

**ENVIRONMENTAL ASSESSMENT and HABITAT CONSERVATION
PLAN for ISSUANCE OF AN ENDANGERED SPECIES ACT SECTION
10(a)(1)(B) INCIDENTAL TAKE PERMIT for the PIPING PLOVER
(*Charadrius melodus*) to the MAGIC CARPET WOODS ASSOCIATION**

Section 14, Leelanau Township, Leelanau County, Michigan

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**United States Fish and Wildlife Service
East Lansing Field Office
2651 Coolidge Road
East Lansing, Michigan**

Habitat Conservation Plan Submitted by:

**Magic Carpet Woods Association
311 Knollwood Drive
Traverse City, Michigan**

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1. PROJECT PURPOSE AND NEED

1.1 Background

The Magic Carpet Woods Association (Association), in anticipation of the residential use and occupancy of the Magic Carpet Woods Property, has prepared and submitted to the US Fish and Wildlife Service (Service, FWS or we) a permit application for incidental take under section 10(a)(1)(B) of the Endangered Species Act (Act or ESA) of 1973, as amended. The 91-acre Magic Carpet Woods Property (Property) is located in the east half of the southwest quarter and the west half of the southeast quarter of Section 14, T32N, R11W, Leelanau Township, in Leelanau County, Michigan (see Appendix 10.1). The parcel is currently platted for 13 lots along approximately 2,600 feet of frontage on Lake Michigan. A fourteenth lot fronts on nearby Kehl Lake and does not have Lake Michigan frontage or access.

The piping plover (*Charadrius melodus*), a species federally listed as endangered in the Great Lakes, has been documented nesting approximately one half mile east of the Property on Leelanau State Park. Given the proximity of breeding piping plovers to the Property, the potential use of the Property for plover foraging, and the potential for coastal processes to create suitable nesting habitat on the Property sometime in the future, the Service recommended that the Association apply for an Incidental Take Permit (ITP) under section 10(a)(1)(B) of the ESA. This recommendation was based on the Service's view that incidental take of the plover or its habitat might occur as a result of human use of the beachfront and potential indirect effects of the residential home construction. Although there is no current record of plover use or occurrence on the Property, the beachfront area is considered appropriate foraging habitat. In addition, the beach frontage of the Property (outside the construction area) has been proposed for designation as critical habitat for the piping plover by the Service (65 Federal Register 41812, July 6, 2000). The Association has prepared a Habitat Conservation Plan (HCP) to address the potential effects of residential use and occupancy on the piping plover.

The area in which any homes would be constructed lies within the forested portion of the Property, landward of the beach and dunes. As a result, direct effects of home construction would occur outside of the potential habitat areas. Activities related to the project that might potentially affect plover habitat include the human use of the Property beach and the limited construction of boardwalks from the lots to access the beach. Lot owners will undertake and have responsibility for these activities. The Property will be managed as a site condominium pursuant to a Master Deed under the Michigan Site Condominium Act. All unit owners will be members of the Association, a nonprofit corporation organized to manage, administer, and maintain the Magic Carpet Woods site condominium. The presently incorporated Association is the applicant for the section 10 permit addressed in this document.

The Property was subdivided into six tax parcels with five different property owners for many years prior to the listing of the piping plover and prior to the further subdivision of the two large westernmost tax parcels into nine lots. Together with the four previously platted lots on the eastern end of the Property, a total of 13 lots will have beach frontage and access. The final site plan for the Property, including the number and size of lots as described in Alternative 2, was approved by Leelanau Township on June 8 1999, following a process that began in 1996.

This document is the Environmental Assessment (EA) required by the National Environmental Policy Act (NEPA) as documentation for a Federal action—the issuance of a permit under section 10(a)(1)(B) of the Endangered Species Act—and includes the conservation plan required by ESA section 10(a)(2)(A). The ITP proposed here does not regulate the construction or development of the lots on the Property in the project area. Those matters are decisions left to the state and local land-use planning authorities including the State of Michigan, Leelanau County, and Leelanau Township. The proposed ITP addresses the potential future uses and activities on the beach and residential occupancy uses (such as refuse handling) where piping plover may be indirectly affected by human recreational use and the activities from the Magic Carpet Woods project.

1.2 Purpose

This EA evaluates an application for a permit submitted by the Association to allow the incidental take of federally listed piping plover that may result from human recreational use of the beach on the Property. These actions would include limited boardwalk construction from residential residences on the Magic Carpet Woods Property to the beach, and the indirect effects of residential occupancy of the lots. The purpose of the section 10(a)(1)(B) permit is

to ensure that any incidental taking that might occur will be minimized and mitigated to the maximum extent practicable and will not appreciably reduce the likelihood of the survival and recovery of this species in the wild. The proposed permit term is 25 years. The Association has voluntarily submitted the application as a means of complying with the ESA and to minimize the risk to future landowners of enforcement action under ESA section 9. The submission of the ESA section 10(a)(1)(B) permit application requires the development of an HCP designed to ensure the continued existence and aid in the recovery of the listed species while allowing for any limited, incidental take of the species that might occur during the construction and operation of the residential housing project. The implementing regulations for section 10(a)(1)(B) of the Act, as provided at 50 C.F.R. 17.22, specify the requirements for obtaining a permit allowing the incidental take of listed species pursuant to otherwise lawful activities. The HCP for this project is presented in Section 8.0 of this document.

1.3 Need

The application for an ITP and development of an HCP are voluntary steps and are undertaken by a landowner to ensure that any incidental taking (either through direct harm or significant habitat alteration) resulting from an otherwise lawful activity (such as the Magic Carpet Woods project) does not violate the take prohibition of ESA section 9. The Service is selecting an option that will not harm the future recovery of the Great Lakes piping plover population, and if possible, will enhance it. Economic return, efficiency and marketability are factors in determining the practicability of the appropriate option, so the Service also is selecting an alternative that meets the landowners' needs in these areas. The Service has no ability under the ESA to preclude or control development on private land although it may influence such development through the HCP/ITP process. The Service therefore seeks to work in partnership with private landowners to protect the piping plover in a reasonable fashion that meets the basic needs of the species and interested parties. Finally, the Service seeks protective solutions for the plover that can be used as a model to encourage other private or non-federal landowners to voluntarily enter agreements in order to protect appropriate beach habitat on as much private land as possible for the recovery of the population.

1.4 Public Participation

Public participation consisted of three separate 30-day public comment periods announced in the Federal Register April 20, 2000, November 13, 2000 and December 21, 2000. See Section 7, PUBLIC COMMENT AND RESPONSE, below for details.

2. ALTERNATIVES

2.1 Alternatives Considered but Not Analyzed in Detail

A residential project in another area of the Leelanau peninsula without Lake Michigan frontage and as a result, without impact to the piping plover, was considered. This alternative assumes the applicant could equitably divest the subject property and place the project elsewhere thereby removing the potential for take of the plover arising from the effects of residential use and occupancy. This alternative is not practicable and is not considered further.

There are numerous ways in which a varied number of individual houses or multi-unit residences may be arranged on this property. It is not efficient or meaningful to consider or analyze in detail many such alternatives. The property owner has the reasonable right to determine how to use this property. This EA is limited to analysis of a range of reasonable alternatives selected to reflect several scenarios, with or without an ITP and HCP.

2.2 Alternatives including the Proposed Action and No Action

2.2.1 Alternative 1 – No Action Alternative

Under the No Action Alternative, the Service would not issue an ITP and no HCP would be implemented. Construction and occupation of houses on 13 or 14 individual lots in the same manner and locations described in Alternative 2 would still take place on the Magic Carpet property. No restrictions regarding piping plover protection would be placed on any owners. The 52-acre conservation easement would be included as described in Alternative 2. The individual owners and/or the Association would assume the risk of liability for any ESA section 9 violations

(take) that might occur. The Service would consider documented death, injury or disturbance of piping plovers a potential violation of ESA section 9 and could take appropriate criminal and or civil enforcement action.

2.2.2 Alternative 2 – Proposed Action

The proposed action is the issuance of an ITP under section 10(a)(1)(B) of the Act to authorize the incidental take of endangered Great Lakes piping plovers that might occur from the human use of the beachfront area attributable to construction and occupancy of residences and limited boardwalk construction on the Magic Carpet Woods property. The anticipated impacts of the proposed action are addressed in Section 4.3. An HCP (see Section 8, below) has been developed as part of this alternative to minimize and mitigate for any incidental taking of the plover that might occur. This alternative is preferred because it would allow for the use of the property in accordance with the owners' esthetic, financial and other requirements, with a conservation plan that would minimize and mitigate the potential impacts to the plover by providing for specific conservation and protection measures.

The proposed action or project would consist of 14 lots on approximately 91 acres that are currently unoccupied except for the improved access road constructed in 2000 (Figure 1, Appendix 10.1). The improved road provides access from the existing public road (Kehl Road) to the homesites. The access road and its 66 foot-wide easement encompass approximately 3 acres of the Property. Individual lot owners would be responsible for home construction, including driveways off the access road.

Kehl Road provides access to the southern portion of the property. The residential lots would occupy approximately 35.7 acres of the Property and range in size from 1.77 to 3.99 acres, having an average size of approximately 2.55 acres. To preserve the integrity of existing resources on the property, approximately 52 acres, or 57% of the property, is preserved by a conservation easement. The plan specifies 14 residential lots. The Property owners have provided the Leelanau Conservancy the first right of refusal to acquire lot 14 located adjacent to Kehl Lake. If the Conservancy purchases lot 14, only 13 lots would be available for home construction and occupancy. Regardless, only 13 lots would have access to Lake Michigan and the beach.

Activities related to the project include the future construction of homes and decks and human use of the Property's natural resources. Lot owners would undertake and be responsible for these activities. State law (Part 353, Sand Dune Protection and Management, of PA 451, as amended, Natural Resources and Environmental Protection Act, of 1994), local ordinances (Leelanau Township Zoning Ordinance, Article XXVIII), the Master Deed and Association Bylaws, and the interest of the property owners in maintaining the ecological integrity of the Property, impose a number of restrictions which affect the location of structures.

Homes and decks would be located entirely within the forested portion of the Property and would not occur within 80 feet and 65 feet, respectively, of the lake's ordinary high water mark. Walkways may be constructed across the dunes to safely access the beach and to minimize impacts to sensitive plants by confining pedestrian activities. The structures would be at ground level and would lack handrails. The dune area across which walkways may be constructed is not plover nesting or foraging habitat. A 1998 botanical (NES 1998) survey identified locations of Pitcher's thistle and other plants, but Pitcher's thistle locations would be reidentified immediately before construction of any walkways. Other structures would be prohibited within the dune and beach area. Off road vehicle use would be prohibited at all times.

Future homeowners of the property would likely use the shoreline for sunbathing, strolling, or more active physical activities such as jogging. The HCP includes measures to minimize the potential effect of these typical shoreline activities on the piping plover. For example, lighting fires, fireworks or the discharge of firearms during the nesting period would be prohibited within 600 meters of a known piping plover nest site. The use of ORVs (off road vehicles) would be prohibited at all times. All pets must be restrained or under direct control while outside on the property. Pets must always be on a leash when on the beach during the critical nesting period (i.e. when nest site selection activities commence until offspring are able to fly, assuming offspring reach this stage of development). This period would run from April 15 through June of each year, or until all piping plover chicks hatched from nests on or within 0.5 miles of the project property are 35 days old.

The HCP would allow for access to the Property by Service, Michigan Department of Natural Resources (MDNR) or other agency approved piping plover biologists or stewards to monitor for the presence of nesting or foraging

plovers, to erect and maintain nest predator exclosures and to interact with and advise the Association as to current plover presence and behavior. The Association would join efforts with ongoing Service or MDNR plover monitoring and fund its share of plover monitor or steward costs if possible. The Association would be responsible for providing plover monitoring and stewardship independently if circumstances prevent joining with agency efforts.

As additional mitigation, the Association will contribute, upon the first sale or transfer of ownership of each of the 13 lots with Lake Michigan frontage, \$1,000 to provide total mitigation funding not exceeding \$13,000. This funding will be invested in a trust account that could include funding from other sources. The account would be used to fund piping plover research, monitoring, or recovery efforts conducted in the Great Lakes region. Table 1 summarizes the features of the HCP.

Table 1. Summary of Key Mitigation and Minimization Measures in the HCP (Section 8.1)

Minimization	Mitigation
<ul style="list-style-type: none"> • Use restrictions including beach passage and picnic restrictions • Predator control program • Limits on shoreline construction and use • Limits on construction activities beyond shoreline • No docks on Lake Michigan • Limits on alteration of dune vegetation • Pet control restrictions • Garbage control provisions • No vehicle use on beach at any time 	<ul style="list-style-type: none"> • Monitoring access and funding • Nest protection provisions • On-site steward funding for nest exclosure creation and maintenance • Association provides single point of contact and interface with Service and other agencies on piping plover matters instead of dealing with individual lot owners • Piping plover additional mitigation funding (see HCP, Section 8.1, #30)

2.2.3 Alternative 3 – Alternative Site Design A

Alternative 3 would result in the issue of an ITP and implementation of the same HCP, but houses would be constructed on up to 18 residential lots with lake Michigan beach access (Figure 2, Appendix 10.1). The current local zoning allows for up to 18 lots, each approximately five acres in size and spaced relatively uniformly in 2 tiers of 9 lots throughout the 91-acre site. The access road is present and would not be altered, but additional driveways to access each home site would need to be constructed. Due to the lot size and spacing there would be no 52-acre conservation easement within the forested portion of the property. Minimization and mitigation measures would be essentially the same as those in the proposed HCP (Section 8), although they would be modified slightly to account for the additional lots and the fact that although all 18 lots would have Lake Michigan beach access, not all 18 lots would have beach frontage.

2.2.4 Alternative 4 – Alternative Site Design B

Alternative 4 would result in the issue of an ITP and implementation of essentially the same HCP, but houses would be constructed only on the six original 1974 platted tax parcels (Figure 3, Appendix 10.1) with Lake Michigan shoreline frontage. There would be no 52-acre conservation easement within the forested portion of the property. Lot size for this alternative is an important feature. Lots 1 - 4 would have 250' lake frontage, lots 5 and 6 would have, respectively, approximately 325' and 1,317' of lake frontage. All lots would be considerable larger. The access road described in Alternative 2 is present, but this alternative would result in fewer driveways. The HCP would be essentially the same as with the proposed alternative although implementation and mitigation funding would be reduced because there would be fewer contributing Association members.

2.2.5 Alternative 5 –Deed Restrictions Similar to Other Private Parcels on Cathead Bay

This alternative would have the same configuration and number of lots as Alternative 2, including the 52-acre conservation easement. However, instead of the proposed ITP and HCP, Alternative 5 potentially would use individual piping plover protection plans applied through deed restrictions similar to those that the Service has used with other single lot property owners around Cathead Bay and elsewhere in Michigan. The Service would need to

negotiate deed restrictions separately with each property owner. No legal authority compels the use of deed restrictions, so some or all owners could refuse them. In the event violations of ESA section 9 prohibitions occur, the Service could consider criminal or civil enforcement actions. There are no provisions for coordinated plover conservation and protection with this alternative. This alternative would not include mitigation funding. The Service would continue to monitor deed restriction implementation and provide technical assistance through each individual lot owner.

A generic Piping Plover Protection Plan is presented in Appendix 10.2. This plan has typical provisions designed to avoid disturbing nesting and foraging plovers and their habitat. These provisions include: providing evidence the plan has been recorded as a deed covenant which binds the present and future owner to protect piping plover and their habitat on the property; preventing destruction of plover nests, eggs or their young by humans, pets or feral animals; pet restrictions; reporting of stray pets; allowing access to the property by Service or MDNR for monitoring and protection (signing, psychological fencing, and placement of nest cage/predator exclusion devices); preserving existing natural plover habitat on the property; avoiding construction, repair, or improvement work involving loud noise or machinery during the nesting season; avoiding construction of permanent structures on the beach; avoiding placing towering structures on the property from the waters edge to the lake side of the barrier dune; avoiding all beachfront activities within any posted piping plover nest site(s) or closed areas; keeping trash and garbage in covered animal-proof containers; prohibiting operation of off-road vehicles or any other motorized vehicles on the beach during the nesting season; and advising visitors, renters and lessees of plover restrictions.

In some cases of new construction on individual private lots or remodeling of existing single family residences on private lots fronting on Cathead Bay, the Service has requested that property owners sign a Piping Plover Protection Plan, record the plan on the property deed, and provide the Service with evidence of the deed recording. By this action, present and future owners are informed about the conservation needs of the piping plover and agree to protect the plover and its habitat on the property. These voluntary plans have been used elsewhere in the Great Lakes region, such as at Grand Marais along Lake Superior, in circumstances where individual landowner actions are small and the potential for adverse effects to the piping plover are not significant or discernible enough to violate ESA section 9. Some minor changes to protection plans for different landowners have occurred, but in most instances, the plans are not site-specific; the same plan is used for all landowners.

A recorded protection plan would provide documentation of communication and an understanding between the Service and the landowner about what would be necessary and expected for piping plover protection. This method could be completed quickly. It would not be a formal procedure under the ESA, and would not involve an ITP under ESA.

2.2.6 Summary of Alternatives

Table 2 summarizes the alternatives described above.

Table 2. Summary of Alternatives

Characteristics	Alternative Number				
	1	2	3	4	5
Alternative Name	No Action	Proposed Action	Alternative site design A	Alternative site design B	Deed Restrictions
Number of lots with beach access on Cathead Bay	13	13	18	6	13
Location of lots	in forest along beach as in Alt. 2	in forest along beach	evenly spaced and sized lots in forest area, half without beach frontage	uneven sized large lots in forest with beach frontage	in forest along beach as in Alt. 2
52-acre Conservation Easement	Yes	Yes	No	No	Yes
Issuance of ITP with HCP	No	Yes	Yes	Yes	No

Characteristics	Alternative Number				
	1	2	3	4	5
Regulation of pets and human activities potentially impacting plovers	No	Yes	Yes	Yes	Only as per general deed restrictions
Biological monitoring and plover stewardship activities supported	No	Yes	Yes	Yes	No

3. DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 Site Description

Presently, the Property consists of 14 platted lots; prior to the subdivision it consisted of six tax parcels. Only the two westernmost parcels (approximately 64 acres) were subdivided in 1998; the remaining four lots were not subdivided. The property is located in the east half of the southwest quarter and the west half of the southeast quarter of Section 14, T32N, R11W, Leelanau Township (Figures 4 and 5, Appendix 10.1). The property contains approximately 2,600 feet of frontage on Cathead Bay of Lake Michigan. The shoreline of Cathead Bay is approximately 5 miles in length, including approximately 1.5 miles of undeveloped State Park land immediately east of the Property. Residential home construction of varying density exists on the remaining Cathead Bay shoreline. Just north/east of the Park a dense development with homes is situated directly in open dunes immediately behind the beach.

3.2 Vegetation

The project area occurs within the Leelanau district, Traverse City subdistrict of the regional landscape ecosystems of Michigan (Alberts *et al.*, 1986). Drumlin fields and a climate dominated by lake influences characterize this subdistrict. The majority of the site consists of mesic northern forest, along with open dune and Great Lakes barrens communities.

A botanical survey of the Property was prepared June 24, 1998 by Northern Ecological Services, Inc. (NES 1998). A total of 103 vascular plant species were identified at the site. Three distinct ecological areas were found in association with the property: the forested portion of the site (approximately 88 acres), Kehl Lake, and the shoreline of Lake Michigan. Because only the Lake Michigan shoreline provides potential piping plover habitat, the discussions below are focused on that area.

Open Beach/Dunes

Along the lakeshore, open beach and dune occupy a narrow band between the dense mixed forest and Lake Michigan. Within the western two-thirds of the Property, the unvegetated beach has varied from approximately 30 feet wide in 1998 to 45 feet wide in 1999. The open, vegetated dune area is approximately 40 feet wide and extends to an abrupt lip. This portion of the vegetated dune slopes upward to a narrow (20 feet wide) strip of mixed woody/herbaceous vegetation. The open dune community widens notably in the eastern one-third of the Property and a sizeable, stable blowout occurs within the eastern-most side of the Property within Lots 1 and 2.

Marram grass (*Ammophila breviligulata*) dominates the strip of dune just landward of the open beach, although *Agropyron dasystachyum* (a grass) is also prevalent in areas likely receiving slightly less disturbance. In somewhat more stable areas of the dune, such as at the top of the beach grass strip and in the blowout, little bluestem (*Andropogon scoparius*), wormwood (*Artemisia campestris*), hoary puccoon (*Lithospermum carolinense*), and bearberry (*Arctostaphylos uva-ursi*) are present. Other common species include bluebell (*Campanula rotundifolia*), beach pea (*Lathyrus japonicus*), sand cherry (*Prunus pumila*), red-osier dogwood (*Cornus stolonifera*), poison ivy (*Toxicodendron radicans*), bladder campion (*Silene vulgaris*), and creeping juniper (*Juniperis horizontalis*).

Great Lakes Barrens

This community occurs within stabilized blowouts including a depression behind the foredune in the eastern portion of the Property within lots 1-3. A few scattered trees (white cedar (*Thuja occidentalis*), paper birch (*Betula papyrifera*), red oak (*Quercus rubra*) are present. However, the majority of this habitat features shrubs (creeping juniper, common juniper (*Juniperus communis*), bearberry) and areas vegetated by only herbaceous species such as marram grass, sand reed, hoary puccoon, bluebell, and the federally listed Pitcher's thistle (*Cirsium pitcheri*).

3.3 Wildlife

The Magic Carpet Woods Property provides habitat for variety of wildlife species. Although no project-specific surveys were conducted on the Property, the mesic northern forest community, which characterizes the entire Property except for the relatively narrow beach/dune portion, can be expected to support mammal and bird species typical for this habitat type in Michigan. These species include: fox and gray squirrels (*Sciurus niger* and *S. carolinensis*, respectively), eastern chipmunk (*Tamias striatus*), white footed mouse (*Peromyscus leucopus*), white tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), ovenbird (*Seiurus noveboracensis*), scarlet tanager (*Pirango olivacea*), northern oriole (*Icterus galbula*), hairy and downy woodpeckers (*Picoides villosus* and *P. pubescens*, respectively), red-eyed and yellow-throated vireos (*Vireo olivaceus* and *V. flavifrons*, respectively), least flycatcher (*Empidonax minimus*), black-throated green warbler (*Dendroica virens*), tufted titmouse (*Parus bicolor*), eastern pewee (*Contopus virens*), great crested flycatcher (*Myiarchus crinitus*), wood thrush (*Hylocichla mustelina*), and broad-winged hawk (*Buteo platypterus*).

3.4 Threatened and Endangered Species

Three state and/or federally listed species are known to occur on or in the vicinity of the Magic Carpet Woods Project. These include the state and federally endangered Great Lakes piping plover, the state and federally threatened Pitcher's thistle and the state threatened Pumpelly's bromegrass (*Bromus pumpellianus*). Each of these species is discussed in more detail below.

3.4.1 Piping Plover

3.4.1.1 Breeding Habitat Requirements

In the Great Lakes Region, piping plovers typically nest on sparsely vegetated or unvegetated sand-pebble beaches above the high water line (MNFI 1998, FWS 1988, Cuthbert 1999). Beach width is an important factor affecting nest site selection in the Great Lakes (Lambert and Ratcliff 1981, and others cited by FWS (1988). The amount and distribution of beach vegetation also is an important factor determining nest location and reproductive success. Sparse or clumped vegetation tends to provide more desirable nesting habitat (Niemi and Davis 1979). The presence of stones or gravel also contributes to increased use of a site for nesting (Burger 1987).

Foraging habitat consists of exposed beach substrates (FWS 1988). Plovers probe for invertebrates within wet or dry sand (Wiens 1986) and also glean insects from wrack or beach vegetation (Cuthbert 1998b). In the Great Lakes Region, the diet of piping plovers and specific factors affecting use of foraging habitat are poorly known (Cuthbert 1998b, FWS 1988). Along certain shoreline areas of the Great Lakes (e.g. Sturgeon Bay, Wilderness State Park) plover broods prior to fledging typically use 1 to 4 miles of shoreline for feeding (Cuthbert 1997).

3.4.1.2 Status and Distribution of the Great Lakes Population

Year 2000 Great Lakes piping plover breeding population data still are preliminary, but apparently the population consisted of 30 nesting pairs, all in northern Michigan. Plovers in 2000 nested mostly in the usual places described for 1999, except that none nested at Cathed Bay. In 1999, the Great Lakes breeding population consisted of 32 nesting pairs; 31 were in Michigan and one in Wisconsin (Stucker and Cuthbert 1999). In 1999, Michigan pairs initiated 38 nests, 28 were in the northern Lower Peninsula and the rest in the Upper Peninsula. These pairs produced a total of 49 fledglings: 37% at Wilderness State Park, 20% at North Manitou Island, 12% at Vermilion/Weatherhogs, and 10% at both Platte River and Grand Marais (Stucker and Cuthbert 1999). Two pairs nested within Leelanau State Park along Cathed Bay and produced seven chicks, although none of the chicks

fledged. Over the past 18 years (1983-2000), the number of pairs in Cathead Bay has ranged from 0 to 3 (Cuthbert 1998b; Stucker and Cuthbert 1999). All nesting along the shoreline of Cathead Bay has occurred within Leelanau State Park, which the subject Property adjoins on the western side. The closest nest location to the Property has been approximately 0.5 to 0.75 mile away from the property boundary (Figs. 4 and 5, Appendix 10.1), and between this nest location and the eastern property boundary several other suitable habitat patches exist (Cuthbert 1999).

3.4.1.3 Threats to Piping Plovers in the Great Lakes

Direct and indirect impacts to plovers caused by human activities are the primary threats to the Great Lakes population during the nesting season, although natural occurrences may also threaten the plover. Direct impacts include destruction of nests, individual birds and nesting habitat by foot traffic and ORVs (FWS 1988) and any other activity that alters beaches, such as construction of marinas, parking lots, recreational facilities or dredge spoil disposal areas. Negative indirect effects of human activities include predation and disturbance by wild animals such as skunk, raccoon, fox, gulls and crows that are attracted to areas with human activity, and by domestic animals, especially dogs (FWS 1998a). These species prey directly on eggs and chicks, and dogs can disrupt plover breeding or foraging behavior and kill chicks. Structures such as flagpoles or satellite dishes may serve as perches for hawks and crows (FWS 1998d).

It has been widely stated that human activities can impact piping plover foraging patterns. Numerous factors interact to determine human impacts to plover foraging behavior, including types and extent of human activities affecting plovers, specific responses of plovers, specific conditions at a given site, and seasonal and yearly conditions. Limited data exist quantifying these factors. Studies by Burger (1991, 1994) in New Jersey indicate that foraging behavior was affected by the presence of humans. This conclusion was based on the observations that plovers spent more time “on alert” in situations where people were present within 100 meters than where people were not present. Presumably, if time is spent on alert that otherwise would be spent feeding, decreased energy consumption results, at least if the diminished feeding time were not compensated for in subsequent feeding activity. However, the year (the studies spanned 4 years), location (3 locations were studied), habitat (3 habitats were studied), and month each affected foraging behavior to greater degrees than the presence of humans. In the 1991 study the average number of people within 100 meters at the two sites that had decreased amounts of time foraging was slightly over 2 people. The average amount of time spent on alert at these two sites was approximately 20 seconds while the average amount of time spent feeding was about 80 seconds for each observation period. At the site without people, these figures were about 7 and 106 seconds, respectively. It is unknown if this degree of feeding interruption generally results in decreased survivorship or fecundity.

3.4.1.4 Breeding Season Phenology

Plovers begin arriving at breeding areas in mid- to late-April and the nesting season occurs from mid-May to mid-August (MNFI 1998). Chicks and adults tend to remain near the nest until the young are able to fly which is at 3-4 weeks of age and occurs typically by the early part of July in Michigan (Cuthbert 1998b). Females tend to leave breeding grounds when juveniles can fly and males remain for a few weeks beyond this point. Juveniles typically remain until mid-August.

3.4.1.5 Piping Plover Use of the Cathead Bay Area

In 2000, no piping plovers nested in the Cathead Bay area. In 1999 two pairs nested along Cathead Bay, both within Leelanau State Park. The first 1999 Cathead Bay nest was initiated on May 19 and the second completed around May 26 (Stucker and Cuthbert 1999). Seven chicks hatched in mid-June, but all were lost to predation before they could fledge (Stucker and Cuthbert 1999). In 1998, three pairs nested at Cathead Bay, all in the State Park, and produced seven fledglings (Table 3). This was the highest number of pairs and nests and the first year in which chicks fledged since monitoring began in 1983 at Cathead Bay (Cuthbert 1998c). In each year of 1996 and 1997, two breeding pairs nested in the State Park, but no chicks fledged (Cuthbert 1998c). Figures 4 and 5, Appendix 10.1, indicate the Property location on a topographic map and aerial photograph in relation to the location of recent piping plover nests at Leelanau State Park.

Table 3. Number of Plovers Observed within Cathead Bay, 1983-2000*

Year	Number of Plovers
1983	1 pair with nest (no chicks fledged); 1 territorial pair (no nests found); 1-2 singles
1984	2 pairs with nests; 1 nest hatched (no chicks fledged)
1985	1 adult
1986	1 pair (no nest found)
1987	None
1988	None
1989	None
1990	None
1991	None
1992	None
1993	1 pair (no nest); 3-7 other birds seen briefly
1994	1 adult
1995	None
1996	2 pairs with nests; no nests hatched
1997	2 pairs with nests; both hatched, but no chicks fledged
1998	3 pairs with 4 nests; 7 chicks fledged
1999	2 pairs, 2 nests, 7 eggs hatched, 0 chicks fledged
2000	None

*Data prepared by F. Cuthbert, L. Wemmer and J. Stucker, University of Minnesota and University of Michigan Biological Station. (Cuthbert 1998c; Cuthbert 1999; Stucker and Cuthbert 1999; Stucker *et al.* 2001)

Between 1983 and 1996, there were seven years in which no individuals were observed nesting in Cathead Bay, five years in which only one pair or a single adult was observed, and one year in which two pairs nested. Plover activity from 1996-1999 indicated an increasing trend for breeding in Cathead Bay. Cuthbert (1999) states “In recent years nesting has increased significantly in the Sleeping Bear area [which includes Cathead Bay], so that this area is now viewed as a critical and expanding site. The maximum number of pairs that may nest along Cathead Bay in the near future is unknown”. Changes to a variety of factors at the breeding grounds within Cathead Bay, the Great Lakes in general, and/or at the wintering grounds could affect the level of use of the Cathead Bay shoreline. In 1998, 12.5% of chicks fledged from the Great Lakes population were fledged in Cathead Bay (Cuthbert 1999), although no chicks fledged in 1999 (Stucker and Cuthbert 1999), and no plovers nested there in 2000. In spite of the lack of nests in 2000, the potential of the Cathead Bay area to contribute to piping plover recovery is apparent.

3.4.1.6 Habitat Suitability for the Piping Plover on the Property

Plovers prefer to nest on relatively wide beaches, above the ordinary high water mark. The narrow beach and proximity of the forest edge at the Property likely limits nesting. The western 2/3 of the Property features a relatively narrow, unvegetated beach that is periodically inundated (Figures 4 and 5, Appendix 10.1, map and aerial photograph of the Magic Carpet Property and adjoining State Park). The beach widens in the eastern 1/3 of the Property and a small cobble pan exists in a small blowout between the foredune and forest edge. This area may provide marginal, if any, nesting habitat.

The Service believes that the Magic Carpet beach area may serve as foraging habitat and portions may have potential for future nesting activity if certain physical (e.g. beach width) and biological factors (e.g. population size of plovers) are present (FWS 1998c). Dr. Francesca Cuthbert, a recognized researcher and expert on the Great Lakes piping plover, observed the Property on several occasions (Cuthbert 1998b, pers. comm. 2000). Portions of the Property located behind the foredune in lots 1 and 2 (eastern 1/3 of Property mentioned above) may serve as potential nesting habitat, but factors such as small cobble pan size, percent vegetative cover, proximity to forest edge, and cobble density limit its potential (Cuthbert 1998a).

According to Cuthbert (1999), “Cathead Bay is contributing to the local Sleeping Bear population and the larger Great Lakes population in a significant way.” Plovers may forage along the entire shoreline of Cathead Bay, and the Property may provide suitable feeding habitat (Cuthbert 1997, 1998a, 1998b).

According to Cuthbert (1998a), it is possible that the Property's shoreline "...will be used by young plovers > 2 weeks of age until they depart on migration for the Gulf Coast and Caribbean (approximately mid-August when they are 6 weeks old)." If birds resident to Cathead Bay use the Property, use would occur during an approximately one to one-and-one-half month period from when the young are 2 to 3 weeks old until they begin migration. Such use, however, has not been documented. Juveniles forage in habitats outside the immediate vicinity of the nest site, as well as within the vicinity, for approximately one month, typically mid-July to mid-August, or perhaps through the end of August for late-hatched and/or later departing juveniles. Non-breeding adults and/or migrant adults and juveniles may also use the property shoreline for foraging, although this has not been documented at this time (Cuthbert 1998a).

Breeding adults tend to forage only within their nesting territories prior to, during, and immediately after incubation (Burger 1991, 1994; Cairns 1982). After chicks fledge, adults may forage with or without the fledglings at distances beyond the vicinity of the nest. Adults depart the breeding grounds shortly after chicks fledge (Cuthbert 1998b). Use of the Property by adults has not been observed, although adults have been observed on lands just east of the property and to the west as well (FWS 1998c).

Human use of the Property, particularly the shoreline, may currently limit piping plover use. Most current use involves trespass since the owners, who live some distance away, are rarely present. Most people, some with dogs, access the beach via a trail across the property from Kehl Road (on the southern boundary of the property). Other people and pets approach on foot along the beach from the adjacent State Park to the east or from private property to the west. Human and dog footprints are regularly found on the beach. Boaters often anchor offshore and access the beach. A commercial recreational boating company anchored offshore and brought people onto the beach. On one occasion in 1998, a group of people launched fireworks. These activities were observed by the property owners, adjacent property owners, and a State Park representative (Ammons 1998). The property owners also have regularly discovered unauthorized campers on the property and observed evidence of other campsites and numerous fires on the beach. This level of use has occurred throughout the 30-year period of current ownership.

Summary of Section 3.4.1:

- 1) The Cathead Bay shoreline is approximately five miles long, all of which may provide suitable foraging habitat, although only a portion (the area within the State Park) has accommodated nesting;
- 2) The Property constitutes approximately 10% of the Cathead Bay shoreline;
- 3) High density human residential beachfront development abuts the Park on its east/north border (Figures 4 and 5, Appendix 10.1). Additional human residential development exists from the Property west boundary and continues to the west and south around Cathead Point.
- 4) The Property may provide suitable foraging habitat, and the blowout in lots 1 and 2 may provide potential nesting habitat;
- 5) The 1998 Cathead Bay population was the highest since records have been maintained (1983) and accounted for 12.5% of fledged chicks of the Great Lakes population; the 1999 Cathead Bay population consisted of two nesting pairs that produced seven chicks, none of which fledged. In 2000, no plovers nested anywhere in Cathead Bay.
- 6) The nearest recorded nest location (Figures 4 and 5) to the Property has not been closer than approximately 0.5 to 0.75 mile from the Property, although suitable nesting habitat occurs in several patches less than 0.5 mile from the eastern side of the Property;
- 7) Adults and unfledged young tend to remain within about 0.5 mile from their nest sites after hatching, but may occasionally forage beyond that distance during the 21 - 30 day period between hatching and fledging. Cuthbert (1998a) states that foraging broods may use 1-4 miles of beach, which infers that Leelanau State Park broods could range 2 miles in either direction from Park nest sites;
- 8) Distribution and abundance of predators on the property are unknown. Predator problems are a suspected cause of recent nest failure on the adjacent State Park. Tracks and sightings of potential predators on the State Park include crow, coyote, raccoon and fox. No systematic survey of predator activity on the Park has been done.
- 9) No piping plover use of the Property has been documented.

3.4.2 Pitcher's Thistle

Pitcher's thistle (*Cirsium pitcheri*), a federal and state threatened species, occurs on the Property. This species is "endemic to sand beaches and dunes of Lakes Michigan and Huron, and at two sites on Lake Superior" (Voss 1996). A perennial plant, Pitcher's thistle grows in a so-called rosette stage for 5 to 8 years, then flowers and dies. A total of 427 individuals, consisting of 357 rosettes and 70 specimens with flower buds, were observed on the property during the 1998 botanical survey (NES 1998). Numerous dead flowering stalks were also present. The 1998 survey listed the numbers of plants found on each lot, however numbers and locations of Pitcher's thistle plants will change over time.

Although Pitcher's thistle occurred along nearly the entire property, the majority (88%) was found in Lots 1-3 at the time of the 1998 survey. In this section of the property, the open dunes consist of a number of microhabitats extending inland from the water: unvegetated beach, vegetated sloping beach below the high water line, relatively level vegetated dune above the high water line, depression, and steep-sloped blowout. The latter three microhabitats provide optimal habitat due to the level of disturbance intermediate between the beach, which is heavily disturbed by regular wave/ice action, and the forest, which is comparatively undisturbed. The majority of the Property's shoreline consists primarily of unvegetated and vegetated beach and a narrow, relatively stable plateau of mixed woody/herbaceous vegetation. The open dune community present in the eastern-most section of the property expands greatly as it continues east through the nearby Leelanau State Park where Pitcher's thistle also exists.

3.4.3 Pumpelly's bromegrass

Pumpelly's bromegrass is a state threatened species occurring in Michigan on sandy shores and dunes in the northern part of Lake Michigan. It is primarily distributed in Alaska and northwestern Canada, southward into the Rocky Mountains and Black Hills (Voss 1972) where it occurs in meadows and on grassy slopes (Hitchcock 1971). This species is abundant in the western half of the Property's shoreline (Lots 8-13), although only two individuals were observed in the eastern half of the property. Individuals occur in a relatively narrow band within approximately 10 feet landward of the crest of the narrow woody/herbaceous plateau to about 6 feet down slope of the crest. The number of individuals was not counted due to the abundance in this area.

3.5 Wetlands

A survey of wetlands on the Property has not been conducted at this time. A very narrow band of wetland (a few feet) is reported to occur along the periphery of Kehl Lake. The remainder of the Property is upland forest, duneland, and beach.

3.6 Geology/Soils

Bedrock rests at varying depths on the order of about 400-600 feet below the surface of the glacial drift (Western Michigan University 1981). Unconsolidated glacial deposits overlying the bedrock are utilized as ground water aquifers. No bedrock aquifers are known in the proposed project vicinity. Groundwater aquifers in the unconsolidated deposits are generally used for irrigating orchards and supplying commercial resort and domestic consumers, but no major industrial or municipal demands are placed on groundwater supplies near the Property.

The U.S.D.A. Soil Conservation Service has differentiated and mapped six soil types at the Property (*Soil Survey of Leelanau County, Michigan*, Weber 1973). Soils with the greatest areal extent include the Deer Park sand, 18-45% slopes (map unit DkF), Lake Beaches, 0-13% slopes (map unit Lb), Eastport sand, 0-6% slopes (map unit EdB) and Dune land, 6-60% slopes (map unit Du). Soils of lesser areal extent include the Mancelona-East Lake loamy sands, 0-6% slopes (map unit MIB) and the Au Gres-Kalkaska sands, 0-4% slopes (map unit AuA).

3.7 Land Use

Land use surrounding the Property away from the lakeshore can be characterized as a mix of agricultural and low density residential. The Property itself is currently undeveloped except for an improved gated access road from Kehl Road. Unimproved trails lead over the barrier dunes to the beach. The Leelanau State Park is located east of the Property. The 1,300 acre park includes 1.5 miles of shoreline and an extensive open dune area with mixed forest

inland of the dunes. The park is used primarily for hiking, beach recreation and camping on 50 rustic sites. Individual forested residential lots are occupied at low density to the west of the Property. A high-density residential area in open dune land extends along the shoreline east from the eastern State Park border.

3.8 Air Quality

Quantitative information on air quality of the project area is currently unavailable, but casual observation indicates air quality is good within this rural and small town region.

3.9 Water Resources and Water Quality

The Property occurs along the shores of Lake Michigan and has approximately 2,600 feet of shoreline. The south end of the Property abuts Kehl Lake. There are no other surface water resources on the property. No commercial and only limited residential land use occurs around Kehl Lake and there is no reported evidence of water quality issues. No known groundwater contamination sites are identified on or near the Property; however, a suspected contamination site occurs at Vulcan Cincinnati, T32N, 11W section 24, near Mud Lake and Woolsey Landing Field. Other contamination sites in the county include:

Site	Location
Grand Traverse Overall Supply	Elmwood Township
Laundromat	Leelanau Township: T31N, 11W section 34
Leelanau Co. Road Commission	Sutton's Bay Township

3.10 Cultural Resources

Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effects of their undertakings on historic properties and affords the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. Regulations in 36 CFR Part 800 describe the implementing procedures that include a determination of the undertaking (in this case issuing a permit). On August 15, 2000, the Service provided internal guidance that defines issuing an ITP as an undertaking. Consequently the Service entered into consultation with the Michigan State Historic Preservation Officer and notified five potentially interested Indian tribes.

The cultural resource inventory survey of the Magic Carpet Woods Site, Leelanau Township, Leelanau County, Michigan, by Mark C. Branstner (Great Lakes Research Associates, Inc. (GLRA), 1998) provided the basis for the consultation. The survey of the 91-acre property identified just one historic period archeological site. The H.B. Taylor homestead site 20-LU-134 will be preserved through mitigation by avoidance, as it is located within a designated permanent conservation easement. Reported historic period Indian burials could not be located within the project area.

A copy of the cultural resource report was provided to the State Historical Preservation Officer (SHPO) on August 11, 2000. The September 26, 2000 SHPO response letter to the Service is attached in Appendix 10.6. In the letter the SHPO reviewed the findings of the GLRA cultural resource inventory survey and concluded that no historic properties are affected within the area of potential effects of the project, except possibly in the vicinity of the Magic Carpet Trail. The SHPO recommended monitoring of construction activities in the vicinity of the trail.

Five Native American Tribes also were provided a copy of the GLRA report on August 11, 2000. On October 11, 2000, each of the 5 tribes was contacted by telephone to determine if they had comments or concerns. Two Tribes have responded by telephone: the Grand Traverse Bay Band of Ottawa and Chippewa, and the Little Traverse Bay Band of Odawa. The Grand Traverse Band believed there were Native American burial grounds near Kehl Lake. They advised that artifacts usually accompanied burials, and that such artifacts could be found some distance from actual burial sites. Both Tribes wished to be informed directly if bones or artifacts are encountered during project construction.

4. ENVIRONMENTAL CONSEQUENCES

This section describes the expected consequences that would occur for the five Alternatives listed in Section 2. Environmental consequences are summarized in Section 4.7.

4.1 Potential Effects Common to All Alternatives

The potential effects on some resources of the project area are similar for each of the proposed alternatives. These include the potential off-site and cumulative effects on vegetation, wetlands, geology, land use, water resources and quality, air quality and, some cases, cultural resources. The potential affects that are common to all the alternatives are addressed once in this section.

4.1.1 Vegetation

Although limited impacts to vegetation on-site are expected with each of the alternatives, impacts to on-site plant communities are discussed below for each alternative. Off-site impacts to plant communities adjacent the project site are expected to be minimal and equivalent for each of the alternatives.

4.1.2 Wetlands

No direct or indirect impact would occur on the very narrow band of lacustrine fringe wetland contiguous to Kehl Lake. No construction or building activities would occur near the lake and no placement of dredged or fill material would occur. No off-site or cumulative impacts to wetlands would occur.

4.1.3 Geology/Soils

Construction activities would occur only within the topsoil and near subsoil. Therefore, there would be no impacts to underlying geologic features.

Impacts to soil would consist of alteration of existing soil profiles due to road and home construction. All such activities would occur within the Deer Park Sand soil type. This soil type is considered highly erodible. However, soil erosion is not likely to occur given that construction activities would occur no closer than 65 feet from the beach. Therefore, exposed soil would be located well within the relatively dense forest cover and not exposed to winds coming off Lake Michigan. In addition, soil would be exposed for a short duration (only during construction), thereby further minimizing the likelihood of soil erosion. No off-site or cumulative impacts to geologic features or soils would occur.

4.1.4 Land Use

Alteration to the existing land use of the Property would result from the construction of 13 houses, the improved access route, and the water supply wells and wastewater septic disposal systems. However, a majority of the property, especially the 52-acre conservation easement, would remain unaltered and forested for most of the proposed alternative. Adoption of alternative 3 or 4 would not include the conservation easement, but lack of an easement is not expected to result in significant land use changes to the area.. No significant change to the physical or biological characteristics of the beachfront or critical dunes would occur from residential home construction under any of the proposed alternatives.

Impacts to land use patterns in the project vicinity would not be expected to occur due to the proposed project. The presence of additional homes would not alter the surrounding area, which is characterized by forest, active and fallow agricultural fields, and residences.

4.1.5 Water Resources and Water Quality

Surface water resources at the Property consist of Lake Michigan and Kehl Lake. Neither resource would be impacted to any noticeable extent by the proposed alternatives. Runoff of sediment into the lakes during or after construction would not occur given the distance between construction and the residences and the water bodies, the existing topography and, if necessary, temporary placement of erosion control devices. Use of either body of water for swimming or boating would not result in degradation of water quality due to the lack of or limited input of impurities from these activities and the size of each lake, especially Lake Michigan. The access road and driveways would increase the amount of impervious material present at the Property but, surface runoff from the road and driveways would be directed into existing vegetated basins, thereby resulting in adequate passive treatment of stormwater runoff. Therefore, adverse impacts to surface water quality would not be expected to occur.

Subsurface water resources would be only minimally impacted by construction of wells and extraction of water for residential purposes. All wells would be installed in accordance with any and all regulations relating to well construction. Subsurface water quality would not be altered given the minimal amount of withdrawals for domestic purposes and construction of wells pursuant to applicable state standards. Wastewater disposal would be through approved septic systems for each residence and no adverse impacts to groundwater quality are anticipated from these systems. Preliminary approval has been granted for conventional septic system installation. Final approvals will be required for septic system installation on a lot by lot basis. Significant impacts to off-site water resources, including water quality, would not occur based on the same reasoning presented for on-site impacts. Cumulative impacts to water quality are also not expected to occur.

4.1.6 Air Quality

House construction would result in the temporary presence of construction vehicles and the presence of cars associated with the homes. However, emissions from these vehicles would not notably alter local air quality due to the forested nature of the Property and the typical presence of offshore winds. Significant off-site or cumulative impacts to local air quality would not occur given the temporary and limited expected increases in vehicle emissions on the Property.

4.1.7 Cultural Resources

Section 3.10 above describes the State Historic Preservation Office findings for the Property. The two identified cultural resource sites occur within the proposed conservation easement. The access road, which occurs within its own easement and has been constructed on the location of the Magic Carpet Trail, bisects the conservation easement but does not impact the identified cultural resource sites. No additional construction or other ground disturbing activities are planned within the conservation easement. As a result, on-site impacts to cultural resources would not occur for Alternatives 1, 2 and 5 because each of these alternatives would include the establishment of an easement. Potential impacts under Alternatives 3 and 4 are also not expected, as the owners and Association members will abide by all applicable state laws and regulations concerning human remains or artifacts that may be encountered.

There would be no impacts to off-site cultural resources because no off-site construction activity would occur under any of the proposed alternatives. The proposed and alternative actions would also not contribute to cumulative impacts to cultural resources due to the lack of on-site or off-site impacts to cultural resource resulting from the project.

4.1.8 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, 59 Federal Register 7629 (1994), directs federal agencies to incorporate environmental justice in their decision making process. Federal agencies are directed to identify and address as appropriate, any disproportionately high and adverse environmental effects of their programs, policies, and activities on minority or low-income populations.

No environmental justice issues exist for any of the alternatives. The Property is currently unoccupied and unused for agricultural, industrial or any other economic activity. None of the alternatives would create any environmental pollution. No minority or low-income populations would be displaced or negatively affected in any other way by the proposed action or any alternative.

4.2 The No Action Alternative

Under the No Action Alternative, the Service would not issue an ITP and an associated HCP would not be implemented. This alternative, however, does not preclude sale and construction of homes on the property. The property owner would be likely to construct the proposed project without obtaining an ITP. In the event no houses were built and occupied, this alternative would not preclude continued casual or other human use of the beach area, either by access from Leelanau State Park or access across the Magic Carpet property. If the applicant sells lots and houses are constructed and occupied without an ITP, the Service may choose to pursue potential violations of section 9 of the Act if circumstances warrant. Section 9 of the Act prohibits any person subject to the jurisdiction of the United States from harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing or collecting listed wildlife species. Harm is further defined (50 CFR 17.3) to include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding or sheltering. Penalties for violations of section 9 are provided under section 11 of the Act.

Construction of 13 residential dwellings on lots laid out in a manner equivalent to the proposed action is the most likely scenario for the site under the No Action Alternative. With the No Action Alternative, the HCP and ITP conditions with accompanying affirmative conservation measures for the piping plover would not occur.

4.2.1 On-site Impacts

4.2.1.1 Vegetation and Wildlife

Selection of the No Action Alternative would have impacts on vegetation and non-listed wildlife similar to those described below for Alternative 2, the proposed action. Impacts to listed wildlife species are expected to vary from the No Action Alternative due to the lack of an HCP (See Threatened and Endangered Species section, below).

4.2.1.2 Threatened and Endangered Species

4.2.1.2.1 Piping Plover

Potential Impacts on Piping Plover Nesting Habitat and Breeding Behavior

The No Action Alternative, similar to the proposed action, would not directly impact nesting habitat or breeding behavior at nesting locations documented to date. Suitable nesting habitat is not currently found on the Property. Construction activities completed on the Property (i.e. road construction) have not resulted in impacts to breeding piping plovers. Future construction of homes and walkway structures would not directly impact nesting habitat because such activities would not occur in areas of known nesting. Construction activity would likely not directly impact breeding behavior due to the distance between the activity and current known breeding activities.

Use of the beach by humans and pets associated with the Property is not likely to result in physical changes to nesting habitat on or adjacent to the Property. As with the proposed action, however, human and pet activities could affect breeding behavior through disturbance of plover activities. These activities have a higher probability of impacting piping plovers with the No Action Alternative, as compared to the proposed action, due to the absence of the minimization and mitigation measures included in the ITP and its associated HCP.

As noted in the analysis of the proposed action, the numbers of potential plover predators generally increase due to human use of beaches and dunes, and construction of structures that can serve as perches (e.g. FWS, 1998b). Garbage and food scraps associated with human use of beaches likely attracts potential predators of plover eggs such as gulls, crows, raccoons, skunks, and opossums. Use of the beach by individuals associated with future homes on

this Property potentially could change the distribution and abundance of predators and scavengers. The potential for this type of effect may be much greater under the No Action Alternative, as the Association would not implement minimization and mitigation included with the ITP and HCP. Activities on the Property that result in “harm” to the piping plover may result in Service law enforcement action relative to violation of section 9 of the Act.

Potential Impacts to Piping Plover Foraging Habitat and Behavior

Construction or occupancy of residences would not be expected to physically impact foraging habitat under the No Action Alternative. Road construction in late 1999 and early 2000 did not affect plover foraging behavior for reasons discussed under Alternative 2. Potential foraging behavior could be affected by human presence related to the Property, in a manner similar to those discussed above. The minimization and mitigation measures of the ITP and HCP would not be implemented and as a result, activities such as fireworks displays, ORV use, and other potentially disruptive activities could occur. Without the benefit of the ITP and associated HCP, access to private land to monitor plover presence and erect nest enclosures is not assured. As with potential impacts to breeding habitat and behavior, the Service may pursue section 9 violations if circumstances warrant.

4.2.1.2.2 Pitcher’s Thistle

The No Action Alternative may result in direct impacts to the Pitcher’s thistle. Although home construction would not directly affect this species, increased access to the lakeshore and use of the beach and dunes has the potential to impact this species by trampling of individual plants. Without the benefit of the HCP, State statutes protecting Pitcher’s thistle would govern the use of walkway structures to minimize impact.

4.2.2 Off-site Impacts

4.2.2.1 Vegetation and Wildlife

Direct impacts to vegetation off-site would be minor, if any occur. There may be additional use of off-site areas that may result in trampling of vegetation, but these impacts are considered minor. Off-site impacts to wildlife, which may occur in the form of increased competition for nesting or foraging habitat due to displacement of on-site wildlife species, would be similar to the proposed alternative. The 52-acre conservation easement would reserve habitat and reduce future impacts of similar projects in the area.

4.2.2.2 Threatened and Endangered Species

4.2.2.2.1 Piping Plover

Potential impacts to piping plovers located off-site, particularly at the State Park, may include displacement from foraging or nesting habitat if human activity associated with the project disturbs plovers. The level of this potential displacement may exceed that of the proposed action, as the protective measures of the HCP would not be implemented. The State Park, however, implements a program to minimize or avoid human disturbance of piping plovers.

4.2.2.2.2 Pitcher’s thistle

An increase in the potential for incidental off-site trampling of plants may occur with this alternative, but levels of impact are considered to be minor.

4.2.3 Cumulative Impacts

4.2.3.1 Vegetation and Wildlife

The alteration of approximately 5 acres of mesic northern forest vegetation type would increase the cumulative impact on this vegetation type. However, this vegetation type is widespread throughout northern Michigan,

covering thousands of acres. The establishment of the 52-acre conservation easement in the mesic northern forest cover type would reduce the future potential for cumulative impacts to vegetation.

The loss of approximately 5 acres of mesic northern forest vegetation type would result in a minimal, cumulative reduction of foraging and nesting habitat for wildlife species. This alternative would add to incremental effects of forest fragmentation in the region. The level of impact is expected to be similar to the proposed action.

4.2.3.2 Threatened and Endangered Species

4.2.3.2.1 Piping Plover

The No Action Alternative could contribute to cumulative impacts to piping plovers by altering habitat condition and disrupting behavior patterns. Although the increase in the number of residences along the Bay may not result in significant cumulative impacts on the physical habitat of the piping plover, the lack of the protective measures afforded by an HCP could result in impacts to piping plover breeding and foraging behaviors. Continued lack of action to develop HCPs for future projects could increase the possibility of direct and indirect cumulative impacts to piping plovers resulting from increased pet use of beaches, off-road vehicle use and other disruptive activities.

4.2.3.2.2 Pitcher's Thistle

Some loss of the Pitcher's thistle due to trampling by property residents on and off site is possible, but this effect likely would be relatively insignificant. The physical dune habitat needed by this plant species would remain available with only minor impacts of foot traffic. Existing levels of human foot traffic patterns through the open dune area likely would continue in the event that no houses were constructed. Although Pitcher's thistle habitat has been affected by development throughout its range, the level of disturbance associated with the No Action Alternative is not expected to add significantly to this loss.

4.3 Alternative 2 - The Proposed Action

4.3.1 On-site Impacts

4.3.1.1 Vegetation

Construction of houses, driveways and the access road would result in the direct loss of trees, shrubs, and herbaceous vegetation in the forested area (outside of known or potential piping plover habitat). Vegetation clearing would be kept to a minimum to preserve the integrity of the critical dune area and the forest. It is anticipated that approximately two acres of forest would be removed for home construction and approximately three acres for road construction – a total of 5% of the total Property. The low density home construction of the Property and placement of approximately 52 acres in a conservation easement would maintain the overall vegetative cover of the Property.

4.3.1.2 Wildlife

Construction of houses in forested areas generally contributes to forest loss and fragmentation, which is an important factor contributing to declines in populations of eastern songbirds, especially neotropical migrants. The project would add to incremental loss of this forest type, yet the type remains relatively abundant in Northern Michigan. Mortality rates of some small mammals might increase due to vehicular traffic; however, overall population sizes would not be appreciably affected. In general, mammal species likely present at the Property are common throughout the region and would not likely be significantly affected by the proposed residential home construction. It is possible that human activity on the property could alter local distribution and behavior of scavengers and predators, such as raccoons, skunks, opossums, coyotes, crows, ravens and gulls. Careful management of garbage, outdoor food consumption and pet food would minimize such effects. This issue is discussed further below. Protection of approximately 52 acres in a conservation easement would minimize the incremental effects of the project on typical mammal or bird species present and help ameliorate similar effects caused by future residential construction in the area.

4.3.1.3 Threatened and Endangered Species

4.3.1.3.1 Piping Plover

Potential Impacts on Piping Plover Nesting Habitat and Breeding Behavior

Proposed Project: The project would not directly impact nesting habitat or breeding behavior at nesting locations used to date. The nearest nesting location is on the State Park approximately 0.5-0.75 mile from the eastern extent of the Property (Figures 4 and 5, Appendix 10.1). The access road was constructed during fall-winter 1999 and 2000 and early spring 2000 within the forested portion of the Property, more than ½ mile from the nearest previous nest site, and did not impact nesting habitat. Noise and movement associated with construction of the road did not impact breeding birds because none were present in Cathead Bay during this period. Had breeding or foraging piping plovers been present at the State Park or on the Property, impacts of construction activity would have been unlikely due to the distance and season of construction activities, and the wooded buffer that exists between road construction and the shoreline. FWS biologists verified during a June 21, 2000, site visit that the road is not visible from the beach or from the forest/dune edge.

Activities Related to the Proposed Project: Future construction of up to 13 houses would not directly impact nesting habitat because such activities would occur in the forest, not in nesting habitat. These activities likely would not impact breeding behavior due to the distance between the activities and current known breeding sites. Construction of walkway structures would not impact nesting habitat, as walkway structures would not be built in nesting habitat. Although suitable nesting habitat does not currently exist on the property, beach characteristics may change in the future as a result of natural processes. Use of the beach by humans and pets associated with the Property would not likely result in physical changes to nesting habitat on or adjacent to the Property, but human and pet activities could affect breeding behavior through disturbance of plovers. Potential negative impacts to current and future breeding and nesting behavior on the Property would be minimized to the maximum extent practicable by the proposed action, issuance of an ITP, with associated HCP. The HCP would impose restrictions on Property residents that are similar to those employed on the adjacent State Park, and on other plover nesting sites on public lands throughout the Great Lakes region. The HCP and ITP also would provide any future plover nests on the property a similar level of protection as is provided on public lands.

The level of protection provided by the proposed ITP and HCP for plovers using or potentially using the Property is far greater than that currently afforded plover habitat or use on the Property. This conclusion is consistent with FWS' approach to avoiding take of plovers at Cathead Bay and elsewhere. FWS has required landowners in Cathead Bay to restrict human use, control pets and garbage, as well as avoid home construction and lighting fires within a 600-meter buffer zone around known nest locations during the nesting season. Numbers of potential plover predators may increase due to human use of beaches and dunes and placement of structures that can serve as perches (e.g. FWS, 1998b). Garbage and food scraps associated with human use of beaches likely attracts potential predators of plover eggs such as gulls, crows, raccoons, skunks, and opossums. Current population levels of predators and scavengers on and adjacent to the Property are unknown. Use of the beach by individuals associated with future homes on this Property potentially could change the distribution and abundance of predators and scavengers. However, the potential for such changes is addressed in the HCP. Predator activity resulting from the project that could affect plovers would be minimized to the maximum extent practicable through implementation of strict measures, described in the HCP (Section 8.0), to significantly diminish factors likely to contribute to a potential increase of predator populations. These measures include placement of all garbage in enclosed containers within the forested area (not on the beach), containment and immediate cleanup of any food items used on the beach, and restrictions on structures that may serve as perches for avian predators.

Uncontrolled dogs and cats owned by nearby residents and trespassers currently use the Property. Presently there are no measures in place to restrain dogs or cats on the Property and unleashed dogs are often observed on the Property by adjacent property owners and a state park representative (Ammons 1998). It is possible, however, that future residential use could result in an increase in the number of dogs or cats in the area. The proposed HCP includes measures to restrict all pet use on the beach during critical time periods. Property owners would have an obligation to observe the terms and conditions of the ITP and to implement the HCP, which would result in control

of pet activity and minimization of any potential negative impact to piping plovers. The ITP would not allow for take of piping plovers by uncontrolled pets, thus the Service retains the option of ESA section 9 enforcement if necessary to reinforce the HCP pet restrictions (See below, Section 8, #9, Special Note).

Potential Impacts to Piping Plover Foraging Habitat and Behavior

Potential foraging habitat would not be physically altered by the project, as construction would not occur in foraging habitat. Road construction in late 1999 and early 2000 did not affect plover foraging behavior for reasons discussed above. Specifically, no plovers were present during the late fall and winter construction period, no plovers nested anywhere in Cathead Bay during 2000, and the road construction took place at least 250 feet, and on average approximately 350 feet, from potential foraging habitat. Potential foraging behavior could be affected by human presence related to the project, but negative effects would be minimized and mitigated to the maximum extent practicable by the proposed action, issuance of an ITP and development of an HCP. Boardwalk or walkway structures are not likely to serve as perches for potential scavengers or plover predators because the walkways would be at ground level and would lack handrails. The grassy dune area across which walkways may be constructed is not plover nesting or foraging habitat. Thus, fragmentation of or other direct effects of walkways on plover habitat would not occur. The beach habitat area would not be affected by any other structures (i.e., decks, activity platforms) because they would be prohibited within the dune and beach area.

Human use of potential foraging habitat on the property is expected to include activities such as sunbathing, walking, and swimming. These activities, however, are not expected to physically impact potential foraging habitat directly in any substantial manner. Minor physical alterations may occur as a result of foot traffic and temporary placement of lawn chairs, etc. Such inconsequential impacts are common throughout the piping plover Atlantic and Great Lakes ranges and have not been identified as problematic for plovers.

The timing and type of human activities may be important given that activities on the beach likely would not occur randomly throughout the day and plovers may be more sensitive to certain activities than others. For example, sunbathing is a relatively quiet activity that would occur more during mid-day when plovers would likely be less active. Loud, disruptive activities such as use of off road vehicles or fireworks during the evening when plovers are likely to be more active could be expected to have a greater negative impact on the birds.

Sensitivity of individual birds to human activities can affect the extent to which humans negatively affect foraging patterns. Sensitivity appears to vary among individual birds and among various activities (Cuthbert 1998b). Low density human activity and plover breeding and foraging are not consistently negatively correlated. Nevertheless, unrestricted human activity in the presence of piping plovers tends to result in negative effects to plovers. High densities of humans may have a negative impact even with low impact activities.

Property owners are expected to be sensitive to plover needs. Awareness should be enhanced by formation of a homeowners association to assure that all homeowners adhere to the proposed protection and mitigation measures.

Summary

Recent plover activity demonstrates the potential of the Cathead Bay area to support breeding pairs and contribute to the Great Lakes population. Unrestricted human use of the Property beach could result in negative indirect effects to the plover if plovers use the Property in the future for foraging or nesting. Potential negative interaction between plovers, humans and dogs as a direct or indirect result of the project is a possibility. Other effects, such as changes in local predator activity, could result from the project. However, all potential impacts on the piping plover would be minimized and mitigated to the maximum extent practicable by implementation of the HCP (see Section 8).

4.3.1.3.2 Pitcher's Thistle

Home construction would not affect this species, as construction activities would occur entirely within the forested area. Access to the lakeshore and use of the beach and dunes has potential to impact this species via trampling. However, the walkway structures would effectively minimize this impact. Walkway structures would avoid individual plants and avoid shading in accordance with Michigan Department of Natural Resources requirements.

The majority of Pitcher's thistle plants occur in Lots 1-4. The topography of these lots warrants the use of walkway structures that would minimize impacts to the thistle and provide safe beach access. The Association would provide lot owners with the 1998 botanical survey (NES 1998) and associated map indicating approximate locations of Pitcher's thistles, and would provide lot purchasers with information on identification and the protected status of the plants and the measures for plant conservation.

Alterations to dune processes that are critical to maintaining suitable habitat likely would not occur as a result of the walkway structures. Alteration of wind patterns or sand movement would occur only on a microhabitat basis and not result in alteration of the dune habitat as a whole. Owners of lots 5-13 could readily access the beach by paths from the forest, although walkways may be constructed. The presence of few Pitcher's thistles and limited suitable habitat in these lots and the minimal impact foot traffic would have on the habitat would effectively minimize potential negative impacts.

4.3.2 Off-site Impacts

4.3.2.1 Wildlife

Off-site impacts to wildlife might result in increased competition for nesting or foraging habitat due to displacement of on-site wildlife species. However, given the limited amount of habitat alteration to the forested habitat and the presence of extensive forested area both on-site and on adjacent off-site areas, such competition is not expected to be significant.

4.3.2.2 Threatened and Endangered Species

4.3.2.2.1 Piping Plover

Potential impacts to off-site breeding or foraging activities are not considered likely due to the plover conservation measures contained in the HCP that minimize or avoid potential negative effects on individual plovers and the Great Lakes population. The most likely site for off-site impacts is the adjacent State Park, but project related impacts would be minimized or eliminated by the Park's plover protection program as well as by the project residents' enhanced knowledge of plover protection.

4.3.2.2.2 Pitcher's Thistle

Off-site impacts on the Pitcher's thistle are considered unlikely. Potential increases in the number of visitors to the State Park due to the project will be minor. In addition, the residents' knowledge of the HCP and related issues would result in their ability to identify Pitcher's thistle, their enhanced understanding of threats to the plant and likely willingness to avoid harming the plant.

4.3.3 Cumulative Impacts

A cumulative impact is an impact on the environment which may result from the incremental impact of the federal action (issuance or denial of the requested ITP) 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 (e.g. home construction and occupancy). *See* 40 C.F.R. § 1508.7.

Applications for an ITP are initiated by private entities, such as the Association, who are seeking a lawful exemption to the taking prohibitions of ESA section 9. The proposed federal action (e.g. issuance of an ITP) represents the response to a specific permit request, but it could result in other ITP applications in similar circumstances involving the piping plover. The Service believes that some existing lake front residential sites may negatively affect piping plovers and that similar future projects also could negatively affect piping plovers. HCPs associated with ITPs provide a reasonable and reliable means of minimizing potential negative effects of human activity on piping

plovers on non-federal lands. It is possible that the proposed action could lead to similar actions (ie., more HCPs) in the future with cumulative beneficial effects on the piping plover.

The Service's July 6, 2000 (65 Fed. Reg. 41812) notice of proposed designation of critical habitat for the Great Lakes breeding population of the piping plover indicates that the Magic Carpet HCP and ITP application is the only "habitat conservation planning effort currently in progress within the range of the Great Lakes breeding population of piping plovers." Any future ITP applications submitted and HCPs that might be developed will be evaluated to "ensure the HCPs provide for protection and management of habitat areas essential for the conservation of the piping plover" (65 Fed. Reg. 41822).

4.3.3.1 Vegetation

The alteration of approximately five acres of mesic northern forest vegetation type would increase the cumulative impact on this vegetation type, but the level of impact is not considered to be significant. The 52-acre conservation easement would be protected from future development.

4.3.3.2 Wildlife

The loss of approximately five acres of mesic northern forest vegetation type would result in an incremental cumulative reduction of foraging and nesting habitat for some wildlife species. Permanent protection of 52 acres of the forested portion of the Magic Carpet property obtained from the grant of the conservation easement that is part of the proposed action would prevent additional losses of this cover type on the Property. Future similar losses in the area would be ameliorated by the easement.

4.3.3.3 Threatened and Endangered Species

4.3.3.3.1 Piping Plover

The home construction and occupancy resulting from the proposed action could contribute to cumulative impacts to individual piping plovers and, therefore, to the species. There would be an increase in the number of residences along the bay. The resulting increase in human activity, if unrestricted, could result in cumulative impacts to foraging or breeding activities on Cathead Bay. However, implementation of the HCP protective measures would minimize or avoid all but the most minor potential cumulative impacts of the project. Successful implementation of this HCP could facilitate future similar ITP/HCPs for the piping plover, which could eventually lead to a decrease in cumulative effects of human activity. For example, the dense shoreline residential development north and east of the State Park is situated in far better potential plover habitat than the Property. As there are no restrictions for that subdivision on activities that might affect piping plovers, it likely produces negative impacts on Cathead Bay piping plovers. An HCP for that development could reduce its impacts, contributing to a decrease in overall cumulative impacts on the plover.

4.3.3.3.2 Pitcher's Thistle

The project is not expected to contribute significantly to cumulative impacts to the Pitcher's thistle. Direct impacts to this species are not expected due to the restrictions on construction on the beach. Potential construction of boardwalks would not result in direct impacts to individual plants because the boardwalks would be routed around plants. By virtue of their understanding of the HCP, project residents would be aware of the simple means necessary to avoid affecting this plant. Adoption of this alternative may also provide for future conservation actions that may have positive cumulative effects for the species.

4.4 Alternative 3 – Alternative Site Design A

Alternative 3, Site Design A, consists of 18 residential lots with Lake Michigan beach access. The lots would be approximately five acres in size and spaced relatively uniformly throughout the 91-acre site (Figure 2). The

environmental benefits afforded by the 52-acre conservation easement in Alternatives 1, 2 and 5 would not be realized because homes would be constructed throughout the property.

The marketing of the homesites, according to property owner, would be more difficult because although all lots would have beach access, not all lots would have beach frontage, resulting in dramatic differences in lot values. Moreover, the property owner determined that large beachfront lots of the type included in this alternative design do not sell as quickly or with the same return as the more reasonably sized lots considered in Alternative 2, the proposed action.

4.4.1 On-site Impacts

4.4.1.1 Vegetation

The construction of houses, driveways and the access road would result in the direct loss of trees, shrubs, and herbaceous vegetation in the forested area (outside of known or potential piping plover habitat). As with the proposed alternative, vegetation clearing would be minimal to preserve the integrity of the critical dune area and the forest. It is anticipated, however, that approximately 6 acres of forest would be removed for home construction and approximately three acres for road construction. This alternative would result in a higher density of houses on the Property compared to the proposed action and a conservation easement would not be established to preserve mesic northern forest plant communities.

4.4.1.2 Wildlife

Alternative 3 would have wildlife impacts similar to the proposed action. The degree of forest fragmentation would be greater due to the increase in the number of lots. Additionally, the benefit to wildlife from the establishment of the conservation easement would be lost with this alternative.

4.4.1.3 Threatened and Endangered Species

4.4.1.3.1 Piping Plover

Potential Impacts on Piping Plover Nesting Habitat and Breeding Behavior

Alternative 3 would not directly impact nesting habitat or breeding behavior at nesting locations documented to date. Construction activities completed on the Property (i.e. road construction) have not resulted in impacts to breeding piping plovers. Future construction of homes and walkway structures would not directly impact nesting habitat because such activities would not occur in areas of nesting. Breeding behavior is also not likely to be directly impacted by such activities due to the distance between these activities and current known breeding activities.

Although suitable nesting habitat is not currently found on the Property, beach characteristics may change in the future as a result of natural beach forming processes. In the event nesting habitat develops on the Property in the future, use of the beach by humans and pets associated with the Property would not likely result in physical changes to nesting habitat on or adjacent to the Property. As with the proposed action, human activities could affect breeding behavior through disturbance of plover activities. The potential for this type of disturbance may be greater with Alternative 3 because a greater number of residents would occupy the property. Potential negative impacts to current and future breeding and nesting behavior on the Property would be minimized to the maximum extent practicable by the issuance of an ITP and its associated Habitat Conservation Plan.

As noted in the analysis of the proposed action, the numbers of potential plover predators generally increase due to human use of beaches and dunes, and construction of structures that can serve as perches (e.g. FWS, 1998b). Garbage and food scraps associated with human use of beaches likely attracts potential predators of plover eggs such as gulls, crows, raccoons, skunks, and opossums. Use of the beach by individuals associated with future homes on this Property potentially could change the distribution and abundance of predators and scavengers. The potential for this type of effect may be greater with the Alternative 3 design, as there would be an increase in the number of

residents occupying the Property. These changes would be addressed in the HCP, however, which would apply to this alternative.

Potential Impacts to Piping Plover Foraging Habitat and Behavior

Alternative 3 would not physically alter potential foraging habitat because construction would not occur in foraging habitat. Road construction in late 1999 and early 2000 did not have any effect on plover foraging behavior for reasons discussed in 4.3.1.3.1, above. Potential foraging behavior could be affected by human presence related to the Property, but negative effects would be minimized and mitigated to the maximum extent practicable by the issuance of an ITP.

Human use of the shoreline is not expected to physically impact potential foraging habitat directly in any substantial manner. Minor physical alterations may occur as a result of foot traffic and temporary placement of lawn chairs, etc. The level of this type of disturbance may be greater with Alternative 3, as a greater number of residents would have access to the beach. Walkway structures would be constructed in a similar manner as the proposed action. Other structures would be prohibited within the dune and beach area. Off road vehicle use would be prohibited and other restrictions on beach use would also be adopted.

4.4.1.3.2 Pitcher's Thistle

Alternative 3 would not result in any direct impacts to this species. Home construction would not affect this species because homes would be constructed entirely within the forested area. Access to the lakeshore and human use of the beach and dunes has the potential to impact this species through trampling of individual plants. As with the proposed action, however, this impact would be effectively minimized through use of walkway structures as appropriate. The greater number of residents may slightly increase the potential for impacts due to trampling.

4.4.2 Off-site Impacts

4.4.2.1 Wildlife

Off-site impacts to wildlife, which may occur in the form of increased competition for nesting or foraging habitat due to displacement of on-site wildlife species, is expected to be greater as compared to the proposed alternative, due to the lack of an established conservation easement. An increased density of home construction may also add to off-site impacts on upland wildlife.

4.4.2.2 Threatened and Endangered Species

4.4.2.2.1 Piping Plover

Potential impacts to off-site piping plovers might include displacement from adjacent foraging or nesting habitat if human activity associated with the project frightens plovers. The level of this potential displacement is not expected to be significantly greater than the proposed action. If plovers were to be disrupted during foraging, this likely would be a temporary alteration to foraging behavior. The plover conservation measures contained in an HCP would address the unlikely occurrence of these negative effects and mitigate their potential negative effect on individual plovers and the Great Lakes population.

4.4.2.2.2 Pitcher's thistle

Off-site impacts to the Pitcher's thistle are expected to be minimal. An increase in the potential for incidental trampling of plants may occur with this alternative, but levels of impact are considered to be minor.

4.4.3 Cumulative Impacts

4.4.3.1 Vegetation

The alteration of approximately 6 acres of mesic northern forest vegetation type would increase the cumulative impact on this vegetation type. However, this vegetation type is widespread throughout northern Michigan, covering thousands of acres. Cumulative impacts associated with Alternative 3 are expected to be slightly greater than the proposed action.

4.4.3.2 Wildlife

The loss of approximately 6 acres of mesic northern forest vegetation type would result in a minimal, incremental cumulative reduction of foraging and nesting habitat for wildlife species. The level of impact is expected to be incrementally greater than the proposed action. The lack of a conservation easement may increase the potential for cumulative impacts.

4.4.3.3 Threatened and Endangered Species

4.4.3.3.1 Piping Plover

Alternative 3 could contribute to cumulative impacts to piping plovers by altering habitat conditions and disrupting behavior patterns. This alternative would result in more residences with access to the shore, which could result in a greater cumulative impact to piping plover foraging or breeding activities on Cathead Bay. Additional cumulative impacts could result if this alternative set an example for a higher density of residences on similar property compared to fewer houses in the proposed action. However, implementation of the protective measures of an HCP would minimize or avoid any potential cumulative impacts of this alternative. Similar HCPs for future similar activities also could minimize cumulative effects.

4.4.3.3.2 Pitcher's Thistle

This alternative is not expected to contribute significantly to cumulative impacts to the Pitcher's thistle. Pitcher's thistle habitat has been subjected to negative impacts by human activity throughout its range, the level of additional construction associated with Alternative 3 is not expected to add significantly to this loss.

4.5 Alternative 4 – Alternative Site Design B

Alternative 4 would include construction of houses on six original platted tax parcels along the Lake Michigan shoreline. There would be no 52-acre conservation easement under this site design. Lots 1 through 4 were already platted, subdivided and individually owned in 1974 prior to the current proposed residential projects. These 4 easternmost lots are located in the area nearest to the State Park where plover nesting and foraging occurred (Figure 3). This area also contains potential secondary or marginal quality nesting habitat. Thus, of the entire shoreline of the Magic Carpet Woods property, this area exhibits the greatest potential for interaction between humans and plovers, and consequently adverse effects to the plover.

While foregoing the general environmental benefit of the 52-acre conservation easement, this site design would significantly reduce the marketability of the project and the property, and also could lead to significant uncertainty about future adverse impacts to the piping plover. The property owners' inquiries have indicated that large lots, such as lots 5 and 6 in this alternative, would not sell for the same return per shoreline frontage foot as the Alternative 2 lot sizes. The owners' research also indicated that most potential buyers would prefer smaller lots of the size proposed in Alternative 2. Further, lot 6 would have about 1,317 feet of beach frontage and a large acreage because of the absence of the conservation easement and would remain prime for future subdivision. Service consultations with area real estate appraisers indicated a likelihood that lot 6, because of its size and potential for subdivision, likely would sell for a significantly lower price. There is an inverse correlation between sale price per beach front foot and size of lots sold (D. R. Luedders, SRA, Frankfort, MI; S. Nichols, Terra Field Services,

Traverse City, MI). The owners would suffer a major financial loss with this alternative. Furthermore, the lot could be subdivided in the future with financial gain to the new owner, and with the introduction of many more people to the Magic Carpet beachfront. Lot 5, with about 325 feet of beach frontage, also likely would sell at a lower return for frontage foot than the Alternative 2 lot size and also could be subdivided in the future, although perhaps with more difficulty. The unequal size of lots in this layout may represent an inefficient use of the land for residential and real estate purposes. Fewer lots would result in decreased opportunities for per lot and per owner assessments and funding for the minimization and mitigation measures proposed in the HCP. Conversely, per owner assessments might need to increase in order to adequately fund HCP implementation, which could decrease lot marketability.

4.5.1 On-site Impacts

4.5.1.1 Vegetation and Wildlife

Construction of dwellings, driveways and the access road would result in the direct loss of trees, shrubs, and herbaceous vegetation outside of known or potential piping plover. As with the proposed alternative, vegetation clearing would be kept to a minimum to preserve the integrity of the critical dune area and the forest. It is anticipated, however, that approximately 4 acres of forest would be removed for home construction and approximately three acres for road construction. This alternative would result in fewer houses on the Property compared to the proposed action, and a conservation easement would not be established.

Alternative 4 would have less impact on wildlife than the proposed action or Alternative 3. The degree of forest fragmentation would be less. The benefit to wildlife from the establishment of the conservation easement, however, would be lost.

4.5.1.2 Threatened and Endangered Species

4.5.1.2.1 Piping Plover

Potential Impacts on Piping Plover Nesting Habitat and Breeding Behavior

The Alternative 4 design would not directly impact nesting habitat or breeding behavior at nesting locations documented to date. Construction activities completed on the Property (i.e. road construction) have not resulted in impacts to breeding piping plovers. Future construction of homes and walkway structures would not directly impact nesting habitat because such activities would not occur in areas of nesting. Breeding behavior is also not likely to be directly impacted by such activities due to the distance between these activities and current known breeding activities.

Although suitable nesting habitat is not currently found on the Property, beach characteristics may change in the future as a result of natural beach forming processes. In the event nesting habitat develops on the Property in the future, use of the beach by humans and pets associated with the Property is not likely to result in physical changes to nesting habitat on or adjacent to the Property. As with the proposed action, human activities could affect breeding behavior through disturbance of plover activities. The potential for disturbance initially may be somewhat less with this alternative, because there will be fewer houses and fewer people utilizing the beach. The location of the houses on lots 1,2,3 and 4, which is in the area of highest potential piping plover habitat value, would be in about the same location as for Alternative 2. Therefore, while there would be fewer occupants to use the entire Association beach, the likely density of occupants in the most important area on the property would be approximately the same. The potential negative impacts to current and future breeding and nesting behavior on the Property would be minimized to the maximum extent practicable by issuance of an ITP and its associated HCP.

As noted in the analysis of the proposed action, the numbers of potential plover predators generally increase due to human use of beaches and dunes, and construction of structures that can serve as perches (e.g. FWS, 1998b). Garbage and food scraps associated with human use of beaches likely attracts potential predators of plover eggs such as gulls, crows, raccoons, skunks, and opossums. Use of the beach by individuals associated with future homes on this Property potentially could change the distribution and abundance of predators and scavengers. The potential for this type of adverse effect may be somewhat less in the short term under this alternative because fewer houses and

people would be present. The effects of fewer houses and people in comparison with Alternatives 2 and 3 likely would be negligible because implementation of the HCP for Alternatives 2 and 3 would minimize or avoid effects of more houses and people. Furthermore, this alternative would create a potential for future subdivision of large lots that could introduce more houses and people, eliminating any minor initial advantage.

Potential Impacts to Piping Plover Foraging Habitat and Behavior

Alternative 4 would not physically alter potential foraging habitat because construction would not occur in foraging habitat. Road construction in late 1999 and early 2000 did not have any effect on plover foraging behavior for reasons discussed in 4.3.1.3.1 above. Potential foraging behavior could be affected by human presence related to the Property, but negative effects would be minimized and mitigated to the maximum extent practicable by the issuance of an ITP. Walkway structures would be constructed in a similar manner as the proposed action. Other structures would be prohibited within the dune and beach area. Off road vehicle use would be prohibited and other restrictions on beach use would also be adopted.

Human use of the shoreline is not expected to physically impact potential foraging habitat directly in any substantial manner. Minor physical alterations may occur as a result of foot traffic and temporary placement of lawn chairs, etc. The level of this type of disturbance may be less with this alternative because there would be fewer residences. However, as mentioned in the section above, the primary change in residence location would occur on the west end of the property which is furthest away from the highest quality plover habitat. Thus, the human density in the best habitat would be approximately the same, with some decrease in human density from the reduced number of occupants that would take long walks or jog on the beach. Furthermore, the possibility of future subdivision of the large 1,317-foot lot 6, and perhaps of lot 5 means that minor benefits to the plover, if any, of fewer houses and people for this alternative could be lost.

This alternative might seem at first to be the least harmful to the piping plover because it would result in fewer houses and less human activity. However, in summary of the discussion above concerning economic impact, future subdivisions and potential effects on the plover, this alternative likely would result in an economic loss to the owners without clear long term benefits to the piping plover. Lots 5 and 6 would remain prime for subdivision because of their large acreage without the 52-acre conservation easement. Lot 6 would be about 40 acres in size, and could accommodate a substantial number of houses or residential units. A future owner could subdivide in a way that allowed beach access to all owners, thus adding far more human activity and potential adverse impact upon the piping plover. This alternative introduces significant uncertainty with regard to future impacts on the piping plover, while Alternative 2 represents a complete and final action with regard to the number of residences and people on the Property and effects on the piping plover.

4.5.1.2.2 Pitcher's Thistle

Alternative 4 would not result in any direct impacts to this species. Home construction would not affect this species, as homes would be constructed entirely within the forested area. Access to the lakeshore and use of the beach and dunes has the potential to impact this species by trampling of individual plants. As with the proposed action, however, this impact would be effectively minimized or avoided through use of walkway structures. The lower number of residents may slightly decrease the potential for trampling.

4.5.2 Off-site Impacts

4.5.2.1 Vegetation and Wildlife

Recognizable off-site impacts to vegetation seem highly unlikely. Off-site impacts to wildlife, which may occur in the form of increased competition for nesting or foraging habitat due to displacement of on-site wildlife species, would be less than with Alternatives 1, 2, 3 and 5 because fewer residences initially would be built and less human activity would occur. But, possible future subdivision of large lots could result in additional impacts. The lack of an established conservation easement may result in a slightly greater off-site wildlife impacts because wildlife in this area would not be protected from residential construction.

4.5.2.2 Threatened and Endangered Species

4.5.2.2.1 Piping Plover

Potential impacts to off-site piping plovers might include displacement from adjacent foraging or nesting habitat if human activity associated with the project frightens plovers. The level of this potential displacement is not expected to be significantly less than the proposed action, even though fewer homes would be constructed. This is due to the location of the proposed homes near areas of greatest potential plover use on the east end of the Property. If plovers were to be disrupted during foraging, however, this likely would be a temporary alteration to foraging behavior. The plover conservation measures contained in an HCP would address the unlikely occurrence of these negative effects and mitigate their potential negative effect on individual plovers and the Great Lakes population.

4.5.2.2.2 Pitcher's thistle

Off-site impacts to the Pitcher's thistle would be limited to possible additional trampling. Although an increase in the potential for incidental trampling of Pitcher's thistle may occur with this alternative, the extent of such trampling would be minor and insignificant.

4.5.3 Cumulative Impacts

4.5.3.1 Vegetation and Wildlife

The alteration of approximately 4 acres of mesic northern forest vegetation type would increase the cumulative impact on this vegetation type. However, this vegetation type is widespread throughout northern Michigan, covering thousands of acres. Cumulative impacts associated with Alternative 4 are expected to be less than the proposed action.

The loss of approximately 4 acres of mesic northern forest vegetation type would result in a minimal, incremental cumulative reduction of foraging and nesting habitat for wildlife species. The level of impact is expected to be incrementally smaller than the proposed action. The lack of an established conservation easement may increase the potential for cumulative impacts.

4.5.3.2 Threatened and Endangered Species

4.5.3.2.1 Piping Plover

Alternative 4 could contribute to the cumulative impacts to piping plovers by altering habitat conditions and disrupting behavior patterns. However, implementation of the protective measures of an HCP would minimize or avoid potential cumulative impacts of this alternative. Presumably, this alternative would initially contribute less cumulative negative effects to the plover because it would result in fewer residences and less human activity along the bay. On the other hand, if the larger lots were subdivided in the future as discussed above in Sections 4.5 and 4.5.1.2.1, the level of cumulative impact to foraging or breeding activities on Cathead Bay could be equivalent or greater than with Alternatives 2 or 3. The likely economic loss to the current owners resulting from this alternative also could have indirect effects on the plover or other listed species. If the loss were perceived by other landowners as being a consequence of entering into an agreement with the Service to protect listed species, the likelihood of additional agreements in the future could be diminished. Notwithstanding the uncertainties of potential subdivision under alternative 4, implementation of the HCP for Alternatives 2, 3 and 4 would minimize or avoid negative effects on the plover and would tend to equalize the effects of those 3 alternatives.

4.5.3.2.2 Pitcher's Thistle

This alternative is not expected to contribute significantly to cumulative impacts to the Pitcher's thistle. Although Pitcher's thistle habitat has been subjected to negative impacts of human activity throughout its range, the level of additional human use and activity associated with Alternative 4 is not expected to add significantly to this loss.

House construction would occur outside Pitcher's thistle habitat and it is likely that boardwalks would be built for human passage through the dune area occupied by the thistle.

4.6 Alternative 5 – Use of Deed Restrictions Similar to Other Private Parcels on Cathead Bay

This alternative would not provide a property owner with the protections of an ITP and the Service would not have the level of assurance for species protection provided by an ITP with HCP. The use of deed recorded plover protection plans would mean that the Service would deal individually with each of the beach front lot owners to implement management and protection measures and gain access to the beach for species monitoring, protection or other biological study activities. Efficient coordination with multiple landowners likely would be difficult. The use of individual protection plans would not be as effective in this instance for the management or recovery of listed species or in minimizing potential negative impacts as would the proposed action, a site-wide ITP and Habitat Conservation Plan.

By contrast, the proposed action is a formal process under the ESA that provides a higher level of assurance that potential adverse impacts to listed species would be adequately minimized or avoided. The permittee would have a formal plan for minimizing and mitigating potential adverse impacts to listed species on its land, and would receive legal authorization for incidental take and assurance for the duration of the permit that additional conservation measures would not be imposed.

4.6.1 On-site Impacts

4.6.1.1 Vegetation and Wildlife

Construction of houses, driveways and the access road would result in the direct loss of trees, shrubs, and herbaceous vegetation outside of known or potential piping plover. The level of construction is expected to be equivalent to the proposed action.

Alternative 5 would have wildlife impacts similar to Alternatives 1 and 2.

4.6.1.2 Threatened and Endangered Species

4.6.1.2.1 Piping Plover

Potential Impacts on Piping Plover Nesting Habitat and Breeding Behavior

Alternative 5, the use of deed restrictions, likely would not result in direct impacts to habitat or breeding behavior, as with the proposed action. Construction activities completed on the Property (i.e. road construction) have not resulted in impacts to breeding piping plovers. Future construction of homes and walkway structures would not directly impact nesting habitat because such activities would not occur in areas of nesting. Breeding behavior is also not likely to be directly impacted by such activities due to the distance between these activities and current known breeding activities.

As discussed for the proposed action, suitable nesting habitat is not currently found on the Property, but characteristics may change in the future as a result of natural beach forming processes. In the event nesting habitat develops on the Property in the future, use of the beach by humans and pets associated with the Property is not likely to result in physical changes to nesting habitat on or adjacent to the Property. As with the proposed action, human activities could affect breeding behavior through disturbance of plover activities. The potential for this type of disturbance is expected to be equivalent to the proposed action. However, the potential negative impacts to current and future breeding and nesting behavior on the Property may not be minimized to the maximum extent practicable due to the lack of a formal issuance of an ITP and its associated HCP.

Potential Impacts to Piping Plover Foraging Habitat and Behavior

Potential impacts to foraging habitat associated with Alternative 5 are expected to be equivalent to the proposed action. Road construction in late 1999 and early 2000 did not have any effect on plover foraging behavior for reasons discussed above. Potential foraging behavior could be affected by human presence related to the Property and these activities likely would be more difficult to minimize with individual deed restrictions.

This alternative would result in residences and occupants on 13 individual lots along a one-half mile section of beach as in Alternatives 1 and 2. Unlike Alternative 1, where potential effects to piping plovers would not be minimized and no protection or management actions would be provided for, this alternative might result in all or some landowners agreeing to some level of plover protection and management. The process of implementing individual deed restrictions likely would be more difficult and less efficient in contrast to Alternative 2. There is no guarantee that each landowner would be cooperative, or that equal protective measures would be negotiated with each landowner. The HCP process instead would make it possible for the Service to work with a single point of contact through the Magic Carpet Woods Association that would facilitate communications and actions between the Service and the Association to protect and benefit the plover. The HCP also would provide more flexibility, consistency, control and specificity with multiple landowners of the Magic Carpet property than would the individual deed restrictions. The uncertainties and inefficiencies associated with this alternative mean there is a strong likelihood that it would not protect the piping plover from negative impacts nearly as well as would the proposed action.

4.6.1.2.2 Pitcher's Thistle

Alternative 5 would not result in any direct impacts to this species, however protective measures may be more difficult to assure, as the Service would need to work with each individual property owner.

4.6.2 Off-site Impacts

4.6.2.1 Vegetation and Wildlife

Off-site impacts to wildlife, which may occur in the form of increased competition for nesting or foraging habitat due to displacement of on-site wildlife species, will be equivalent to the proposed alternative.

Direct impacts to vegetation off-site would not occur.

4.6.2.2 Threatened and Endangered Species

4.6.2.2.1 Piping Plover

Potential impacts to off-site piping plovers associated with Alternative 5 are expected to be equivalent to the proposed action.

4.6.2.2.2 Pitcher's thistle

Off-site impacts to the Pitcher's thistle are expected to be minimal.

4.6.3 Cumulative Impacts

4.6.3.1 Vegetation and Wildlife

The alteration of approximately 5 acres of mesic northern forest vegetation type would increase the cumulative impact on this vegetation type. However, this vegetation type is widespread throughout northern Michigan, covering thousands of acres. Cumulative impacts associated with Alternative 5 are expected to be equal to the proposed action.

The loss of approximately 5 acres of mesic northern forest vegetation type would result in a minimal, cumulative reduction of foraging and nesting habitat for wildlife species. The level of impact is expected to equal to the proposed action.

4.6.3.2 Threatened and Endangered Species

4.6.3.2.1 Piping Plover

Alternative 5 could contribute to the cumulative impacts to piping plovers by altering habitat condition and disrupting behavior patterns in a manner equivalent to the proposed action. Deed restrictions would help to minimize or avoid any potential cumulative impacts of the project, but because of the inefficiencies, uncertainties and inconsistencies inherent in this approach, cumulative impacts to piping plover would be greater for this alternative than with the HCP in Alternatives 2, 3 and 4. These cumulative impacts could be magnified if only deed restrictions rather than HCPs were used in future residential developments in piping plover areas.

4.6.3.2.2 Pitcher's Thistle

This alternative is not expected to contribute significantly to cumulative impacts to the Pitcher's thistle. Although Pitcher's thistle habitat has been subjected to human impact throughout its range, the level of additional impact associated with Alternative 5 is not expected to add measurably to this loss.

4.7 Summary of Effects

Table 4 summarizes the potential environmental effects discussed in Section 4.

Table 4. Summary of Key Potential Effects of Alternatives

	ALTERNATIVE NUMBER					Current Conditions
	1	2	3	4	5	
	No Action	Proposed Action	Alternative site design A	Alternative site design B	Alternative deed restrictions	
Number of lots with beach access on Cathead Bay	13	13	18	6	13	13
Affected Resource						
Forest habitat (acres permanently converted)	5	5	6	4	5	3
Plover nesting habitat/ breeding activities	None Present	None	None	None	None	None
Plover foraging habitat/ activities	Possible interruption of brood foraging behavior. Potential future impacts on nesting.	Minimal to no impacts. Possible interruption of brood foraging and potential impacts on future nesting minimized or removed by HCP	Minimal impacts. Increased possibility of interruption of brood foraging and potential impacts on future due to increased number of residents	Minimal impacts. A reduced possibility for interruption of brood foraging and potential impacts on future nesting due to fewer residents	Minimal, but greater potential impacts than alternatives 2,3 and 4. Possible temporary interruption of feeding; absence of monitoring to support recovery	Uncertain, but likely impacts on brood foraging due to trespass and other unrestricted human activity
Plover cumulative effects	Negative, effects not minimized, very poor future model	Effects minimized by HCP, positive model for similar future actions	Effects minimized by HCP, less desirable, more houses and people	Effects minimized by HCP, but future uncertain, poor model for future	Negative, uncertain or incomplete minimization, future impacts greater, poor future model	No change, no plover protection
Potential incidental take minimized and mitigated to maximum extent practicable?	No	Yes	Yes	Yes	No	No
Biological monitoring/ plover stewardship activities	Not supported	Supported	Supported	Supported	Not supported	None
Pitcher's thistle effects	Minimal	Minimal to none	Minimal	Minimal to none	Minimal	Minimal
Economic effects to landowner	Positive	Positive, cost of HCP	Positive, HCP cost	Negative, major loss, HCP costs	Positive	No change
Land use	No requirements for restrictions on shoreline use other than Master Deed and covenant restrictions	Regulated use of shoreline	Regulated use of shoreline	Regulated use of shoreline	Minimal controls on shoreline use	Undeveloped forest and beach with possibility of trespass
Cultural Resources	No impacts to identified resources	No impacts to identified resources	No impacts to identified resources	No impacts to identified resources	No impacts to identified resources	No impacts to identified resources

5. LIST OF PREPARERS

Name	Affiliation	Contributions
Mike DeCapita	US Fish and Wildlife Service/East Lansing Field Office	Biology/Endangered Species
Jack Dingleline	US Fish and Wildlife Service/East Lansing Field Office	Endangered Species/NEPA support
Craig Czarnecki	US Fish and Wildlife Service/East Lansing Field Office	Reviewer/ELFO Supervisor
Rick Whitney	Independent environmental consultant	Background, environmental baseline
Frank Petty	Magic Carpet Woods Association	Project Descriptions/Applicant
Jeff Gosse	US Fish and Wildlife Service/Region 3 Office	NEPA Review and Coordination
Pete Fasbender	US Fish and Wildlife Service/Region 3 Office	ITP Preparation/Permit Coordinator
TJ Miller	US Fish and Wildlife Service/Region 3 Office	Endangered Species Chief/ES Operations

6. LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE EA ARE SENT

Kohler and Black, PLC
161 E. Front Street, Suite 220
PO Box 1031
Traverse City, MI 49685-1031
PH: 231-929-9471 Fax 231-929-9476

The Grand Traverse Band of
Ottawa and Chippewa Indians
2605 N. West Bayshore Drive
Suttons Bay, MI 49682
PH: 616-271-3538

Dave Brigham, Kenneth Wylie, Jon Brabenec
Leelanau Forum
9881 E. Engles Rd.
Northport, MI 49670
PH: 231-386-5785

Jim Lively, Shoreline Protection Coordinator
Michigan Land Use Institute
845 Michigan Avenue, PO Box 228
Benzonia, MI 49616
PH: 231-882-7350
Internet: www.mlui.org

Nancy L. Bischof, DVM MPH
2264 Kenmore
Okemos, MI 48864

Laura Hood Watchman, Director, HCP
William J. Snape, III, VP for Law and Litigation
Defenders of Wildlife
1101 Fourteenth Street, NW Suite 1400
Washington, DC 20005
PH: 202-682-1331

Elizabeth Godfrey
330 N. Carroll St, #205
Madison, WI 53703

Chief, Wildlife Division
Michigan Department of Natural Resources
Stevens T. Mason Bldg.
P.O. Box 30444
Lansing, MI 48909-7944
Attn: P. Lederle

Judy Soule, Director
Michigan Natural Features Inventory
Stevens T. Mason Bldg.
P.O. Box 30444
Lansing, MI 48909-7944

7. PUBLIC COMMENT AND RESPONSE

The first draft EA/HCP draft EA/HCP and Implementing Agreement that were submitted with the March 29, 2000 permit application were made available for public review and comment from April 20 - May 22, 2000 (65 FR 21203, April 20, 2000). A November 6, 2000 draft of this EA/HCP was made available for public review and comment from November 13, 2000 to December 13, 2000 (65 FR 67753, Nov. 13, 2000). Drafts of all documents were made available for public review and comment during a second 30-day period from December 21, 2000 through January 22, 2001 (65 FR 80451, December 21, 2000). The November 13 comment period resulted in 34 responses, the December 21 period resulted in 8 comments. The following section lists the majority of comments from all 3 public review periods and our response to them. (The URL for references to our web site is "<http://midwest.fws.gov/NEPA/index.html>".)

Issues in Opposition to Permit Issuance	Response
1. any further development detrimental to piping plover survival	Although construction and occupancy of houses in or near occupied or potential habitat could possibly harm piping plover, the HCP will minimize potential detrimental effects of the Magic Carpet project so that the project will not jeopardize the survival and recovery of the Great Lakes piping plover population.
2. delay permit until critical habitat final designation	There are no legal or regulatory reasons to delay issuance of the ITP until the critical habitat designation is final. The Service has, in its Biological Opinion, addressed the effects of its action on the proposed critical habitat as though the designation was final. The HCP will provide greater protection on this site than the critical habitat designation alone absent any federal involvement.
3. permit being "pushed through" before critical habitat is finalized	The chronological progress of the Magic Carpet Woods Association ITP and HCP process is independent of the critical habitat proposal. Critical habitat units were proposed on July 6, 2000 as the result of a lawsuit filed in December 1996. Our first contact with the Magic Carpet owners was in March 1998. Development of an HCP began in late 1999, and the permit application was submitted on March 29, 2000.
4. complete an EIS; development small, but impacts quite significant	We have determined through an Environmental Assessment and Finding of No Significant Impact (FONSI) that this action does not constitute a major federal action significantly affecting the quality of the human environment, therefore, an EIS is not required. The [date] FONSI is available on our web site.
5. deny permit	An application for an ITP has been submitted. Regulations (50 CFR 17.22(b)(2) state that the Director shall issue the permit if the issuance criteria have been met. We have determined that the issuance criteria have been met (see Findings on the web site).
6. bar development; do not allow project to go forward	The Service has no authority to bar the project on this private land. The Service cannot compel any party to apply for an ITP. The applicant voluntarily applied for the permit and provided protection measures for the piping plover. Should a party proceed with an otherwise legal activity which results in a violation of section 9 of the Act (i.e., take of piping plover), the Service would consider appropriate enforcement action.

Issues in Opposition to Permit Issuance	Response
7. HCP fails to identify parties responsible for enforcement; no discussion of accountability of Assoc. for implementation; no mechanism for monitoring Assoc. actions; enforcement appears toothless; fails to specify consequences for failure to implement; penalties unclear; no discussion of enforcement actions or penalties	The Service has enforcement jurisdiction in this matter. Should terms of the ITP be violated, the permit could be revoked. Violations also could result in law enforcement action under section 9 of the Act. Further consequences are those resulting from criminal or civil penalties in section 11 of the Act for violation of section 9. The Implementing Agreement (IA) provides a process to be followed by the Association in the event of violations by its members.
8. critical habitat requires more substantive management; a plan must meet standards for development in critical habitat	There are no specific requirements for any particular type of management on designated critical habitat. Federal agencies alone are responsible for assuring that their actions do not destroy or adversely modify critical habitat. There are no specific standards for development in critical habitat. Specific management may evolve from federal agency responsibility. The type and level of such management is not dictated by any regulation, but would be developed to meet case specific circumstances. In this case, no physical destruction or alteration of critical habitat will occur. Management and protection specified in the HCP for the piping plover also will protect critical habitat.
9. jeopardizes nearby nests; any take would have large negative impact; HCP does not minimize and mitigate; HCP does not minimize and mitigate to maximum extent practicable	We find that potential impacts on the piping plover and its nearby nests will be minimized and mitigated to the maximum extent practicable by implementation of the HCP. The impacts of the action will not appreciably reduce the likelihood of the survival and recovery of the plover. It is our biological opinion that this action will not jeopardize the existence of the Great Lakes piping plover or destroy or adversely modify critical habitat.
10. Service should ensure that mitigation measures minimize and mitigate to the maximum extent possible	The impacts of incidental take must be minimized and mitigated to the maximum extent <i>practicable</i> , not to the maximum extent possible.
11. hold public hearing	Public hearings are not required for purposes of an EA. However, we have provided three separate 30-day public comment periods. We have considered all comments received.
12. it is untrue that the development would protect, enhance and increase populations, or that it will preserve and enhance habitat	We removed language in the HCP that stated the project and the ITP/HCP would enhance populations or habitat. However, we find that the project with HCP implementation will not appreciably reduce the survival and recovery of the Great Lakes piping plover population. Habitat on the site will not be destroyed and its ability to support future piping plover breeding and foraging on Cathead Bay will be maintained.
13. FWS myopic in not assuming piping plover will breed on property	We specifically assumed piping plover might nest on the property in the future. The HCP contains provisions for protection of nests that may occur there.

Issues in Opposition to Permit Issuance	Response
14. limit beach access to one boardwalk	It would not be practicable or sensible to attempt to confine all beach access to one boardwalk. A single boardwalk, presumably near the center of the 1/2 mile lake frontage, would require those furthest away to walk up to 1/4 mile to reach the boardwalk before turning toward the beach. This likely would encourage more unrestricted foot traffic through the dunes, thus increasing, rather than decreasing, potential impacts on Pitcher's thistle and other dune vegetation. Furthermore, a benefit to piping plover seems unlikely because the same number of people (same amount of disturbance) would access the beach anyway. We believe all potential impacts to listed species have been adequately addressed for the project as designed.
15. specify leash length	The HCP makes clear that harm to plovers caused by pets is not covered by the permit and could result in law enforcement action.
16. post sign listing protective measures inside front door of each residence	We do not believe this is appropriate for the type of structures planned and that it would not provide any meaningful benefit to listed species. It is our judgement that Association members, lessees and guests will be adequately informed as to their responsibilities under the current proposal.
17. easement does not include plover habitat	We agree. Additional impacts to plovers are avoided because the owners will not sell residential lots with beach access privileges within the easement area that would have resulted in additional houses and more people on the 90-acre Property. The easement represents a voluntary action by the landowners.
18. jet skis not mentioned	Language has been added to the HCP to limit the potential effects of jet ski, or personal watercraft, use.
19. no discussion of environmental baseline, i.e., no development; baseline discussed as no action development with no permit, invalid	The environmental baseline was covered in Section 3, Description of the Affected Environment, in the November 6, 2000 draft EA. Current conditions also are compared in Table 4. Our Biological Opinion, available on our web site, also discusses the environmental baseline.

20. the No Action Alternative as described will result in take; no action is false; no action is illegal, FWS on record take is likely; no action must be no development and no take

At this time, it is not possible to state definitively that take will occur as a result of residential construction on the property without an HCP. Take remains a possibility if the No Action Alternative occurs as described in the EA. Violations of section 9 of the Act would fall under the responsibility of Service law enforcement. We disagree that the No Action Alternative as described is or would be illegal. The Service cannot compel any person to apply for a permit. The HCP handbook, Chapter 1, page 1-4 states:

“If take cannot be avoided, the Services will recommend that an incidental take permit be obtained. The decision to obtain a permit lies with the prospective permit applicant. However, should the applicant ultimately elect not to obtain a permit, and an unauthorized take attributable to project activities occurs, the responsible individuals or entity would be liable under the enforcement provisions of the ESA”

The non-issuance of a permit, or the failure to apply for a permit, are not illegal actions. The handbook implication is clear - an individual may proceed with a project without a permit, but risks enforcement action if the prohibitions of the Act are violated. Thus, the Magic Carpet Woods Association could proceed with its action without an ITP. It would be the Service’s responsibility to enforce section 9 if appropriate.

If the Magic Carpet Woods Association were to proceed without an ITP, no HCP would be in place to provide protective measures for the piping plover. No monitoring of plover use of the property would be possible without the owners’ permission. The owners would have the legal right to bar any person, including resource agency personnel, from the property.

21. Alternative 4 inadequate, must consider less density on site; must have alternative which reduces human impact by reducing density

Alternative 4 considered 6 lots compared to the proposed Alternative of 13 lots. Commenters believed that fewer houses on the Property would reduce the indirect impacts to the plover, but that only one or two lots less than the proposed Alternative would not show a measurable difference. The analysis of Alternative 4 indicated that 6 lots might slightly reduce impact to the plover, but would have a major negative economic impact to the property owners and potentially increased per lot assessment costs for Association members. The possibility for lot 6 to be subdivided in the future would remain with no guarantee that an HCP/ITP would be sought. Additional reduced lot size configurations were not explored because our analysis indicated the result would be similar, both in minimal benefit to the plover and major economic loss to the property owners. Through the NEPA and HCP/ITP processes, the Service can influence private land use on a mutually agreeable basis. However, if a private landowner never applies or discontinues application for an ITP, the Service has no authority to impose a particular housing arrangement. Our responsibility in issuing an ITP is to see that the impacts of incidental take are minimized and mitigated to the maximum extent practicable. It is our judgement that we have met this responsibility for the proposed alternative.

Issues in Opposition to Permit Issuance	Response
22. alternatives do not consider that lots 1 and 2 are of particular concern, contain potential nesting and foraging habitat; must consider alternative that reduces impact on eastern 1/3 of property	The entire property is given a level of protection that adequately covers the possibility that piping plovers will forage and may nest anywhere on the property beach.
23. no discussion of extent of take likely to occur	Take is specified in the permit and is discussed in the Biological Opinion.
24. Period of critical nesting should extend until birds leave the area rather than only 35 days after hatching	Scientific evidence is clear that piping plover chicks are likely to fledge within 21-30 days after hatching. Protection to 35 days provides adequate time to allow development of full flight capability. Birds at 35 days of age are capable of flying. Once able to fly, young birds make extensive movement within the Great Lakes region, leaving and returning to their birth area until they finally depart for migration. It is difficult to define or determine exactly when chicks have finally left an area in a given year. Thus it is impractical to use departure as a determinant for ending protective measures.
25. inappropriate, erroneous to discuss owners' right to economic return; inaccurate to state that the owner has right to determine how to develop	Our HCP handbook (p. 3-35) states that economic considerations are permissible, especially when the effects on the applicant would be significantly adverse or economically infeasible. The owners' economic return is related to the practicability of a desired alternative. The size, number and distribution of building lots on the property could impact economic return. Again, the Service lacks authority to dictate a particular number and arrangement for houses on this private property. The widest range of discretion as to the use of this property lies with the owners and with other regulatory bodies, such as the township planning commission. Our role is limited to the minimization of impacts to the listed species.
26. discussion of current human use is irresponsible, based on anecdote; baseless to say current use greater threat to plover than proposed alternative	A discussion of current human use of the property is relevant to the environmental baseline. It is difficult to determine the precise level of current use as well as the precise level of use under the project. Objections were raised as to our "anecdotal" description of current use, but we are aware of no data on which to base a more accurate assessment. There should be no doubt that current use, regardless of the level, is unregulated in terms of impacts on piping plover.
27. FWS fails to acknowledge fewer units better for bird; instead, FWS asserts alternative 4 has same density at east end, thus same effects as proposed	We acknowledge that less human use, or perhaps, no human use of the property would lessen potential impacts on the piping plover. However, such scenarios are unrealistic. The best interests of the piping plover are not the only considerations in the use of this privately owned land. This private land is subject to the legal use which has been described in the Proposed Alternative, even though commenters may disagree with the owners' wishes. The impact of human activity will be limited and modified through implementation of the HCP.
28. no major changes were made to the March 29 draft; addressing Defenders of Wildlife objections to 3/29 draft would have required major changes	It is our determination that the HCP provisions will minimize and mitigate impacts to the piping plover to the maximum extent practicable, and that the 50 CFR 17.22 criteria for permit issuance have been met. Many changes have been made to the EA and HCP since the March 29 draft.

Issues in Opposition to Permit Issuance	Response
29. parcel lies in an extremely important area for plover breeding and recovery	We agree that the Cathead Bay area is important for piping plover recovery. The Property itself is probably used for foraging and may have potential for future nesting. This is a reason we believe the project warranted an ITP and HCP.
30. any take would have a large negative impact on survival and recovery; detrimental effects on plover underestimated	We do not agree that <i>any</i> take would have a large negative impact on plover survival and recovery. We are not aware of data supporting the claim that any take would have a large negative impact. If take occurs on the property, it is most likely be inadvertent disturbance of a foraging plover, something which in itself is not likely to harm the population. Take, in our judgement, has been minimized to the maximum extent practicable and to the extent that survival and recovery will not be appreciably reduced.
31. HCP lacks significant provisions to avoid incidental take	The HCP will minimize incidental take to the maximum extent practicable, although there is the potential that some take may occur in the future. In this case, we believe that with application of the HCP measures, the level of take will be low.
32. unacceptable to say proposed action consistent with recovery plan	The ITP and HCP are consistent with the Recovery Plan. The HCP addresses a number of recovery tasks in the 1988 Plan, which is the most recent approved Plan. Section 8.3 of the HCP describes how measures in the HCP will assist in the implementation of selected recovery tasks spelled out in the plan. The HCP also will be consistent with a new recovery plan specifically for the Great Lakes piping plover that is under development. For example, recovery task 1.17 of the current draft states: Develop agreements with private landowners and townships to allow monitoring and management efforts on private and municipal lands.
33. issuance of ITP would be illegal, violation of 10(a)(2)(b)(ii)	The impacts of taking have been minimized and mitigated to the maximum extent practicable. Permit issuance criteria have been met, issuance of the permit is in compliance with the Act and regulations.
34. \$1000 per house does not help minimize, does not protect comparable off site habitat; indicate this is an amount the applicant is volunteering	The potential impacts of incidental take are minimized without the \$1000/lot assessment. These assessments are not intended to fund implementation of the HCP; that funding is provided separately by the permittee. The assessments will help mitigate effects of the project by establishing a fund to be used for plover conservation activities throughout the Great Lakes piping plover breeding range. Although the fund may be used in the future to protect off-site habitat, there is no requirement that the assessments or the fund protect comparable off-site habitat. Language was added to the HCP reflect that the amount was determined voluntarily by the applicant.
35. Voluntary rules to keep pets restrained unlikely to be effective; impacts of unrestrained pets severe, must be avoided	We disagree that HCP measures are voluntary. We agree with the concern for the impacts of unrestrained pets. A special note was added to the HCP to make it explicit that take of piping plover by unrestrained pets is not authorized by the ITP.
36. suggest fewer lots, more restrictions on pets, seasonal construction restrictions, off-site mitigation by purchase of similar habitat, single access to beach for plover and thistle	The Service considered all suggestions. We determined that the ITP and HCP as issued will adequately protect the piping plover from potential impacts of the project.

Issues in Opposition to Permit Issuance	Response
37. request extension of time to comment	A total of 90 days has been made available for public review and comment on this project. Our first public announcement of the intention to issue a permit and the first release of documents occurred on April 20, 2000. It is clear from other actions, such as Freedom of Information Act requests and 1996 township referendum, that the project has been known to some members of the public well before that date.

Summary Comment

Many comments indicate a misunderstanding of Fish and Wildlife Service authority in regulating the use of private property. Many writers asked us to deny the permit and bar the project, or asked that we impose various specific measures to reduce or eliminate perceived negative impacts.

The Service does not have the authority to simply bar or disallow use of the Magic Carpet Woods property as its owners desire. We have authority to enforce the prohibitions of section 9 of the Endangered Species Act against the take of listed species. Depending on the circumstances of a situation, enforcement of section 9 could lead to modifications in the use of private property. We also have authority to issue permits that allow take and to enter into agreements with private landowners to protect listed species. We do not have authority to force a private landowner to apply for a permit or to engage in conservation or protective activities for listed species. The owners of the Magic Carpet Woods property voluntarily applied for an ITP and developed, with our help, a mutually agreeable conservation plan they will abide by. The Service is not in a position to unilaterally dictate measures of the conservation plan or how many houses the owners could construct on their property. Instead, we worked with the landowners to develop measures for the protection of piping plovers that would minimize and mitigate the impacts of incidental take to the maximum extent practicable. We have agreed on a conservation plan that meets the criteria for issuance of an ITP. Several commenters provided suggestions for protective measures that they believe are necessary to protect the piping plover, but that we did not incorporate into the HCP. We believe the agreed upon plan meets the criteria for issuance of the permit and for meeting our own obligations under NEPA and section 7 of the Act.

Summary of Service Revisions to the EA and HCP

The EA was revised substantially with the consideration of modified alternatives and expanded effects analysis.

The HCP item dealing with restrictions on pets was modified and a statement was added explicitly prohibiting take resulting from unrestrained pets.

HCP language restricting picnics on the beach during the critical nesting period was modified.

HCP measures were added to restrict use of firearms, fires, fireworks, kites, and jet skis.

HCP specifies that the Association will provide funding to initiate a trust account to be used for piping plover conservation off the Property. This fund will be maintained by a third party and will accept additional amounts from other parties.

Some of the March 29, 2000, HCP items not contributing to minimization of effects were removed, such as items #1 #2 and #31.

Comments in Support of Permit Issuance

The following are some excerpted comments by those supporting issuance of the ITP. We provide no response to these comments.

eliminates flow of trespassers

opponents are many local trespassers

consistent with township master use plan and zoning ordinances

soundly addresses environmental concerns; responsive to environmental issues

numerous provisions to protect plover

1997 township referendum supported rezoning by 60/40; opponents ignore local democratic process

tasteful siting, single access to property

opponents use FWS and ESA as a pretext

owners stuck in bureaucratic limbo for years

8. HABITAT CONSERVATION PLAN

As part of the proposed project, implementation of this HCP will minimize and mitigate any potential negative impact to piping plovers and other natural resources present on the Property.

The Service's addendum to its final Handbook for Habitat Conservation Planning suggests that an HCP should have identified biological goals and objectives. The biological goals and objectives for this HCP are to allow natural piping plover use of the property and to provide site-specific support on the Magic Carpet Woods property in the Cathed Bay area to support the overall Great Lakes recovery plan population goal of 150 pairs of piping plovers. The activities addressed by the permit and HCP do not entail any physical alteration of the beachfront habitat or potential habitat for the plover. Instead, the plan provides that natural processes will be allowed to function in the configuration of the beach and related plover habitat or potential habitat. The primary purpose of the plan is to address human activities in order to avoid human alteration of this habitat or potential habitat and allow natural use of the beach by piping plovers. The plan further allows activities necessary for the protection and monitoring of any plovers that may use the property.

In evaluating these HCP minimization and mitigation measures, the applicant, together with the Service, compared the HCP conditions to the baseline existing without the HCP and that would substantially continue under the No Action alternative. That baseline includes: no access by the Service or its designee to the Property for monitoring or nest protection purposes; no funding support from the Property owners for monitoring or stewardship activities; and unlimited potential campfire, fireworks, and vehicle use along the beach.

The proposed HCP provides for the following described minimization and mitigation measures, together with additional mitigation through funding of a trust account. These measures are a significant improvement over current baseline conditions and serve to minimize and mitigate the effects of potential incidental take of piping plover to the maximum extent practicable, consistent with the otherwise lawful activity of residential construction on the Magic Carpet property.

8.1 Minimization and Mitigation Measures

The project and related activities will be undertaken in accordance with state laws and Leelanau Township ordinances. In addition, Magic Carpet Woods Association will place additional restrictions on future property owners to further protect natural resources, especially the piping plover. The restrictions and mitigation measures listed below will minimize and mitigate potential adverse effects to piping plovers that might result from future home construction and residential activities.

1. An 80-foot protective setback from the ordinary high water mark (OHWM) of Lake Michigan will be established. This setback area will remain in its natural state except for the possible placement of posts for a deck on each homesite no closer than 65 feet from the OHWM, and the placement of one walkway structure or pathway to the beach for each homesite, as necessary, to allow safe access to the beach. Such structures will not exceed 48 inches in width. Only a 40-foot setback is required under the present zoning. *See* Master Deed Article VIII (Restrictive Covenants Running with the Land) in Appendix 10.3.

2. Construction of boardwalks or walkways along the shoreline will be located from the forest to the crest of the foredune as needed to safely access the beach and create a single access lane to minimize human-caused dune erosion and avoid disturbance or damage to federal and state protected plant species. Although boardwalks may be constructed on each lot, given site topography, it is likely boardwalks will only be required on Lots 1 through 5.

3. Towering structures of flagpoles, antennas, and satellite dishes are not allowed within the shoreline area. Likewise, "activity platforms" which typically contain grills, picnic tables, etc. are not allowed along any portion of the shoreline. No satellite dishes are allowed from the shoreline through the open dune area. No bird or animal feeders are allowed in the shoreline through open dune area.

4. Removal or planting of vegetation in the active dune area is prohibited. Disturbance to the existing active dune area through alteration of sand, gravel, rocks, water, or plants is prohibited.

5. Major construction activities (construction of homes or attendant buildings) will be completed prior to limited removal of trees and shrubs lying between construction activities and the shoreline (*See #7*). This woody vegetation will serve as a visual and auditory buffer between construction activities and the shoreline.

6. Construction of docks within Lake Michigan will not be permitted. *See Master Deed Article VIII (Appendix 10.3)*.

7. Vegetation alteration within the 80-foot setback area will be limited to removal of fallen, dead, diseased or dangerous trees, and selective trimming of trees to provide a filtered view of the water. *See Master Deed Article VIII (Appendix 10.3)*.

8. Vegetation removal on slopes greater than 33% is limited to trees less than 6 inches diameter by Part 353, Sand Dune Protection and Management, of Michigan Public Act 451, as amended.

9. All pets must be restrained or under direct control (i.e. with electric or invisible fencing) at all times while outside. Pets must always be on a leash when on the beach during the critical nesting period (i.e. when nest site selection activities commence until offspring are able to fly, assuming offspring reach this stage of development). This period will run from April 15 through the end of June of each year, or until all piping plover chicks hatched from nests on or within 0.5 miles of the project property are 35 days old, unless otherwise agreed to by the Association and the Service. The Association Board of Directors will promulgate an appropriate rule to implement this measure. *See Magic Carpet Woods Bylaws Article VI, Section 6.6 (Appendix 10.4)*. The Service may provide earlier release of this condition on a specific year-to-year basis if warranted by local conditions such as absence of plovers from the area. Stray dog sightings detected by the on-site steward will be immediately reported to appropriate animal control or law enforcement entities (FWS, county animal control office, or Michigan Department of Natural Resources (MDNR) Conservation Officer).

SPECIAL NOTE REGARDING PETS: The Incidental Take Permit DOES NOT AUTHORIZE death, injury or disturbance of piping plovers caused by unrestrained pets of Magic Carpet Woods residents, visitors, and guests. The U. S. Fish and Wildlife Service may consider any such death, injury or disturbance a violation of section 9 of the Endangered Species Act of 1973, as amended, and may take appropriate criminal and or civil enforcement action.

10. Access to the beachfront of the site condominium property by FWS or MDNR representatives to observe or monitor piping plovers will be permitted provided reasonable notification of the timing and extent of the survey(s) is given to the primary contact of the homeowners association (Association). This contact will notify individual lot owners of the survey(s). FWS or MDNR representatives will be provided access to the entire beachfront owned by members of the Association.

11. All occurrences, if any, of piping plovers on the property as detected by monitoring provided or supported by the Association or other source will be promptly reported to the FWS.

12. Garbage will be placed in covered animal-proof containers that will be stored year-round in an area within the forest to minimize attracting potential plover predators to the beach. Garbage or unenclosed food will not be left unattended along the shoreline.

Biological Monitoring and Protection

13. The Association will ensure that biological monitoring of piping plover use of the property, including nest/brood protection, is conducted in accordance with methodology and content agreed upon by the Service and typically used elsewhere for the Great Lakes population. Biological monitoring generally will include routine repeated searches for nesting activity and continuing observations of any plover foraging or breeding, alterations to shoreline characteristics that could increase or decrease apparent habitat suitability, and interactions between plovers and humans or pets that could impact plover use of the property.

14. The Association will participate in current FWS-endorsed monitoring efforts and allow monitoring team access to the property shoreline. This existing monitoring program will expand its current efforts to include the Magic Carpet property, thereby providing information in the same format and detail that is currently provided to the Michigan Department of Natural Resources Endangered Species Program and to the Service.

15. In the event the existing monitoring program discontinues its efforts sometime in the future or if its efforts do not include the Magic Carpet property, the Association will identify and use, in coordination with FWS, other monitoring programs in Cathead Bay (e.g. by the State Park or the Michigan MDNR), and ensure continued biological monitoring. If no existing or ongoing monitoring programs are available for cooperative efforts, the Association will contract with a qualified consultant, in coordination with FWS, to perform seasonal biological monitoring. Any party performing the monitoring program will submit for the Service's approval an appropriate survey protocol prior to conducting surveys.

16. Biological monitoring and protection will occur between the last week in April and the end of June or until all piping plover chicks hatched from nests on or within 0.5 miles of the project property are 35 days old. (Monitoring includes the process of searching for nests in the Cathead Bay area.) The total amount of time spent monitoring the property and the daily and weekly distribution of monitoring will be in accordance with the current protocol used for the existing piping plover monitoring program.

17. Piping plover nests found on the project (Association) property will be accorded the same protection from disturbance and predation provided for nests on public property in the Great Lakes region. (A current recovery plan may serve as a reference for current nest and brood protection protocols.) Plover monitors or stewards will be permitted to erect predator exclosures and close the surrounding beach area to human entry with psychological fencing. The closed, fenced area will extend about 100 m beyond each nest and parallel to the shoreline and from the toe of the foredune to the waterline. No unauthorized activity may take place inside a closed nesting area. During the approximately 30-day period a nest is being incubated, human traffic may pass the nest by walking between the lake waterline and the fencing. During nest incubation and during the rearing period prior to chick fledging, the Association will maintain regular daily or near daily contact with the plover steward/monitor to keep informed of brood movements and behavior.

18. The Association will provide suitable funding to cover the incremental expenses associated with extending the existing monitoring program to the Magic Carpet Woods property. The critical monitoring period extends from the last week in April through the end of June in the event no nests are found at Cathead Bay, including the project property.

Steward

19. The Association will ensure that an on-site steward is present to aid in creation and maintenance of nest exclosures (if required), discourage human, pet, and predator activities near nest sites, and help educate homeowners of plover issues. Similarly to biological monitoring, the Association will, to the extent possible, work with the existing stewardship program conducted by the Michigan Department of Natural Resources, Wildlife Division.

20. The Association will provide suitable funding to cover incremental expenses associated with this existing stewardship program. The Association will be responsible for ensuring that stewardship activities are conducted on the Magic Carpet property only if plovers are observed nesting on or within 0.5 miles of the property, and from the last week in April through the end of June of each year or until all piping plover chicks hatched from nests on or within 0.5 miles of the project property are 35 days old.

21. In the event the existing stewardship program discontinues its efforts some time in the future or its efforts do not include the Magic Carpet property, the Association will, in coordination with FWS, work with other stewardship programs in Cathead Bay (e.g. by the State Park), if any, or will contract with a qualified individual to provide these services for the Magic Carpet property.

22. As per deed restrictions, lot owners are required to permit the construction and maintenance of exclosures around plover nests on their property as deemed appropriate and necessary by the plover stewardship program. Lot owners will not be individually responsible for constructing, maintaining, or funding such exclosures.

Home/Lot Owner Restrictions

23. Off-road vehicles or any other motorized vehicles will not be permitted in the active dune area or on the beachfront at any time. Jet ski use on Cathead Bay by Association members and guests will be restricted during the critical nesting period if nesting is known to occur within 0.5 mile of the Property.

24. The homeowners association created by the Magic Carpet Woods Association Master Deed and referenced bylaws will implement the measures listed in this HCP. The Association will have a single point of contact (most likely the president) for interaction and information exchange with the Service. The Association will consist of the 13 homeowners with Lake Michigan access. The Association will also use its regulation adopting power, as set out in Section 6.6 of its bylaws, to enact the conservation measures called for in this HCP that are not already incorporated into the Master Deed and Association Bylaws (Appendix 10.4). Participation in the Association will be required through the deeds associated with each lot. Lot 14, which has no frontage on or access to Lake Michigan, will not be part of the Association.

25. At the conclusion of each breeding season, members of the Association will be required to contribute an annual assessment to the Association in order to cover expenses incurred as part of the plover monitoring, protection and mitigation program. The cost will be determined, in coordination with FWS, once the expenses for the monitoring program are determined.

26. Lot owners are required to advise all visitors, renters and lessees of the plover protection measures and restrictions in this HCP and related documents, including the Master Deed and Association Bylaws. Lot owners will have ultimate responsibility for ensuring visitors, renters and lessees comply with measures contained in these documents.

27. During the critical nesting period (last week of April through end of June or until all piping plover chicks hatched from nests or within 0.5 miles of the project property are 35 days old), picnics will not be allowed on the beach if nesting is known to occur within 0.5 mile of specific lots unless the picnic area is promptly cleaned up and policed at the conclusion of the picnic. No picnics or any activities (except for fencing and exclosure installation, removal, or maintenance or other nest or piping plover protection or monitoring activities) are allowed in a fenced and posted nesting area. Kite flying, fires and the use of fireworks and firearms will not be allowed during the critical nesting period.

28. During any road and home construction activities that may occur during the nesting/breeding season, the lot owner is required to inform any contractor and all employees that they are not allowed on the beach, no pets are allowed at the construction site, and all trash must be properly disposed of in secure containers. The requirement of each lot owner to undertake this step will be expressly identified in the deed to each lot.

29. If the MDNR, Service, Association, plover steward(s), or biological monitor(s) determine (1) that mammalian predators (excluding dogs and cats) pose a threat to plovers in the Property vicinity, (2) that the predators should be removed from the area or exterminated, and (3) that an effective means of removing or exterminating the predators is to use the Property for such purposes, then the Association will allow the MDNR, Service, or a mutually agreed upon party to access the Property to conduct trapping/exterminating activities. The Association will be responsible for expenses associated with predator removal/extermination if it is reasonably determined by the MDNR, Service, plover steward(s) or biological monitor(s) that activities occurring as a result of the Magic Carpet Woods project are primarily responsible for occurrence of the predators.

Piping Plover Additional Mitigation

30. As additional mitigation, the Association will contribute, upon the first sale or transfer of ownership of each of the 13 lots with Lake Michigan frontage, \$1,000 at the time each individual lot is first sold or ownership transferred. The total mitigation funding amount will not exceed \$13,000 in aggregate, and no more than

\$1,000 will be required in mitigation contribution for any individual lot. This amount has been determined by the applicant/Association. The sums so contributed will be invested in a trust account, with the balance and income from the trust account used to fund piping plover research, monitoring, or recovery efforts conducted in the Great Lakes region. The balance at all times will not be less than \$5,000. The trust proceeds will be forwarded to a qualifying educational or charitable institution (such as a university or non-profit environmental education foundation) mutually agreed to by the Association and the Service. The Service shall approve all funded projects or use of funds. The Service may also accept other sources of contributions to the trust account (including mitigation contributions from other piping plover incidental take permits that may in the future be issued for the Great Lakes population), the income from which will be combined with and used for the same purposes as the Association's contributions.

8.2 Monitoring

The Service's addendum to its final Handbook for Habitat Conservation Planning suggests that an HCP's monitoring program should include both (1) effects and effectiveness monitoring and (2) compliance monitoring to monitor compliance with the requirements of the HCP, permit, and/or implementing agreement. *See* 64 Fed. Reg. 11485, 11487-89 (Mar. 9, 1999). The HCP provisions described above address both of these types of monitoring.

The effects and effectiveness monitoring (or biological monitoring) will be accomplished through the steps identified in items 13 through 18 above. This monitoring will include the submittal of an annual report to the Service, as will be further identified in the permit and implementing agreement. This biological monitoring activity is intended to be consistent in its protocol and reporting with the other biological monitoring being conducted for the Great Lakes piping plover population.

Compliance monitoring is the responsibility of the Service, and will be facilitated in this instance by the annual biological monitoring report, together with the access to the Magic Carpet property provided by the permittee to the Service, Michigan Department of Natural Resources, University of Minnesota biological monitoring team, or a mutually agreed upon monitoring team and other representatives of these agencies as identified above. Further, the Service's compliance monitoring will be facilitated by the permittee's provision of an on-site steward as described in items 19 through 22 above.

8.3 Consistency of the Project with the Piping Plover Recovery Plan

The project and corresponding protective and mitigative measures are not inconsistent with any of the specific tasks identified in the Recovery Plan (1988) as necessary to meet the recovery objective of 150 breeding pairs in Michigan. The project will directly result in implementation of the following Recovery Plan tasks.

1. Determine current distribution and population trends of the Piping Plover

The project will provide additional funding, as necessary, and site access to allow survey activities undertaken on adjacent State Park lands to be extended onto the Property. Surveys will provide baseline population and natural history information identified in the Recovery Plan, including assessment of status and distribution of breeding individuals and current habitat requirements.

2. Protect, enhance and increase Piping Plover populations

The project and HCP will result in the protection of the Great Lakes piping plover population. The HCP measures will minimize the potential impacts of residential use of the Property and maintain the ability of the Property beach to support future breeding and foraging activity of piping plovers on Cathead Bay. Implementation of the protection and mitigation measures will assure that reproduction and survival of the plover are not reduced. Specifically, the following measures implemented as part of the HCP are also noted in the Recovery Plan as items to pursue for the recovery of the species:

- Implement predator control measures;
- Restrict human and vehicular access to nesting areas;
- Restrict domestic animals from nesting sites;

- Eliminate and modify construction activities that adversely impact reproductive success of plovers.

3. Preserve and enhance the habitat

Suitable habitat on the subject Property will be preserved in its present condition with the exception of boardwalk construction to allow constrained access to the beach on select lots (the easternmost lots). Apart from boardwalks, there will be no physical alteration of the beach.

An environmental education and homeowner/ occupant awareness program will be implemented to educate homeowners regarding piping plover life history, reasons for decline, and the specific measures associated with this project to ensure plovers are not negatively affected by this residential project.

8.4 Changed or Unforeseen Circumstances

The Habitat Conservation Plan Assurances (“No Surprises”) Rule (50 C.F.R. § 17.32(b)(5); 63 Fed. Reg. 8859 (Feb. 23, 1998)) provides regulatory assurances to the holder of an ITP issued under section 10(a)(1)(B) of the ESA that generally no additional land-use restrictions will be required of the permit holder with respect to species covered by the permit, even if changed or unforeseen circumstances arise after the permit is issued, so long as the plan is being properly implemented.

“Unforeseen circumstances” means “changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan’s negotiation and development, and that result in a substantial and adverse change in the status of the covered species.” 50 C.F.R. § 17.3. Unforeseen circumstances generally include such occurrences as global climate change, non-point source pollution, and disease. Specific to the piping plover, unforeseen circumstances that could result in significant increases in plover use of Cathead Bay and the Magic Carpet property could include significant alteration of current nesting areas in the Great Lakes or alteration in breeding behavior (e.g. nesting activities become condensed in a single area).

“Changed circumstances” means “changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the Service and that can be planned for (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events).” 50 C.F.R. § 17.3. This HCP provides measures that would significantly mitigate potential negative impacts to plovers resulting from the Magic Carpet Woods under reasonably foreseeable changed circumstances. As described below, an increase in the number of plovers nesting along Cathead Bay and/or using the Magic Carpet Woods property are reasonably anticipated possible changed circumstances within the scope of the protection and mitigation measures encompassed in this HCP. Impacts would be adequately mitigated under the following two general changes to the current pattern (as established in recent years) of plover use of Cathead Bay:

1. Significant increase in the population size of the Great Lakes piping plover. If the number of pairs of plovers reaches the goal of 150 as stated in the Recovery Plan, it is possible there could be more than three pairs (the highest recorded) of plovers nesting along Cathead Bay. Additional nesting pairs along the bay would not be significantly negatively impacted by the project due to the protection and mitigation measures and the generally expected limited human use of the shoreline associated with this project.
2. Natural alteration of the Magic Carpet shoreline resulting in increased nesting habitat suitability. In general, coastal processes can result in significant alterations of shorelines. Currently, the shoreline of the Magic Carpet property does not provide typical suitable nesting habitat due to its narrow width. However, a significant drop in the water level of Lake Michigan or the build-up of additional beach could expand the beach width, thereby increasing nesting habitat suitability. Given the limited information relating to historic shoreline dynamics of the area, limited data of factors influencing nest site selection, and the lack of predictability of physical and biological characteristics of the Magic Carpet shoreline, it is not possible to determine if the property will maintain nesting in the future. Nonetheless, as noted above, nesting pairs would not be significantly negatively impacted by the project due to the protection and mitigation measures and the expected limited human use of the shoreline associated with this project.

If there is the changed circumstances of significant plover use of the property in the future for breeding or other critical activities, the Service may suggest and the Association may consider changes in the operating conservation program in the future, provided such changes are consistent with this HCP and agreed to by the Association and its members. 50 C.F.R. § 17.22(b)(5).

Should the Service determine, based on the considerations outlined in 50 C.F.R. § 17.22(b)(5)(iii)(c), that unforeseen circumstances have arisen during the permit term, then the Service and the Association will consider potential measures to address such unforeseen circumstances consistent with 50 C.F.R. § 17.22(b)(5)(iii).

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10. APPENDICES

10.1 PROPOSED ACTION SITE AND VICINITY MAP

10.2 EXAMPLE FWS PLOVER PROTECTION PLAN AND REQUESTED DEED RESTRICTIONS

10.3 MASTER DEED FOR MAGIC CARPET WOODS SITE CONDOMINIUM

10.4 MAGIC CARPET WOODS BYLAWS

10.5 MAGIC CARPET WOODS CONDOMINIUM ASSOCIATION BYLAWS

10.6 RESPONSE LETTER FROM THE MICHIGAN STATE HISTORIC PRESERVATION OFFICER