products (logs) generated by on-going CCNS fuel reduction projects. Currently, there are no federal, Commonwealth of Massachusetts, or Town of Wellfleet restrictions on OWBs. The OWB would generally be used as a supplemental heating source for the proposed fire cache. Firing of the OWB would generally only be done on weekdays, during daylight hours from October to May, when fire management staff is on duty to load fuel wood. The OWB unit purchased would conform to the best available control technology or lowest achievable emissions rate controls for criteria pollutants and compliance with air toxics limits for wood burning power generation.

**Conclusion.** The proposed fire cache would not affect groundwater or surface water resources, soils, or wildlife. Long-term site specific adverse impacts to vegetation would occur, however through four mitigation measures long term minor beneficial impacts to the special concern species broom crowberry would transpire. Short term daily negligible adverse impacts would be smoke produced from an OWB.

#### **4.4.2.2 IMPACT ON SURROUNDING COMMUNITY**

**Analysis.** The Preferred Alternative presents no new adverse impacts to the surrounding community in the Marconi Area due to its location adjacent to the existing fire cache at the Marconi maintenance area, which is fully surrounded by park lands.

There would be long term moderate beneficial impact to the community because wildland fire safety would benefit from improved fire cache operations during emergency response and through more efficient and effective fuel reduction projects.

Use of an OWB would have a favorable economic impact as consumption of heating oil would be less than required from an “oil only” heating system for a

2,000 sq. foot building. Smoke from the OWB would have a negligible to minor short term daily adverse impact to the surrounding community primarily to the north and east (prevailing winter winds are from the southwest). The nearest privately owned structures are located 0.25 miles west of the proposed fire cache. The closest non-government structures in other cardinal directions are: north 0.80 miles, northwest 0.34 miles, southwest 0.50 miles, and south > 1.0 miles. There are no private structures east of the proposed fire cache.

**Conclusion.** No adverse impacts to the surrounding community are anticipated under this alternative.

#### **4.4.2.3 IMPACT ON PUBLIC USE AND SAFETY**

**Analysis.** The Preferred Alternative would have negligible to no impact to public use. There would be long term moderate beneficial impact to the public because wildland fire safety would benefit from improved fire cache operations during emergency response and through more efficient and effective fuel reduction projects.

**Conclusion.** No adverse impacts on public use and safety are anticipated under this alternative.

#### **4.4.2.4 IMPACT ON PARK MANAGEMENT AND OPERATIONS**

**Analysis.** The proposed fire cache would require assistance from the CCNS maintenance division for: a) land clearing and site preparation and broom crowberry transplanting, 2) utility hookups (electric and water), 3) heating system operation and maintenance; and 4) winter snow plowing operations.

CCNS Fire management personnel would have ongoing duties of: 1) interior organization, maintenance and cleaning, and 2) OWB loading and firing.

This alternative proposes the location of the fire cache nearly adjacent to the existing fire cache, therefore plumbing, electrical, fuel, rest rooms and office space are in close proximity. However, the proposed facility would be located near a buried sewer line and safe guards would be undertaken ensure no impacts.

The proposed installation and use of an OWB would provide a long-term minor beneficial impact of reducing the amount of heating oil required for primary heating of the proposed cache.

**Conclusion.** Existing infrastructure would facilitate the placement of the building in the preferred alternative location. At this location negligible to minor impacts to park operations would occur. Work load for the fire crew and maintenance staff would be assimilated under normal work duties. Long term minor beneficial

impacts would result from the use of the OWB because there would be a reduced need for oil to heat the fire cache and a reduced use of fuel for transporting heating oil to the cache.

#### **4.4.2.5 IMPACT ON CULTURAL RESOURCES.**

**Analysis.** There are no structures, sites or landscapes eligible for or listed on the National Register in the vicinity of this project. The nearest National Register property, the Marconi Station Site is approximately 0.7 miles northeast of the proposed maintenance shop. Potential for archeological objects or remains in and around the site of the proposed fire cache is extremely low, due to the previous disturbance from past military use. A buried sewer line runs immediately north of the proposed location.

**Conclusion.** Alternative 2 would not be expected to affect cultural resources. The area has been previously disturbed during the past 50 years. Therefore we have found No Adverse Effect to cultural resources by the alternative.

#### **4.4.2.6. CUMULATIVE IMPACTS**

Under the Preferred Alternative for the fire cache there would be minor localized cumulative adverse impacts to vegetation in combination with the three other construction projects under consideration. The Broom Crowberry impacts and mitigations are described in the Mitigation Plan, and avoidance and transplanting of plants would be undertaken to minimize impacts. When the construction alternatives for all four projects are considered together with other known or anticipated projects in the outer Cape Cod region, the cumulative impact to natural resources and the surrounding community and public use is expected to be negligible to minor.

The Marconi Area was extensively disturbed by construction of roads and buildings by the military prior to the creation of CCNS. No resources and values of the greatest significance to the national seashore would be adversely affected. This project would not impair the resources and values of CCNS.

### **4.4.3 ALTERNATIVE 3 - FIRE CACHE CONSTRUCTION (NEW) WITHIN THE MARCONI MAINTENANCE FACILITY**

#### **4.4.3.1 IMPACT ON NATURAL RESOURCES**

**Analysis.** There would be no adverse impacts to wetlands or wildlife species under this alternative. The proposed location of the cache is a paved area within the Marconi maintenance area currently used to park vehicles and equipment. However, the building location would require removal of a portion of the perimeter fence and require clearing of vegetation (pitch pine trees and two

broom crowberry plants) from an area approximately 60 feet x 40 feet in order to facilitate construction.

**Conclusion.** The proposed fire cache would not affect groundwater or surface water resources, soils, or wildlife. Long-term site specific adverse impacts to vegetation would occur, however through four mitigation measures long term minor beneficial impacts to the special concern species broom crowberry would transpire.

#### **4.4.3.2 IMPACT ON SURROUNDING COMMUNITY**

**Analysis.** This Alternative presents no new adverse impacts to the surrounding community in the Marconi Area due to its location adjacent to the existing fire cache at the Marconi maintenance area which is fully surrounded by park lands.

There would be long-term moderate beneficial impact to the community because wildland fire safety would benefit from improved fire cache operations during emergency response and through more efficient and effective fuel reduction projects.

Use of an OWB would have a negligible adverse economic impact as consumption of heating oil would be less than required from an “oil only” heating system for a 2,000 sq. foot building. Smoke from the OWB would have a negligible short term daily adverse impact to the surrounding community primarily to the north and east (prevailing winter winds are from the southwest). The nearest privately owned structures are located 0.25 miles west of the proposed fire cache. The closest non-government structures in other cardinal directions are: north 0.80 miles, northwest 0.34 miles, southwest 0.50 miles, and south 1.0 (plus) miles. There are no private structures east of the proposed fire cache.

**Conclusion.** No adverse impacts to the surrounding community are anticipated under this alternative.

#### **4.4.3.3 IMPACT ON PUBLIC USE AND SAFETY**

**Analysis.** This Alternative presents negligible to no impact to public use. There would be long-term moderate beneficial impact to the public because wildland fire safety would benefit from improved fire cache operations during emergency response and through more efficient and effective fuel reduction projects.

**Conclusion.** No adverse impacts on public use and safety are anticipated under this alternative

#### 4.4.3.4 IMPACT ON PARK MANAGEMENT AND OPERATIONS

**Analysis.** The proposed fire cache would require assistance from the CCNS maintenance division for: 1) pavement clearing and site preparation, 2) utility hookups (electric and water), 3) heating system operation and maintenance, and 4) winter snow plowing operations.

CCNS Fire management personnel would have ongoing duties of: 1) interior organization, maintenance and cleaning, and 2) OWB loading and firing.

This alternative locates the proposed fire cache in the extreme southwest corner of the fenced Marconi maintenance area adjacent to the new auto shop building on a previously disturbed and currently paved area. Plumbing, electrical, fuel, rest rooms and office space are in close proximity.

The location of fire cache under this alternative would remove one of only two vehicle gates that access paved roads from the maintenance area (a third gate is used for access to the dirt woods road to the Atlantic White Cedar Swamp). The proposed cache location would block line-of-sight distances for vehicles exiting the maintenance areas via the remaining gate. Large trucks and trailers/trams would have restricted maneuverability around the proposed cache and may have to back up to access the one remaining gate. Restricted vehicle maneuverability would potentially result in employee and vehicle safety issues. Construction would remove ten parking spaces within the compound used for fleet vehicles, boat storage, and parking of trailers.

Additionally, the proposed facility would be located near an underground water main and safeguards would be required to minimize impacts to the water delivery system.

**Conclusion.** Existing infrastructure would facilitate the placement of the building in this location. However under this alternative minor to moderate adverse impacts to park operations would occur due to elimination of the only functional secondary gate, restricted line of sight for vehicle drivers and employees, and disruption to traffic patterns within the maintenance area.

#### 4.4.3.5 IMPACT ON CULTURAL RESOURCES

**Analysis.** This Alternative would have no adverse impact on cultural resources. There would be no impact to historic or cultural heritage resources.

There are no structures, sites or landscapes eligible for or listed on the National Register in the vicinity of this project. The nearest National Register property, the Marconi Station Site is approximately 0.70 miles northeast of the proposed maintenance shop. Potential for archeological remains in and around the site of the proposed fire cache is extremely low, due to the previous disturbance from

past military use. An underground municipal water delivery main is buried immediately east of the proposed location.

**Conclusion.** Alternative 3 would not affect cultural resources. The area has been previously disturbed during the past 50 years. Therefore we have found no adverse effect to cultural resources by the alternative.

#### **4.4.3.6. CUMULATIVE IMPACTS**

Under the construction alternative within the fenced Marconi maintenance area there would be minor localized cumulative adverse impacts to vegetation in combination with the three other construction projects under consideration. The Broom Crowberry impacts and mitigations are described in the Mitigation Plan, and avoidance and transplanting of plants would be undertaken to minimize impacts. When the construction alternatives for all four projects are considered together with other known or anticipated projects in the outer Cape Cod region, the cumulative impact to natural resources, the surrounding community and public use is expected to be negligible to minor.

The Marconi Area was extensively disturbed by construction of roads and buildings by the military prior to the creation of CCNS. No resources and values of the greatest significance to the national seashore would be adversely affected. This project would not impair the resources and values of CCNS.

## **5.0 CONSULTATION AND COORDINATION**

### **5.1 SUMMARY OF PUBLIC INVOLVEMENT**

The potential siting of transit shelters has been discussed for several years. Since 2006 there have been many follow-up meetings focused on additional coordination and implementation of various aspects of the Outer Cape Long Range Transportation Plan completed in 2004. The Outer Cape transportation workgroup represents a variety of agencies and organizations, including all the Outer Cape towns and their transportation representatives, chambers of commerce, the Cape Cod Commission, the Volpe National Transportation Systems Center, the Cape Cod Regional Transit Authority, and Cape Cod National Seashore and others. This workgroup discusses public transportation topics such as the Flex, The Breeze and other transportation services and amenities. To date there have been discussions about the overall transit shelter concept, their design and function, and general siting considerations.

Public notice regarding the availability of this Environmental Assessment will be distributed to the media and interested parties. Copies will be available at park headquarters and will also be sent to the two seashore visitor centers and the six

Outer Cape libraries. There will be a 30-day public comment period to receive public and agency feedback on the plan. Comments can be submitted to:

Superintendent George E. Price, Jr.  
Cape Cod National Seashore  
99 Marconi Site Road  
Wellfleet, MA 02667

## **5.2 CONSULTATION WITH AGENCIES AND ORGANIZATIONS**

The following agencies and organizations were consulted leading to the development of this EA, or are being sent copies of this EA for review:

U.S. Fish and Wildlife Service  
Massachusetts Division of Fisheries and Wildlife:  
    Natural Heritage and Endangered Species Program  
Massachusetts Historical Commission  
Advisory Council on Historic Preservation  
Wampanoag Tribe of Gay Head (Aquinnah), Tribal Historic Preservation Office  
Mashpee Wampanoag Tribal Council  
Massachusetts Audubon Society  
Massachusetts Coastal Zone Management  
Wellfleet Board of Selectmen  
Wellfleet Fire Department  
Wellfleet Police Department  
Town libraries and town halls:  
    Chatham, Orleans, Eastham, Wellfleet, Truro, Provincetown  
Cape Cod Commission  
Cape Cod Regional Transit Authority

The park's Fire Management Office has consulted with the Wellfleet Fire Department over several years concerning waterline extension. Discussions concerning the helipad have also taken place. No concerns or objections have been raised by Town Fire Department personnel concerning the waterline, helipad and fire cache alternatives.

By letter of January 11, 2008, the Advisory Council on Historic Preservation (ACHP), State Historic Preservation Office, and Tribal Historic Preservation Offices were notified of the commencement of an EA to examine possible effects on historic properties. Copies of this EA will be sent to the State Historic Preservation Office, tribes, and other consulting parties, in accordance with consultation concerning the National Historic Preservation Act (see 6.1).

Consultations with the Massachusetts Natural Heritage and Endangered Species Program staff have occurred during the spring of 2008. As described in this Environmental Assessment, three of the preferred alternatives will involve take of



broom crowberry, a species of special concern. This EA also provides an assessment of alternatives, information regarding the extent of broom crowberry relative to the proposed impacts, and a mitigation plan that will provide a long-term net benefit to this species. The draft mitigation plan, which includes a summary of the impacts, was forwarded to NHESP for review and comment on April 30, 2008. This EA will also be provided to NHESP to provide additional background and detailed alternatives analysis. CCNS will work with NHESP to ensure that this EA and mitigation plan are consistent with the standards for Conservation and Management Permits.

### **5.3 RELATIONSHIP TO OTHER PLANNING EFFORTS**

The projects identified in this Environmental Assessment were considered in a single EA to facilitate an integrated assessment of effects to the Marconi Area in Wellfleet. The transit shelter improvement project is part of a larger project to site 8-12 new shelters on the Outer Cape. Most shelters are to be constructed at existing bus stop locations. Two locations are being considered within Cape Cod National Seashore; one location is an existing, developed bus stop site at Salt Pond Visitor Center and the other is the South Wellfleet Marconi location.

Other upcoming projects are occurring elsewhere in the park. Other recent NPS activities in the Provincetown area of the park include some transportation-related construction activities that have undergone NEPA evaluation, such as the environmental assessment of rehabilitation of the Province Lands Bike Trail, and categorical exclusions for road improvement projects as assessed by Federal Highway Administration. Road improvements include Herring Cove area road reconfigurations and road rehabilitation overlay projects, and road overlay projects of Marconi Site and Marconi Beach Roads, which will be confined to existing paved areas.

Several other planning projects are anticipated in the next few years. Two potential project land-based wind-turbine related projects are under consideration by NPS; one proposed location is Herring Cove Beach (the subject of an environmental assessment of May 2008) and there is an upcoming wind feasibility study planned for the Highlands Center at Cape Cod National Seashore, located in North Truro. There is no current proposal for this facility. An environmental assessment will be conducted once the study is underway.

## **6.0 APPLICABLE LAWS AND REGULATIONS**

### **6.1. FEDERAL REGULATIONS**

**Americans with Disabilities Act:** The Americans with Disabilities Act (ADA) establishes federal guidelines that define requirements for disabled access to parking facilities, pathways, and buildings. All structures and facilities available for public use need to be upgraded in full compliance with the act as they are

rehabilitated. These undertakings, specifically the proposed bus shelter and fire cache addition would comply with the ADA.

**Archeological Resources Protection Act of 1979:** The Archeological Resources Protection Act (ARPA) requires that archeological resources be identified and that proper permits be obtained prior to excavating any resources. The NPS has identified one potential archeological resource in the project areas (See 4.2.2.5).

**Analysis of Impacts on Prime and Unique Agricultural Lands in Implementing the National Environmental Policy Act (45 FR 59189):** Federal agencies are required to analyze the impacts of federal actions on agricultural lands, in accordance with NEPA. This policy was developed to minimize the effect of federal programs in converting prime, unique, or locally important farmland to nonagricultural uses. There are both prime and unique farmlands within Cape Cod National Seashore.

The U.S. Department of Agriculture defines prime farmland as the land that is best suited for food, feed, forage, fiber, and oilseed crops; unique farmland produces specialty crops such as fruit, vegetables, and nuts. According to the Massachusetts Natural Resources Conservation Service, three soil types categorized as prime farmlands occur within the seashore; Nantucket sandy loam, Boxford silt loam, and Merrimac sandy loam. These soil types occur near Nauset Heights, Sampson Island, Pochet Island, the small islands near Pochet Island, and an area near Doane Rock.

Both commercial and wild cranberry bogs are considered unique farm-lands. There are at least 20 acres of wild cranberries (*Vaccinium macrocarpon*) in the national seashore (University of Massachusetts Cranberry Experiment Station, Caruso, pers. comm. 1996), mostly located in the Province Lands. Only two formerly commercial cultivated cranberry bogs are known within national seashore boundaries. One near the Pamet River on the North Pamet Road has been restored for interpretive purposes.

The proposed projects at the Marconi Area do not affect these lands nor would they convert these lands to nonagricultural uses.

**Clean Air Act, as Amended (42 USC 7401 et seq.):** CCNS is designated a Class II clean air area. Maximum allowable increases of sulfur dioxide, particulate matter and nitrogen dioxides beyond baseline concentrations established for Class II areas cannot be exceeded. Class II increments allow modest industrial activities in the vicinity of a park. Section 118 of the Act requires federal facilities to comply with existing federal, state and local air pollution control laws and regulations. CCNS would work with the Massachusetts DEP to ensure that the proposed projects meet the requirements of the state's air quality implementation plan.

The Clean Air Act establishes regulations regarding disclosure, control, and abatement of air pollutants. The OWB proposed as a secondary heating source for the fire cache construction project may generate air-borne contaminants of concern.

**Coastal Barrier Resources Act:** This law encourages the conservation of hurricane prone, biologically rich coastal barriers by restricting federal expenditures that encourage development, such as Federal flood insurance through the National Flood Insurance Program. The alternative sites considered in this environmental assessment do not entail federal expenditures or financial assistance that would adversely affect ecologically sensitive coastal barrier resources.

**Coastal Zone Management Act:** This act requires that federal agencies adhere to state Coastal Zone Management Plans when conducting projects or activities that affect the coastal zone. These policies recognize the ecological significance of coastal waters and strive to protect both the water quality and the integrity of significant resource areas. All of Cape Cod is within the coastal zone; however this plan is not expected to have a change in affect to coastal resources. The NPS finds after a consistency review that the alternatives are consistent with the Coastal Zone Management Plan habitat, protected area, growth management and public access policies and principles. The NPS will send a copy of this EA to the Cape and Islands Coordinator of the Massachusetts Coastal Zone Management program for a federal consistency review, seeking concurrence with a determination of consistency for the proposed alternatives.

**Comprehensive Environmental Response, Compensation and Liability Act:** The Comprehensive Environmental Response, Compensation and Liability Act established regulations regarding the assessment, remediation, and liability for remediation of hazardous substances that have caused contamination. None of the alternative sites considered in this environmental assessment have been designated as National Priority List sites. There is no known contamination at this site.

**Endangered Species Act of 1973, as amended (16 USC 1531 et seq.):** Section 7 of the Endangered Species Act directs all federal agencies to further the purposes of the act, which are to conserve threatened and endangered species and the ecosystems on which they depend. Federal agencies are required to consult with the US Fish and Wildlife Service (USFWS) to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitat. No Federally listed species or critical habitat occur within the project area or the general vicinity, therefore federally protected species will not be affected by the proposed projects. No consultation is necessary, however the agency will receive a copy of this EA.

**Executive Order 11987: (Exotic Organisms):** This executive order requires federal agencies to restrict the introduction of exotic species into natural ecosystems on lands and waters that they own, lease, or hold for purposes of administration and into any natural ecosystem of the United States and to encourage the states, local governments, and private citizens to prevent the introduction of exotics into natural ecosystems of the United States. CCNS has determined that the alternatives evaluated in this EA do not pertain to the introduction of exotics as defined by this executive order. Mitigation measures are included to avoid introduction of exotic species into the park's natural ecosystems.

**Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands):** Executive Orders 11988 and 11990 direct federal agencies to enhance floodplain and wetlands value, to avoid development in floodplains and wetlands whenever possible, and to minimize adverse impacts if development cannot be avoided. None of the alternatives affect a floodplain or wetland areas as defined by the executive orders.

**Executive Order 11990 (Protection of Wetlands):** This order requires that all federal agencies must avoid, where possible, impacts on wetlands. The proposed alternatives do not involve any impacts to wetlands.

**Executive Order 12898 (Environmental Justice in Minority Populations and Low-Income Populations):** Environmental Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires all federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs and policies on minority and low-income populations and communities. None of the alternatives considered in this document would result in substantial changes in the socioeconomic environment of the project area. Job creation would be subject to the Equal Employment Opportunity Act. Minority and low-income populations do not live adjacent to the project site. Consequently, the project is expected to have no discernible direct or indirect adverse impacts to minority or low-income populations.

**Federal Water Pollution Control Act (1972), as amended- Clean Water Act of 1977 and Water Quality Act of 1987 (33 USC) 1251-1376:** Construction activities would need to comply with the requirements of sections 401 and 404 of the Clean Water Act and other applicable federal, state, and local regulations. The water pumping, storage and delivery system that would supply the proposed Waterline and Hydrant Extension project was transferred to the NPS from the Department of the Army in ca. 1961 and is solely owned, operated, and maintained by CCNS. The proposed actions would have no effects on water quality

**Fish and Wildlife Coordination Act:** This act provides the basic authority for the USFWS's involvement in impacts to fish and wildlife from proposed water resource development projects. The project contained in this EA does not entail water-related construction, and there would be no modifications to waterways or bodies of water protected by this act.

**Magnuson-Stevens Fishery Conservation and Management Act:** This act requires federal agencies to consult with the National Oceanic and Atmospheric Administration (NOAA) regarding proposed actions that could damage Essential Fish Habitat (EFH) as identified by NOAA Fisheries and the appropriate fishery management council. The proposed actions in this EA would not affect EFH; therefore consultations on the proposed modification to the NPS projects are not required.

**Migratory Bird Treaty Act, and other laws and treaties that protect migratory birds:** There are a number of laws and treaties-such as the Migratory Bird Treaty Act, the Lacey Act, the Weeks-McLean Law, and the Waterfowl Depredations Prevention Act- designed to protect migratory birds. No effect on migratory birds is anticipated.

**National Environmental Policy Act of 1969:** NEPA requires consideration of the environmental effects of proposed federal actions. NEPA also ensures that environmental information is available to public officials and members of the public before decisions are made and before actions are taken. This Environmental Assessment provides a description of the preferred alternatives plus other alternatives, No Action Alternatives, and summarizes potential environmental consequences of the alternatives. A 30-day public comment period will be scheduled.

**National Historic Preservation Act of 1966, as Amended:** Section 106 of the National Historic Preservation Act requires that an assessment be conducted of any project, activity, or program that could change the character or use of properties listed in or eligible for listing in the National Register of Historic Places. CCNS notified the Massachusetts Historical Commission/State Historic Preservation Officer and the Advisory Council on Historic Preservation by letter in April 2008 that it would be utilizing this EA to meet its Section 106 responsibilities. The Massachusetts Historical Commission and the Wampanoag and Gay Head Aquinnah Tribes were provided with copies of this EA, and local historical societies were notified of the proposal.

## **6.2. STATE REGULATIONS**

### **Coastal Zone Management Act of 1972 and Coastal Barrier Resources Act (1982) both as amended in 1990:**

The Coastal Zone Management Act requires that federal agencies adhere to state Coastal Zone Management Plans when conducting projects or activities that affect the coastal zone. These policies recognize the ecological significance of coastal waters and strive to protect both the water quality and the integrity of significant resource areas. All of Cape Cod is within the coastal zone; however this plan is not expected to have a change in affect to coastal resources. The NPS finds after a consistency review that the alternatives are consistent with the Coastal Zone Management Plan habitat policy #1, growth management principles # 1 and 2, and public access policies #1 and principles #2; the projects have been planned to minimize effects on natural resources, improve public safety and public access, and were sited in an existing developed area. The NPS will send a copy of this EA to the Massachusetts Coastal Zone Management program for a federal consistency review, seeking concurrence with a determination of consistency for the proposed alternatives.

### **Massachusetts Endangered Species Act - Massachusetts Natural Heritage and Endangered Species Program**

The Massachusetts Endangered Species Act (MESA) is administered by the Massachusetts Natural Heritage and Endangered Species Program (NHESP) - a branch of the Massachusetts Department of Fisheries and Wildlife. MESA prohibits take of species listed as endangered, threatened, or of special concern. However, projects that will result in take of listed species may be eligible for a Conservation & Management Permit if alternatives to both temporary and permanent impacts to state listed species are assessed, if the project will impact an insignificant portion of the local population of the affected species, and if the project includes a conservation and management plan that provides a long-term net benefit to the conservation of the affected species.

As described in this Environmental Assessment, three of the preferred alternatives will involve take of broom crowberry, a species of special concern. This EA also provides an assessment of alternatives, information regarding the extent of broom crowberry relative to the proposed impacts, and a mitigation plan that will provide a long-term net benefit to this species. The mitigation plan, which includes a summary of the impacts, has been forwarded to NHESP for review and comment. This EA will also be provided to NHESP to provide additional background and detailed alternatives analysis. CCNS will work with NHESP to ensure that this EA and mitigation plan are consistent with the standards for Conservation and Management Permits.

## **7.0 LIST OF PREPARERS AND REVIEWERS**

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## **8.0 BIBLIOGRAPHY**

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## **Appendix A**

### **MITIGATION FOR PROPOSED IMPACTS TO BROOM CROWBERRY**

This plan provides for mitigation of impacts to broom crowberry for four proposed construction projects at Cape Cod National Seashore.

#### **Projects**

The four proposed construction projects are: 1) improvement of a helicopter landing area; 2) a waterline and hydrant extension project, 3) construction of a transit bus shelter and 4) construction of a fire cache. All four projects would be located on or proximal to formerly disturbed areas – the helicopter landing area would expand an existing paved area; the waterline extension project would be trenched and buried along a former woods road; the transit shelter would be located near a former army fuel filling station; and the fire cache would be located adjacent to existing buildings.

#### **Background**

The Marconi Area was greatly disturbed by the construction and subsequent demolition of Camp Wellfleet, an active Army base that operated from ca. 1943 to 1961. During the Army era, much of the 1,700 acre landscape was cleared of forest overstory for buildings, road construction and off road military operations. Significant heathland community, including over 200 acres of broom crowberry, developed on the cleared land. Since 1961, when NPS assumed management of the former Camp Wellfleet lands, over 70 percent of the cleared land has regenerated to pitch pine-dominated forest. This pitch pine forest is rapidly shading remaining heathland habitat.

#### **Direct Impacts to Broom Cowberry by project**

*Helipad Improvements:* Less than 10 plants would be impacted. Overstory vegetation removal would subject plant to more sunlight and exposure. Plants directly impacted by underground electrical trenching would be re-planted on the electrical line trench footprint.

*Waterline Extension:* Up to 1,400 sq. feet of broom crowberry (55 plants) would be impacted. Overstory vegetation removal would subject plants to more sunlight and exposure. Mitigation would include transplanting impacted plants back on the waterline trench footprint.

*Transit Shelter:* This project will not impact broom crowberry.

*Fire Cache Construction:* Twenty-two broom crowberry plans would be transplanted to an area free from overstory trees (to the proposed site of the re-

located fire weather station (approximately 110 feet west of their original location)).

Together the construction, paving and trenching associated with these projects would result in translocating of up to 22 plants and transplanting of up to 65 plants back to their original location. The maximum total area of plants that would require translocation and transplanting is 2,000 sq. feet.

## **PROPOSED MITIGATION MEASURES**

### **Avoidance of direct impact**

Where and whenever possible the NPS would avoid broom crowberry plants and soil around plant root systems during project phases. Plants avoided, but in construction paths, would be surrounded by symbolic fencing (e.g. flags, construction fence, or barricades) to prevent impacts. Workers would be given a briefing on broom crowberry identification, ecology and avoidance techniques. NPS estimates that up to 10% of broom crowberry impacts in project footprints (200 sq. feet and 10 plants) could be mitigated by direct avoidance.

### **Transplanting**

The NPS would provide a botanist, forester or ecologist familiar with heathland plant communities to oversee transplanting. Transplanting, or relocating of all plants back to their original location (i.e. after trenching waterlines or electrical wire), would be done using shovels for small plants and a power equipment bucket or a transplanting attachment for larger plants. Preferred timing for transplanting would be October through March, however could occur in any month. Plants would be removed with a minimum of 12 inches of surrounding soil to include as much root/rhizome material as possible with the transplant. Plants removed would be supported on a solid frame if soil contact with roots could not be maintained. Transplanting would occur as quickly as possible, not exceeding two hours unless watered, and not more than six hours after removal. Following transplanting, plants would be soaked with water to maximize soil contact with roots. Watering would continue as needed to maintain adequate soil moisture for plant survivability. NPS fire crew and engines are available for watering as necessary.

### **Transplant monitoring**

Each transplant would be identified and numbered with a flag, monument or both. The NPS would provide trained staff under the direction of a botanist, forester or ecologist to monitor and irrigate transplants as needed at least weekly for the first ten weeks following transplanting and monthly thereafter during the first growing season (April – September). Plant condition would be recorded for each monitoring period the first year and annually through 2014.

## **Non-native plant removal**

During monitoring periods the NPS would identify and remove alien, non-native plants from areas in and adjacent to construction or trenching footprints and from transplant areas. An annual summary documenting the location and number of non-native species of plant removed will be made through 2014.

## **MARCONI AREA HABITAT MANAGEMENT**

The NPS would make good faith efforts to conduct the activities listed above to mitigate direct effects to broom crowberry from proposed projects. In the Marconi Area three additional programs would be planned to provide for enhanced broom crowberry habitat.

### **Thinning**

The NPS would continue implementation and execution of a wildland fire fuel reduction program in 2009. The program would remove suppressed pitch pine, dense shrub patches, and most non-native (primarily black locust) trees from 300 foot buffer zones along roads and around buildings in the Marconi Area. In the buffer zones forest growth has encroached upon extant broom crowberry patches resulting in plant mortality or plants of poor vigor. The NPS Fire Management Officer estimates that over 200 broom crowberry plants would be released from overstory shading. Total acreage planned to be treated in 2009 would be 7.0 acres.

### **Monitoring of burn pile footprints**

The NPS would conduct annual monitoring for six years of 40 burn pile footprints created during fuel thinning operations in the Marconi Area in 2008. Schall (2005) described successful germination of broom crowberry in the Marconi Area where brush was piled and later burned. Up to 75% of the burn pile footprints had broom crowberry seedlings two to five years after the brush piles were burned. On each burn pile footprint created in 2008 the NPS would: GPS the location, reference each pile with an 8 inch metal marker, take an oblique angle photograph, determine the cardinal direction and measure the distance to the nearest broom crowberry plant.

### **Broom crowberry research**

The NPS would work with researchers hired by Oxbow Associates to facilitate conservation research components regarding broom crowberry ecology; specifically assisting with a tri-seasonal burn plot study and supporting a 10 year heathland monitoring project. This research would be conducted on NPS lands

beginning in (anticipated) 2008. NPS researchers and fire management personnel would assist with both projects.

## **REPORTS**

The NPS would prepare a monitoring report on Marconi Area broom crowberry transplanting, monitoring and research activities. Descriptions of transplanting methods and general monthly weather would be included. Photographs and observations of plant morphology and vigor would be prepared for each transplant and burn pile footprint. Treatment descriptions and total acres of improved broom crowberry habitat through wildland fire fuel reduction projects would be included. Reports would be prepared by December 31 of each year through 2014. One copy would be annually sent to NHESP and copies would be maintained at Cape Cod National Seashore Natural Resource Programs and Fire Management Offices.

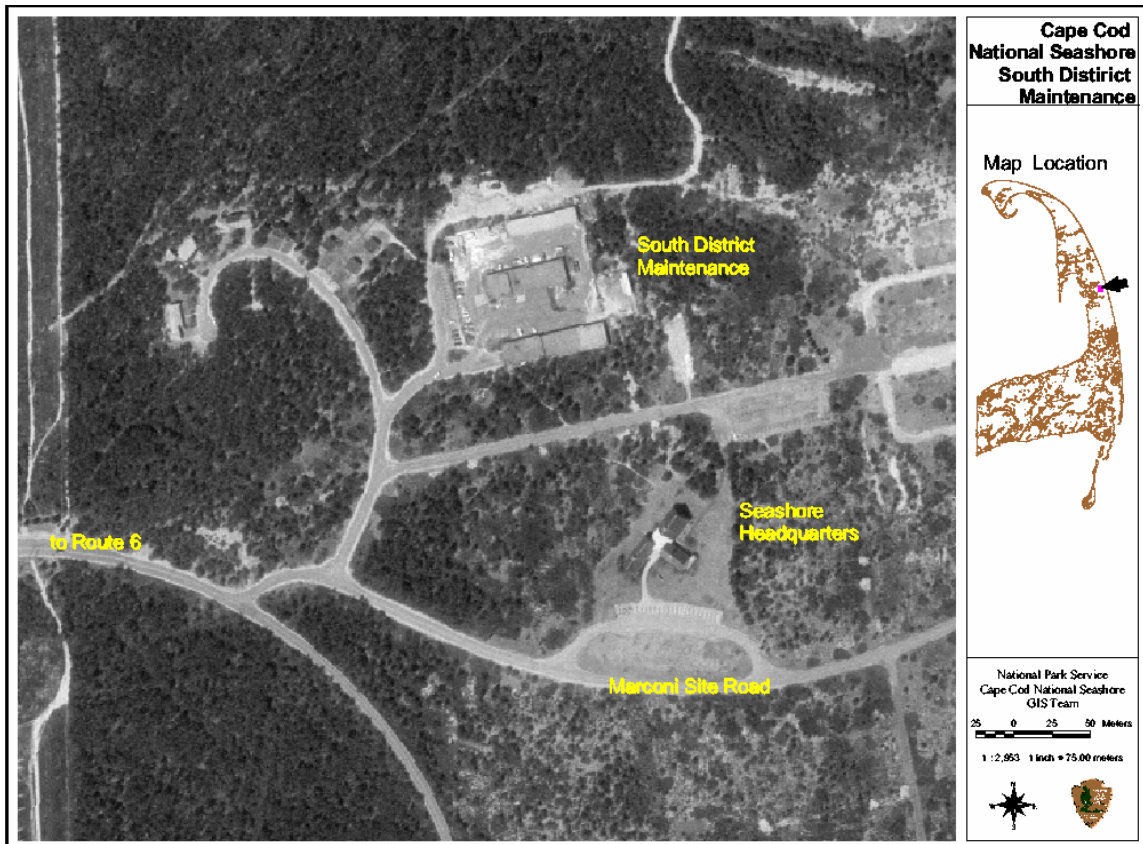


FIGURE 1. Marconi Area Locus and Aerial View

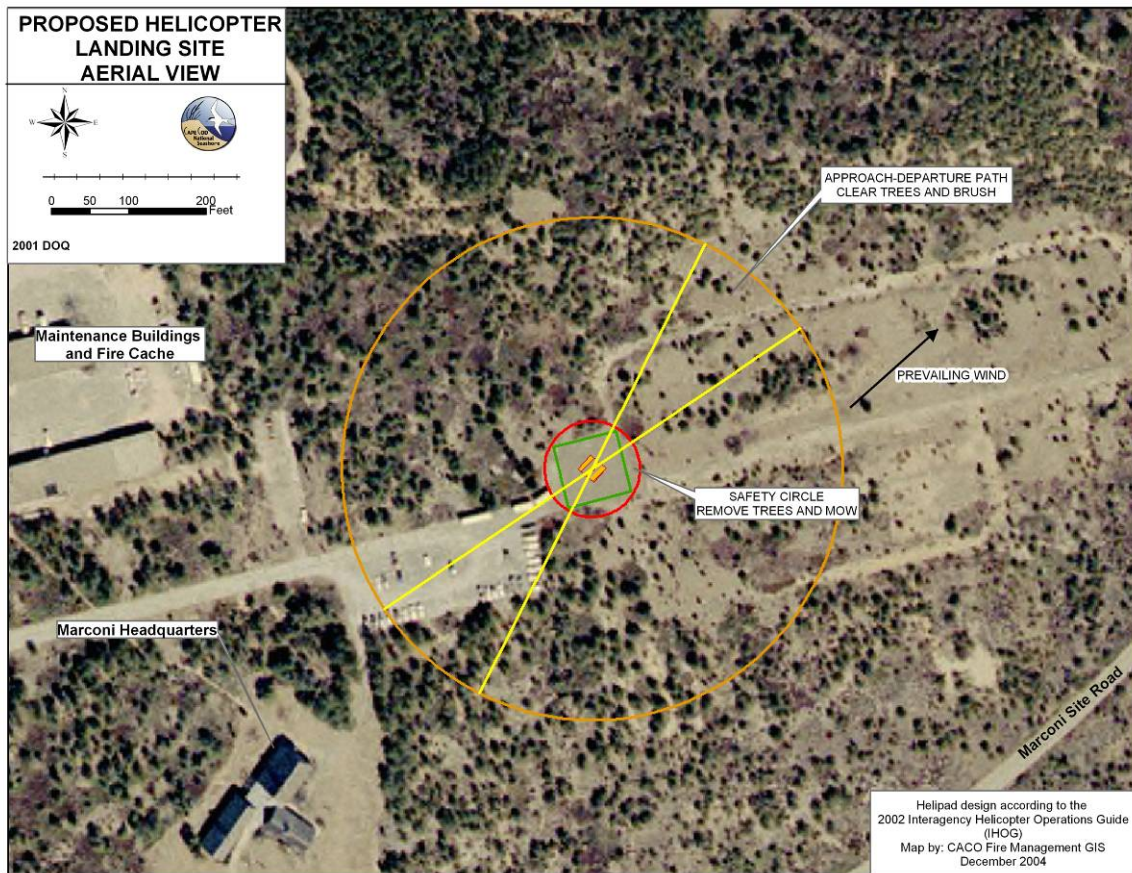


FIGURE 2. Proposed Helipad Aerial View

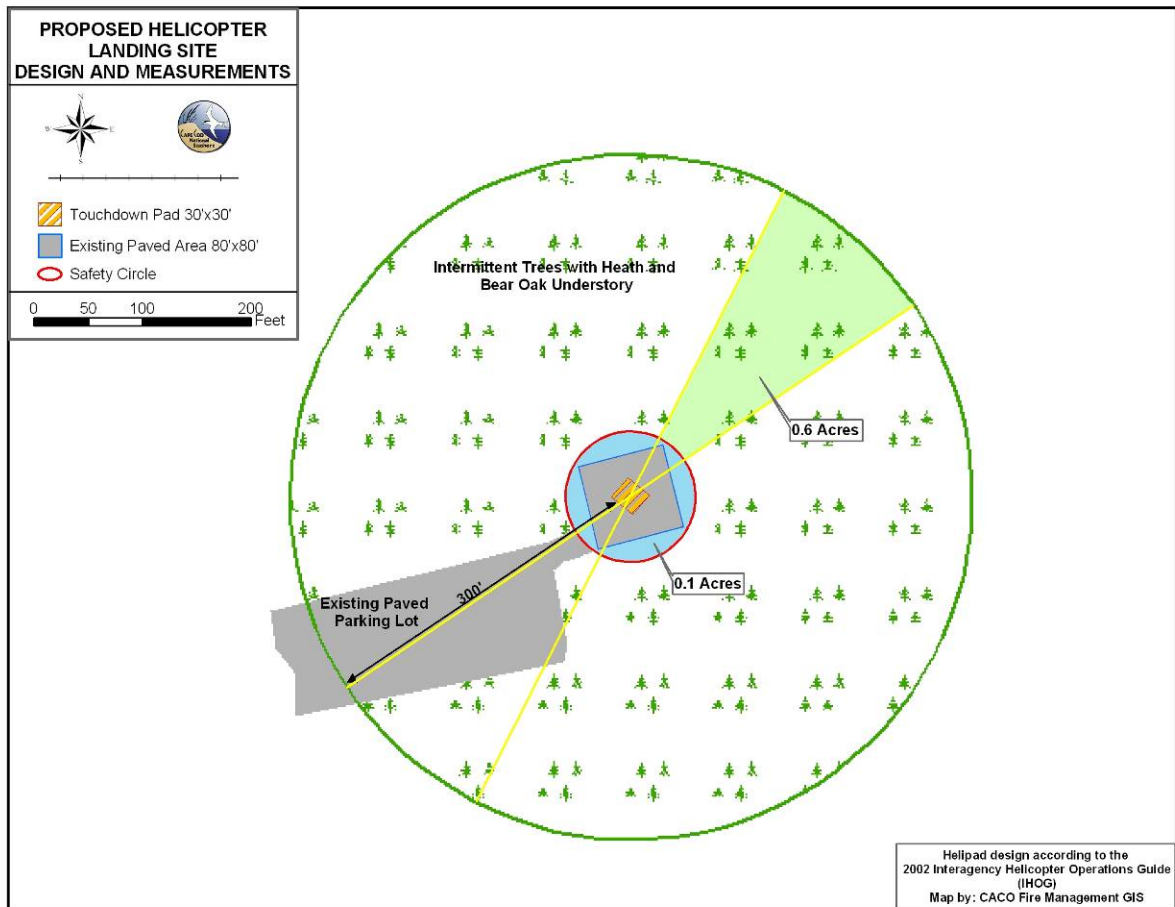


FIGURE 3. Proposed Helipad Design and Measurements



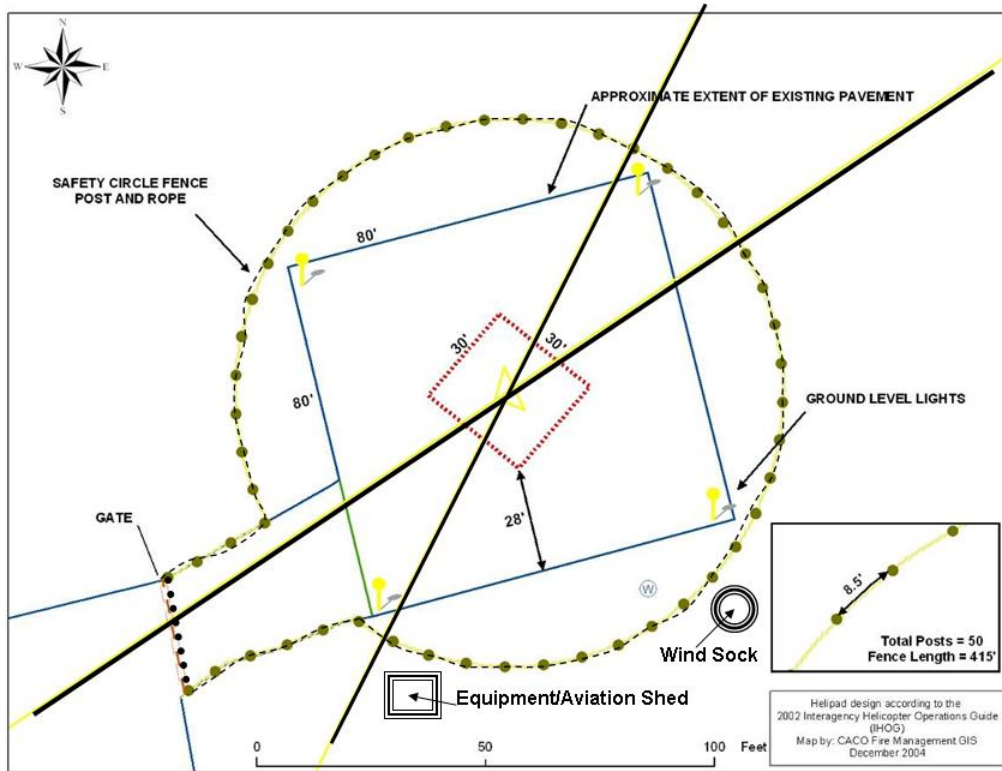


FIGURE 4. Helipad Improvement – Fencing, gate, equipment shed and windsock location(s).



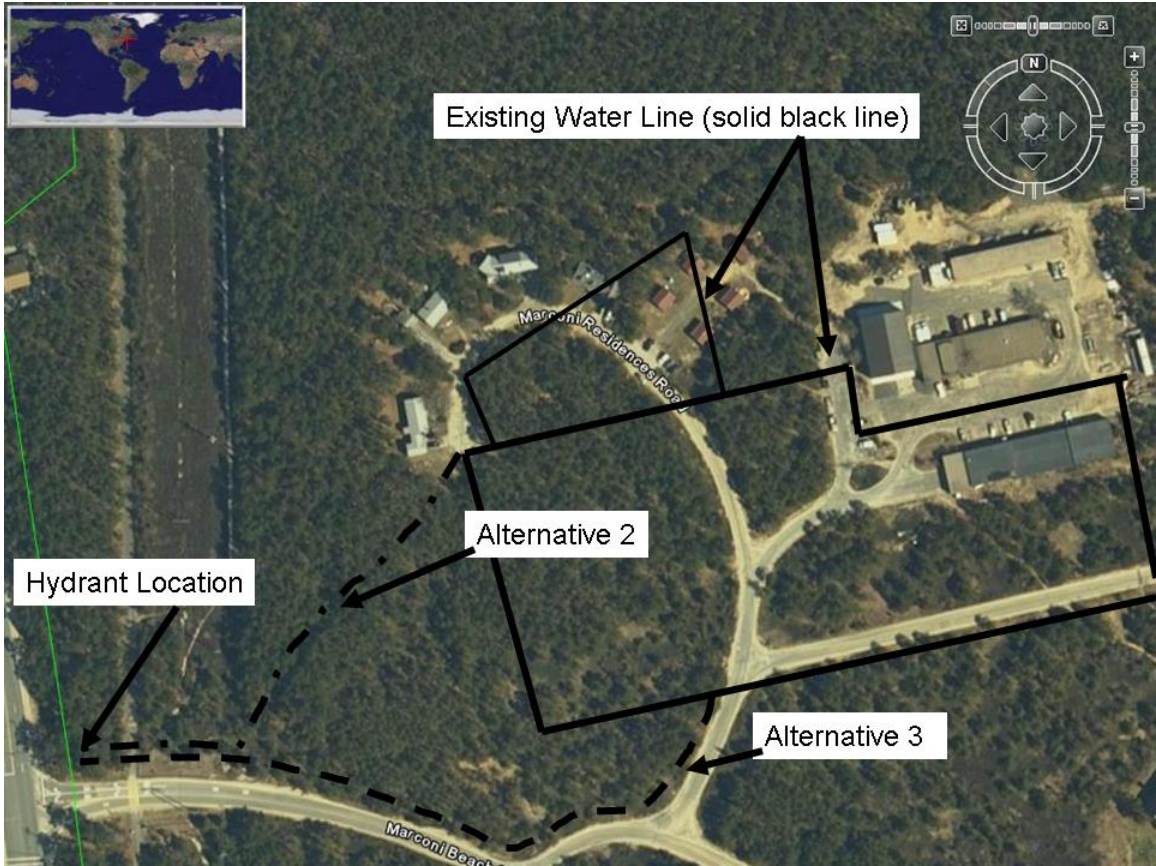
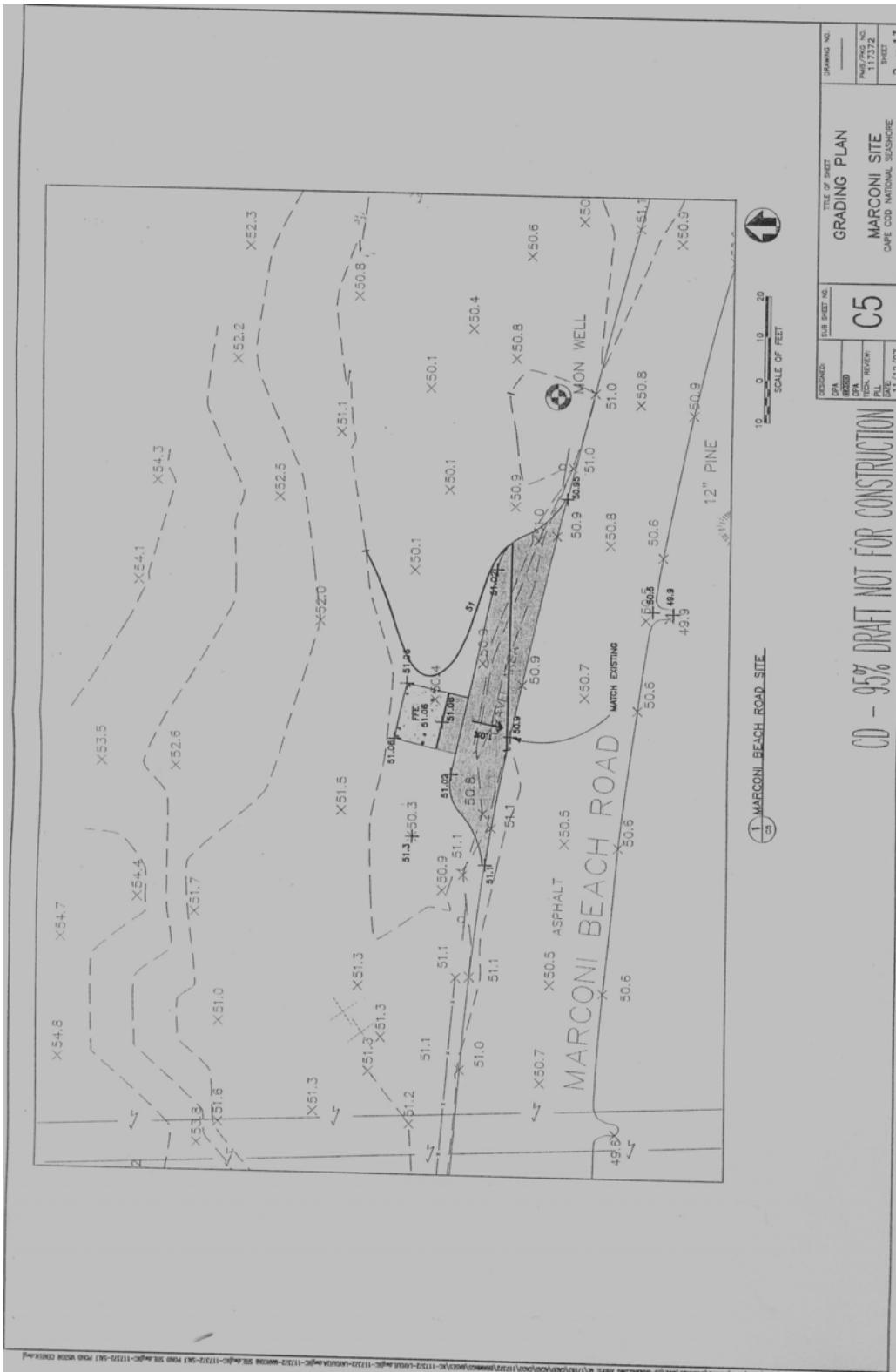


FIGURE 5. Waterline and Hydrant Extension Alternative 2 and Alternative 3



DESIGNED	DATE	SCALE	SHEET NO.
DPA	11/12/07	1" = 20'	
CHECKED	DATE	SCALE	DRAWING NO.
DPA	11/12/07	1" = 20'	
TITLE OF PROJECT			SHEET
GRADING PLAN			
PROJECT NAME			SHEET
MARCONI SITE			
PROJECT LOCATION			SHEET
CAPE COD NATIONAL SEASHORE			

00 - 95% DRAFT NOT FOR CONSTRUCTION

1 MARCONI BEACH ROAD SITE

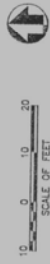


FIGURE 6. Transit Shelter Grading Plan

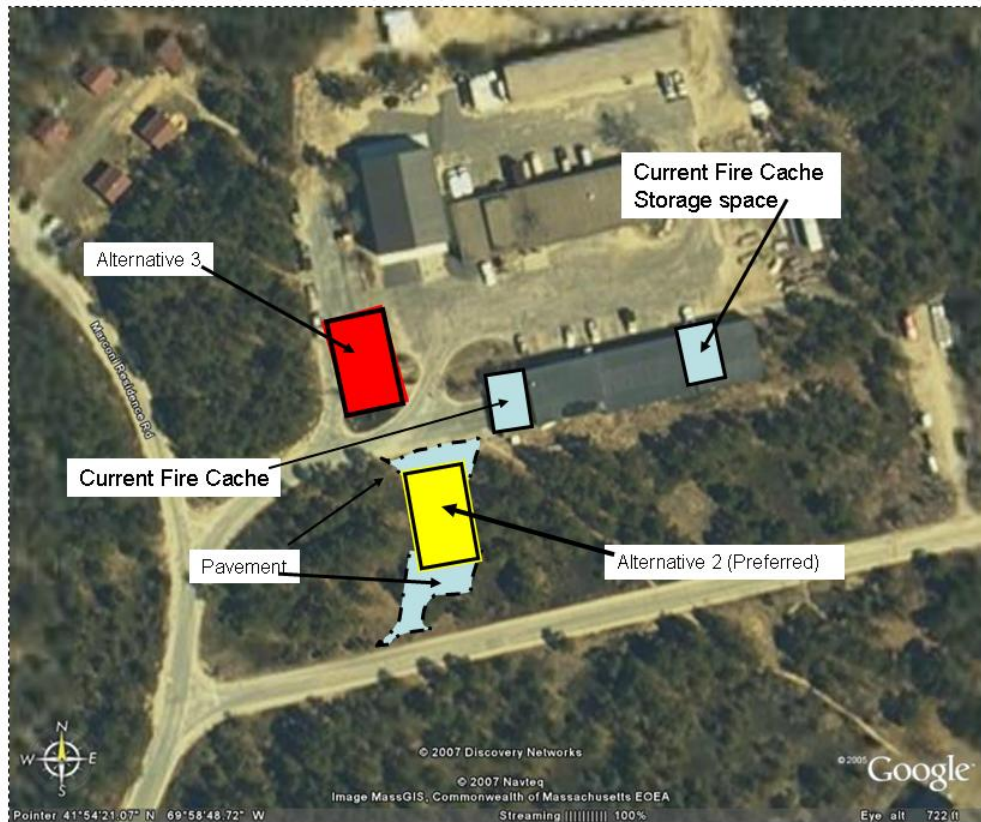


FIGURE 7. Proposed Fire Cache Location, Alternative 2 and Alternative 3

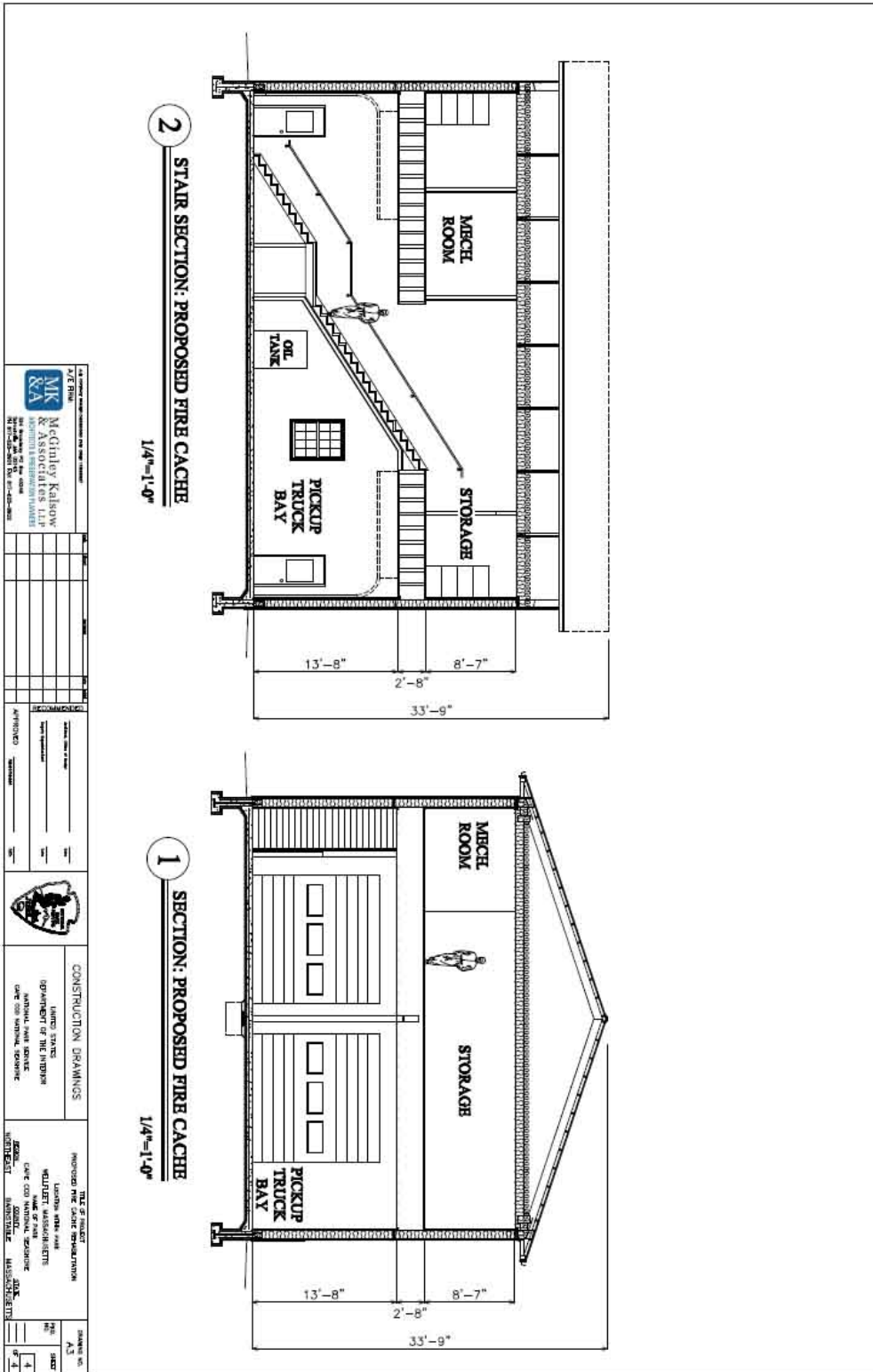


FIGURE 8. Proposed Fire Cache

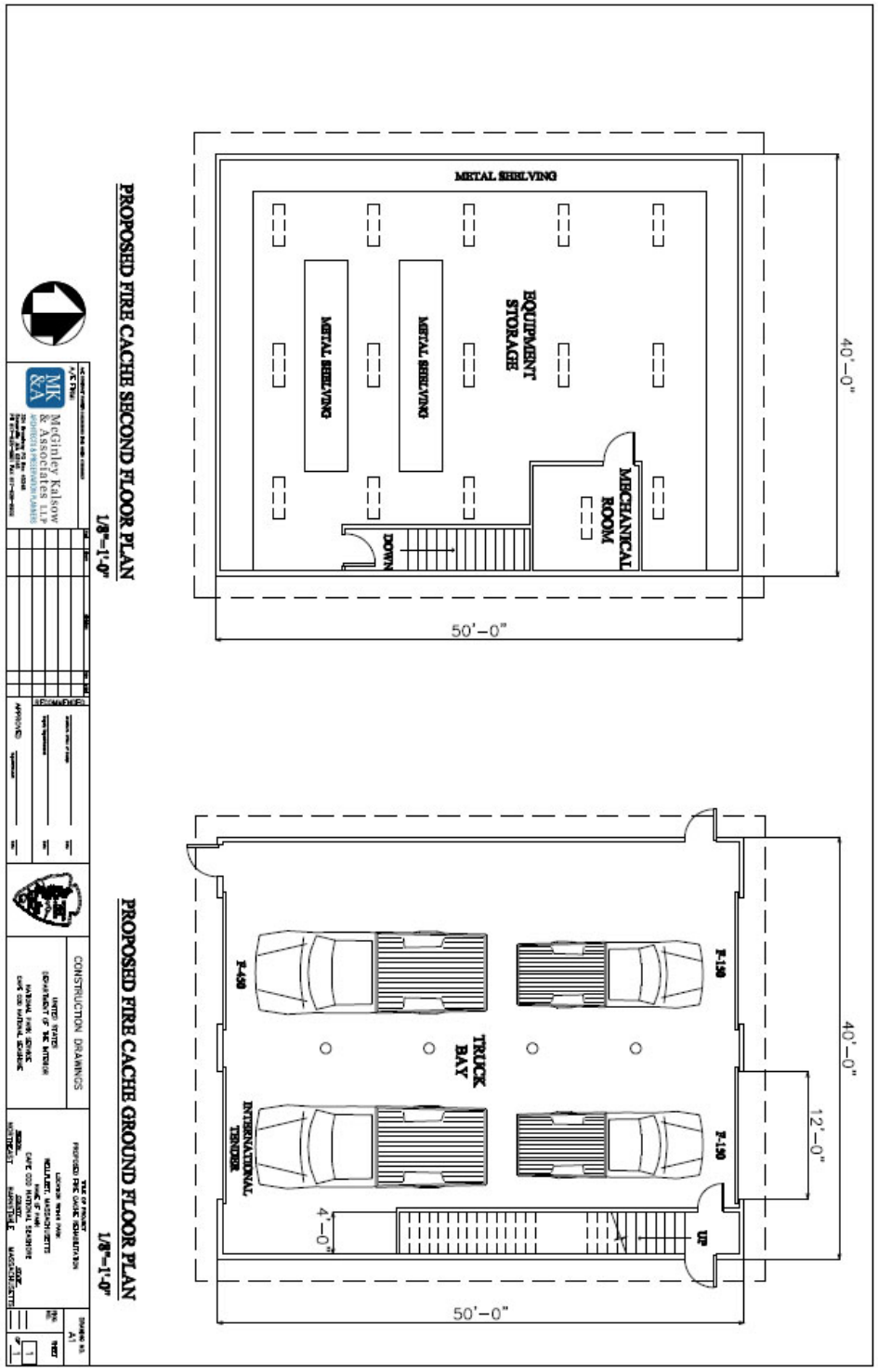


FIGURE 9. Proposed Fire Cache Floor Plan