

The Alternatives, Including the Preferred Alternative



INTRODUCTION

This chapter presents five alternatives, including the preferred alternative, for future management of Sleeping Bear Dunes National Lakeshore. The alternatives were developed through a lengthy and diligent public involvement process, described in detail in the “Public Involvement, Including Scoping” section in chapter 6. The five alternatives, each of which is consistent with the National Lakeshore’s purpose, significance, and fundamental resources and values, are the no-action (“business as usual”) alternative, the preferred alternative, alternative A, alternative B, and alternative C. The no-action alternative

is included as a baseline for comparing the environmental consequences of implementing each “action” alternative. This chapter also includes sections on implementation of the general management plan, management zones, user capacity, mitigative measures common to all action alternatives, and the environmentally preferred alternative. It also includes a table that compares the alternatives, a table that shows the possible range of treatment for historic properties under the alternatives, and a table that summarizes the expected impacts of implementing the alternatives.

IMPLEMENTATION OF THE GENERAL MANAGEMENT PLAN

IMPLEMENTATION FUNDING

Although this *General Management Plan* provides the analysis and justification for future National Lakeshore funding proposals, this plan does not guarantee future NPS funding. Many actions would be necessary to achieve the desired conditions for natural resources, cultural resources, recreational opportunities, and facilities as envisioned in this plan. The National Park Service will request funding to achieve these desired conditions; although the National Lakeshore hopes to secure this funding and will prepare itself accordingly, the Lakeshore may not receive enough funding to achieve all desired conditions. Because NPS funding may be insufficient to accomplish the goals set by the plan, National Lakeshore managers will need to continue to pursue other options, including expanding the service of volunteers, drawing upon existing or new partnerships, and seeking alternative funding sources, including the philanthropic community. Many people care deeply about their national parks (and Sleeping Bear Dunes National Lakeshore in particular), and these people are likely to continue to offer assistance in meeting NPS goals that matter most to them. Many potential partner groups exist whose missions are compatible with that of the Lakeshore, and these groups are likely to offer to work with the Lakeshore for mutual benefit.

Even with assistance from supplemental sources, Lakeshore managers may be faced with difficult choices when setting priorities. The *General Management Plan* provides the framework within which to make these choices.

KEY IMPLEMENTATION PLANS TO FOLLOW THIS GENERAL MANAGEMENT PLAN / WILDERNESS STUDY / ENVIRONMENTAL IMPACT STATEMENT

Wilderness Management

If Congress acts to designate wilderness within the National Lakeshore, a wilderness management plan would be developed. The wilderness management plan would guide NPS managers in the preservation, management, and use of areas designated as wilderness. The wilderness management plan would be developed with public input and would comply with the National Environmental Policy Act (1969) and other applicable laws and policies.

Asset Management

The National Park Service is developing a national program for managing structures and facilities (assets) in park system units. This program is likely to call for development of an asset management plan for each park unit. Such plans are designed to provide park managers with a means of prioritizing, scheduling, and funding maintenance and repair work. They also include techniques to manage gaps between needed and anticipated funding, such as “mothballing” or even disposing of lower priority assets. The Lakeshore’s asset management plan would follow the guidelines of the national program, including guidance for compliance with the National Environmental Policy Act, Sections 106 and 110 of the National Historic Preservation Act, and other applicable laws and policies.

Ethnographic Resources Study/Assessment

The National Lakeshore will conduct ethnographic studies to formally identify

groups of people with traditional associations to park lands and waters. This is a key step toward ensuring that ethnographic resources are protected.

MANAGEMENT ZONES

Management zones prescribe how different areas of the National Lakeshore would be managed. Each management zone specifies complementary natural resource conditions, cultural resource conditions, opportunities for visitor experiences, and appropriate facilities, and combines these into a possible management strategy that could be applied to locations within the National Lakeshore. As such, management zones give an indication of the management priorities for various areas. Four management zones have been developed for the National Lakeshore — the high use zone, the experience history zone, the recreation zone, and the experience nature zone. The action alternatives presented later in this chapter each propose a different configuration of the management zones within the National Lakeshore based on the

concept for each alternative. In every management zone, the Lakeshore intends to preserve and protect natural and cultural resources to the greatest extent possible given available funds. An overview of the management zones is provided on the following page, with more detail in table 1 that follows. The table describes the conditions, opportunities, and services that would apply to each management zone. The management zones are listed in order from most intensive management (high use zone) to least intensive management (experience nature zone).

The cultural resource treatments mentioned in the management zones table (table 1) are defined as follows:

- **Preservation** is the act or process of applying the measures necessary to sustain the existing form, integrity, and materials of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses on ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction.
- **Rehabilitation** is the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.
- **Restoration** is the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by removing features from other periods in its history and reconstructing missing features from the restoration period.

High Use Zone

This management zone provides for visitor orientation, education, and other structured activities (such as ranger-led tours). High numbers of visitors enjoy and learn about the National Lakeshore. This zone also supports the Lakeshore's main administrative and operational facilities. Wilderness does not occur in this zone.



Experience History Zone

This management zone is managed primarily to preserve historic structures and landscapes. Moderate to high numbers of visitors enjoy and learn about significant historic activities, buildings, and landscapes. Wilderness does not occur in this zone.



Recreation Zone

This management zone provides a wide range of recreational opportunities for moderate numbers of visitors. The active Lake Michigan beach area is within this zone, as is the 0.25 mile of Lake Michigan waters within the National Lakeshore boundary. Wilderness does not occur in this zone.



Experience Nature Zone

This is the wildest, most natural management zone. Low numbers of visitors enjoy primitive recreation on foot or in nonmotorized watercraft. Wilderness may or may not occur in this zone.



TABLE 1: MANAGEMENT ZONES

	High Use Zone	Experience History Zone
Overview	This management zone provides for visitor orientation, education, and other structured activities (such as ranger-led tours). High numbers of visitors enjoy and learn about the National Lakeshore. This zone also supports the Lakeshore’s main administrative and operational facilities. Wilderness does not occur in this zone.	This management zone is managed primarily to preserve historic structures and landscapes. Moderate to high numbers of visitors enjoy and learn about significant historic activities, buildings, and landscapes. Wilderness does not occur in this zone.
Resource Conditions	This zone is characterized by high levels of recreational use in a modified natural environment. This developed zone may be located in previously disturbed areas or areas with relatively resilient natural resources that can be modified to support development with acceptable impacts. Natural resources may be modified to accommodate NPS operational facilities or high levels of visitor use. Cultural resource treatments in this zone may range from preservation to rehabilitation based on fundamental resources, national register significance, documentation, condition, interpretive value, and suitability for NPS operations. Cultural resources may be modified to accommodate NPS operational facilities or high levels of visitor use.	This zone is characterized by cultural resources set within a natural environment. Protecting and preserving cultural resources is a very high priority. In keeping with the focus on cultural resources, natural resources may be modified to preserve, rehabilitate, or restore cultural resources. Cultural resource treatments in this zone may range from preservation to restoration based on fundamental park resources, national register significance, documentation, condition, interpretive value, and suitability for NPS operations. Cultural resources may be modified to provide safe visitor access or to preserve them through adaptive use.
Visitor Opportunities	The easily accessed areas in this zone focus on a connection with and appreciation of special Lakeshore resources. Visitors are offered a variety of opportunities for orientation, interpretation, and education. Conveying Lakeshore themes to visitors is a priority. Common visitor activities may include viewing scenic vistas, taking short walks, picnicking, camping in developed campgrounds accessible by motor vehicles, swimming, boating, and attending interpretive programs. This zone is popular and well suited for family recreation. Self-sufficiency and knowledge of outdoor skills are not necessary. Time commitment varies, depending on information or services desired. High visitation levels are accommodated. Encounters with other visitors and Lakeshore staff are likely, especially around developed facilities.	The primary experience is visiting historic areas and learning about cultural history. Visitors are offered a variety of opportunities to understand and enjoy cultural resources. Common visitor activities may include sightseeing, guided walks, historic tours, educational programs, hiking, hunting, cross-country skiing, snowshoeing, and enjoyment of the cultural setting. Self-sufficiency and knowledge of outdoor skills are not necessary. The time commitment is typically one to two hours, but longer on the islands due to travel time from the mainland. Moderate to high visitation levels are accommodated. Encounters with other visitors and Lakeshore staff are likely, especially at points of interest. Encounters may be fewer in larger districts and open areas.
Facilities and Commercial Services	New and existing park roads and trails may be accommodated. State highway and county road rights-of-way may be in this zone. Developments may be used for visitor or administrative purposes. Appropriate kinds of facilities may include visitor centers, visitor contact stations, museums, roads, parking areas, trailheads and trails, developed campgrounds, surfaced walkways, picnic areas, restrooms, and Lake Michigan and inland lake boat ramps or docks. Appropriate kinds of operational facilities include administrative offices, employee housing, and maintenance areas. Appropriate commercial services may include convenience concessions, shuttle services, boat rentals, and guided services, such as vehicle and bicycle tours.	New and existing park roads and trails may be accommodated. State highway and county road rights-of-way may be in this zone. Developments include groupings of historic structures and related landscape elements such as orchards, fields, and cemeteries. Other developments are unobtrusive and fit with the cultural landscape. Appropriate kinds of facilities may include visitor contact stations, roads, museums, parking areas, surfaced walkways, restrooms, trailheads and trails, and picnic areas. Appropriate kinds of operational facilities include administrative offices, employee housing, and maintenance areas. Appropriate commercial services may include limited convenience concessions, shuttle services, and guided services such as vehicle and bicycle tours.

TABLE 1: MANAGEMENT ZONES (CONT.)

	Recreation Zone	Experience Nature Zone
Overview	This management zone provides a wide range of recreational opportunities for moderate numbers of visitors. The active Lake Michigan beach area is within this zone, as is the 0.25 mile of Lake Michigan waters within the National Lakeshore boundary. Wilderness does not occur in this zone.	This is the wildest, most natural management zone. Low numbers of visitors enjoy primitive recreation on foot or in nonmotorized watercraft. Wilderness may or may not occur in this zone.
Resource Conditions	This zone’s character is natural overall; alterations are designed to blend with the natural landscape. Protecting and preserving natural resources is a high priority. Natural resources may be modified to provide for a variety of compatible recreational activities. Cultural resource treatments in this zone may range from preservation to rehabilitation based on fundamental park resources, national register significance, documentation, condition, interpretive value, and suitability for NPS operations. Cultural resources may be modified to provide for a variety of compatible recreational activities.	This zone’s character is natural overall; alterations are minimal and designed to blend with the natural landscape. Protecting and preserving natural resources is a very high priority. Natural resources may be modified to provide safe visitor access or reduce the overall level of resource impacts. Cultural resources within the zone would be preserved , but may be modified to preserve or restore natural resources.
Visitor Opportunities	Generally, the experience is rustic and there is a sense of being in a natural landscape. Visitors enjoy a wide range of recreational activities. Common visitor activities may include scenic driving, hiking, backpacking, motorized and nonmotorized boating, bicycling on roads and designated trails, hunting, fishing, horseback riding on designated trails, cross-country skiing, snowshoeing, camping, beach-going, and swimming. Self-sufficiency and knowledge of outdoor skills are typically not necessary (except for backpacking and camping on the islands). The time commitment ranges from about 30 minutes to more than a day (for camping). On the islands, this zone requires a longer time commitment. Moderate visitation levels are accommodated. Encounters with other visitors and Lakeshore staff are likely at trailheads, points of interest, and river access sites. The number of encounters may be moderate along major trails and rivers. Solitude can usually be found if sought.	There is a sense of being in a primitive, natural landscape. Visitors enjoy natural surroundings on foot or in nonmotorized watercraft. Common visitor activities may include hiking, nonmotorized boating, backpacking, hunting, fishing, horseback riding on designated trails, cross-country skiing, snowshoeing, beach-going and swimming, and backcountry camping. Typically, the amount of time, outdoor skill, and self-reliance needed is greater than for other zones. This is especially true on the islands. Lower visitation levels are accommodated. Encounters with other visitors and Lakeshore staff are generally few, although there may be pulses of visitor activity near trailheads and other entry points. Opportunities for solitude are plentiful.
Facilities and Commercial Services	New and existing park roads and trails may be accommodated. County road rights-of-way may be in this zone. Developments are unobtrusive and fit in with the natural environment. Appropriate kinds of facilities may include roads, trailheads and trails, primitive or rustic campgrounds, parking areas, primitive toilets, picnic areas, inland water boat docks and launches, and information kiosks. Appropriate kinds of operational facilities include employee housing. Appropriate commercial services may include boat rentals and guided services such as hunting, fishing, hiking, bicycling, and horseback riding.	There are no active roads in this zone. However, county road rights-of-way that have not been developed, or that are being used as trail corridors may be in this zone. Developments are limited to those necessary for protecting resources or for safety purposes. Appropriate kinds of facilities may include trails, backcountry campsites or campgrounds, primitive toilets, and special trail surfaces in localized areas (e.g., sand ladders to protect sensitive dunes, or raised planking to protect wet areas). There are no operational facilities in this zone. Appropriate commercial services may include nonmotorized boat rentals and guided services such as hunting, fishing, horseback riding, and hiking.

USER CAPACITY (CARRYING CAPACITY)

OVERVIEW

General management plans for national park system units, including national lakeshores, must address user capacity management. The National Park Service defines user capacity as the type and level of use that can be accommodated while sustaining the quality of a park unit's resources and visitor opportunities consistent with the purposes of the park unit.

User capacity management involves establishing desired conditions, monitoring, evaluating, and taking actions (managing visitor use) to ensure that park unit values are protected. The premise is that with any use on public lands comes some level of impact that must be accepted; therefore it is the responsibility of the National Park Service to decide what level of impact is acceptable and what management actions are needed to keep impacts within acceptable limits. Instead of just tracking and controlling user numbers, NPS staff manage the levels, types, and patterns of visitor use and other public uses as needed to preserve the condition of the resources and quality of the visitor experience. The monitoring component of this process helps NPS staff evaluate the effectiveness of management actions and provides a basis for informed management of public use.

The user capacity management process can be summarized by the following major steps:

1. Establish desired conditions for resources and visitor experiences (through management zoning).
2. Identify indicators (things to monitor to determine whether desired conditions are being met, e.g., soil loss, vegetation damage).
3. Identify standards (limits of acceptable change) for the indicators.
4. Monitor indicators to determine if there are disturbing trends or if standards are being exceeded.
5. Take management action to maintain or restore desired conditions.

With limited staffs and budgets, NPS managers must focus on areas where there are definite concerns and/or clear evidence of problems. This means monitoring should generally take place where conditions are approaching or violate standards, conditions are changing rapidly, specific and important values are threatened by visitation, and/or the effects of management actions taken to address impacts are uncertain.

This *General Management Plan* addresses user capacity in the following ways:

- It outlines management zones that provide the foundation for user capacity management. The management zones prescribe desired resource conditions, visitor experience opportunities, and types of facilities to support the resource conditions and visitor experiences for different areas;
- It describes the Lakeshore's most pressing use-related resource and visitor experience concerns. This helps NPS managers focus limited resources on specific potential indicators and determine what kinds of baseline information to collect.
- It identifies potential indicators that could be monitored as needed in the future to determine if desired conditions are not being met due to unacceptable impacts from public use. As National Lakeshore managers collect more detailed information on use-related concerns, specific indicators will be selected for monitoring and corresponding standards (limits of acceptable change) will be identified.

- It outlines representative examples of management actions that might be used to avoid or minimize unacceptable impacts from public use.
- It identifies specific geographic areas for special monitoring attention.
- It calls for a wilderness management plan to be completed soon after wilderness designation (if any).

The last steps in the user capacity process, which will continue indefinitely, involve monitoring the National Lakeshore's indicators and taking management actions as needed to minimize impacts. As a means for providing flexibility in the face of changing conditions, National Lakeshore managers will use an adaptive management approach when appropriate. (Adaptive management is a management system based on clearly identified outcomes, monitoring to determine if management actions are meeting outcomes, and if not, making changes that will best ensure that outcomes are met or that outcomes are reevaluated.) If new use-related resource or visitor experience concerns arise in the future, additional indicators and standards will be identified as needed to address these concerns.

OVERVIEW OF CURRENT AND POTENTIAL USE-RELATED IMPACTS

This section discusses existing and potential use-related impacts that may occur in the National Lakeshore, challenging the National Park Service's ability to manage for the desired conditions outlined in this *General Management Plan*.

Existing facilities in the Lakeshore generally support enjoyable visitor opportunities and protect resources, and based on projected trends will continue to function fairly well. Beach access parking areas, the Dune Climb parking area, and campgrounds sometimes fill to capacity during the summer. As a result, visitors may be frustrated in trying to reach certain areas of the Lakeshore and may park

in or use nondesignated areas. In addition to the associated impact on the visitor experience, using nondesignated areas may cause impacts such as vegetation loss, erosion, and introduction of invasive species, particularly in vulnerable areas.

In the summer, high volumes of use along the Platte River cause crowded conditions at times. Some people who commented during the GMP process expressed concern about this issue and its related impacts (e.g., bank erosion). If use increases or patterns of use change, crowding on the Platte River may worsen and/or become more frequent. In addition to crowding, use on the Platte River is resulting in excessive impacts to the riverbanks and associated floodplains, such as proliferation of informal trails, erosion, vegetation damage and loss, litter, and improper disposal of human waste. Impacts to water quality (e.g., increased sedimentation, nitrates, and *E. coli*) on the rivers and inland lakes from visitor use are also a concern. In the future, use levels may also increase on the Crystal River and cause similar conditions during the busy summer season.

Visitor crowding does not currently seem to be a problem on trails. However, visitor encounter rates must remain low on trails in some areas to ensure that visitors' expectations for solitude and natural conditions are met.

Use levels on the islands are relatively low and are highly influenced by the capacity and timing of the island ferry. At this time, there do not seem to be any major crowding or use conflicts affecting visitor opportunities on the islands. Some resource-related impacts (e.g., proliferation of campsites, damage to vegetation, and improper human waste disposal) are associated with dispersed backcountry camping on North Manitou Island.

POTENTIAL USER CAPACITY INDICATORS AND RELATED MANAGEMENT ACTIONS

The following section outlines some potential indicators that may be monitored to better understand the magnitude and trends of the most pressing use-related concerns described in the previous section. The management zones **for which each indicator is likely to be most relevant** is identified, along with potential management actions to address resource and/or visitor experience concerns. Some management actions may not be appropriate in some management zones. Final selection of indicators and standards for monitoring purposes and implementation of management actions that affect use will comply with the National Environmental Policy Act (1969), Section 106 of the National Historic Preservation Act, and other laws and NPS management policies as appropriate.

Potential user capacity indicators may include the following:

- Water quality (high use zone, recreation zone, experience nature zone)

Management actions that may be considered to avoid or minimize impacts to water quality include encouraging low-impact practices (e.g., Leave No Trace); directing use to designated areas or facilities; providing more waste disposal facilities; redistributing use to lesser used areas or off-peak times; cleaning equipment before entering waterways; and reducing/eliminating certain uses, activities, or equipment.
- Impacts to riverbanks, such as erosion, vegetation damage or loss, creation of informal trails (high use zone, recreation zone, experience nature zone)

Management actions that may be considered to avoid or minimize riverbank impacts include encouraging low impact practices;

directing use to designated areas or facilities; providing more waste disposal facilities; increasing the number of signs to direct visitors to appropriate facilities; redistributing use to lesser used areas or off-peak times, rehabilitating some sites; and reducing use levels.

- Amount of litter (high use zone, recreation zone, experience nature zone, experience history zone)

Management actions that may be considered to avoid or minimize litter include encouraging personal responsibility for waste disposal, providing more waste disposal facilities, and directing use to designated areas or facilities.
- Improper human waste disposal (high use zone, recreation zone, experience nature zone)

Management actions that may be considered to prevent or minimize improper human waste disposal include encouraging proper waste disposal, providing more toilet facilities, directing use to appropriate facilities, and reducing use levels.
- Impacts to dunes (e.g., erosion, vegetation damage and loss, informal trails, invasive species) (recreation zone, experience nature zone, experience history zone)

Management actions that may be considered to prevent or minimize impacts to dunes include encouraging low-impact practices through information, directing use to designated areas or facilities, increasing the number of signs to direct visitors to appropriate access points, using erosion control techniques to stabilize problem areas, designating alternate access points, and reducing use levels.
- Impacts from backcountry camping, such as proliferation of user created campsites, increase in campsite size, tree

damage, and improper human waste disposal (experience nature zone)

Management actions that may be considered to prevent or minimize impacts from backcountry camping include encouraging low-impact practices (e.g., Leave No Trace), directing use to designated campsites, providing information directing visitors to appropriate areas or facilities, providing information on how to select an appropriate campsite, better defining appropriate use areas, providing facilities to contain impacts (e.g., fire grates and privies), managing access to certain areas with natural barriers, redistributing use to lesser used areas or off-peak times, rehabilitating some sites, and reducing use levels.

- Failure of nesting piping plovers to raise young (recreation zone). Piping plovers are federally endangered shorebirds that prefer certain areas along Lake Michigan beaches for nesting.

Management actions that may be continued or considered to prevent or minimize impacts to piping plovers include providing information about the species and its habits, temporary fencing and closing nesting territories to discourage inadvertent trampling of nests or disturbance of the species, designating alternate access points, and establishing and enforcing dog closure areas.

- Overcrowding at beach parking areas (high use zone, recreation zone)
Management actions that may be considered to prevent or minimize these impacts include providing advanced planning information that encourages visitation to lesser used areas or at off-peak times, providing real-time information about parking availability, adding more parking or redesigning parking areas for greater efficiency, and closing areas when full

and actively redistributing use to other sites.

- Crowding from high use levels on rivers (high use zone, recreation zone, experience nature zone)

Management actions that may be considered to prevent or minimize crowding on rivers include providing information on visitor etiquette, redistributing visitation to lesser used areas or off-peak times, and limiting the number of watercraft on the river.

- Vandalism and unintentional damage to historic structures (experience history zone, recreation zone)

Management actions that may be considered to prevent or minimize impacts to historic structures include providing more information on the sensitivity and value of the Lake-shore's cultural resources, hardening or protecting heavily used areas with special materials, increased ranger patrols in target areas, using remote video-monitoring, and directing use away from (or closure of) particularly vulnerable sites.

AREAS FOR SPECIAL MONITORING ATTENTION

Areas that have been identified for special monitoring attention include the following:

- Platte River, Crystal River, and associated riverbank areas
- dune areas near the Dune Climb and North Bar Lake
- Lake Michigan Overlook (Overlooks 9 and 10) on the Pierce Stocking Scenic Drive
- Piping plover nesting areas, especially those near visitor use areas
- Platte Point developed area
- White Pine backcountry campground
- popular camping areas on North Manitou Island

ALTERNATIVES

Regardless of this planning effort, the National Park Service would continue to follow special mandates and servicewide laws and policies as noted in chapter 1. Similarly, Lakeshore-wide desired conditions (and potential strategies to achieve those conditions) for topics ranging from ecosystem management to Lakeshore accessibility are presented in chapter 1 and would apply regardless of which GMP alternative is ultimately selected for implementation. As this *General Management Plan / Wilderness Study / Environmental Impact Statement* was being developed, the National Lakeshore was proceeding with a number of projects that are

planned or already underway; these projects, discussed in chapter 1 in the “Ongoing NPS Projects and Projects Planned for the Near Future” section and in chapter 5 (cumulative impacts), would also occur regardless of this planning effort.

The alternatives described on the following pages, each of which is consistent with maintaining the National Lakeshore’s purpose, significance, and fundamental resources and values, present different choices for how to manage resources, visitor use, and facilities within the Lakeshore.

NO-ACTION ALTERNATIVE

OVERALL VISION

The no-action alternative primarily reflects current conditions and activities at the Lakeshore. This alternative is provided as a baseline against which to compare the other “action” alternatives.

WILDERNESS

The existing wilderness proposal of 30,903 acres (43% of the National Lakeshore) would remain in place (see No-action Alternative map in back pocket). As directed by Congress in 1982, the National Park Service would continue to manage lands proposed for wilderness in the 1981 “Wilderness Recommendation” to maintain their existing wilderness character. These proposed wilderness areas are in the north, south, and island areas of the National Lakeshore. Some county roads are within areas proposed for wilderness.

Areas proposed for wilderness include the following:

- North area of the mainland — most of the area north of M-22, including a portion of Port Oneida
- Central area of the mainland — none
- South area of the mainland — much of the area north and west of M-22
- North Manitou Island — most of the island (the historic village is excluded; part of Cottage Row is included)
- South Manitou Island — most of the island (the lighthouse complex, historic village, and farm loop tour route are excluded)

NATURAL RESOURCES

Natural resource management programs would continue to emphasize protection of natural resources and processes. Natural resource management programs that would occur regardless of the general management plan are outlined in the “Desired Conditions and Strategies” section in chapter 1. Examples of ongoing programs include controlling invasive species, restoring disturbed sites, protecting open dune areas, and protecting threatened and endangered species.

CULTURAL RESOURCES

Efforts to preserve as many historic structures and landscapes as possible would continue; management would consider the Lakeshore’s fundamental resources and values, national register significance, documentation, condition, interpretive value, and suitability for NPS operations. More information on individual areas is provided on the following pages.

- Glen Haven (same in all alternatives) — The Glen Haven Historic District and cultural landscape would be preserved, rehabilitated, or restored. The Sleeping Bear Point Life-Saving Station would be preserved, rehabilitated, or restored.
- Port Oneida (same in all alternatives) — Historic structures and landscapes would be preserved, rehabilitated, or restored.
- North Manitou Island — The historic life-saving station structures would be preserved, rehabilitated, or restored. Preservation and/or adaptive use of the rehabilitated historic former Manitou Island Association structures for administrative and operational purposes would continue. Historic structures on Cottage Row and elsewhere on the island would be preserved.

- South Manitou Island — The historic life-saving station, lighthouse complex, schoolhouse, and village historic structures would be preserved, rehabilitated, or restored. Structures and landscapes elsewhere on the island would be preserved.
- Other Mainland Historic Structures and Landscapes — Treatments for historic structures and landscapes range from preserved to rehabilitated.

VISITOR ORIENTATION, INTERPRETATION, AND EDUCATION

Visitor orientation services would continue at the NPS visitor center in Empire, at Glen Haven, and at the visitor contact station on South Manitou Island. Interpretive activities would continue throughout the Lakeshore, with special emphasis at the Dune Climb, the major campgrounds, Port Oneida, Glen Haven, and Sleeping Bear Point Maritime Museum. A variety of interpretive and educational programs (e.g., guided hikes, summer and school programs) would continue. On South Manitou Island, concession-operated farm loop tours would continue.

VISITOR FACILITIES, OPPORTUNITIES, AND ACTIVITIES

Opportunities to enjoy recreational activities would exist in a variety of settings.

- Roads — Roads would remain essentially the same as now.
- Trails — Trails would remain essentially the same as now.
- Campgrounds — Campgrounds and camping would remain essentially the same as now.
- Lake Michigan Beach Access — Beach access points that are accessible to motor vehicles (Lake Michigan Road [Leelanau County], Glen Haven, North Bar Lake, Esch Beach, Peterson Road, Tiesma

Road, and Lake Michigan Road [Platte River mouth] would remain essentially the same. (By late summer 2008, beach access improvements at the County Road 651 and 669 road ends are expected to be complete. See the “Ongoing NPS Projects and Projects Planned for the Near Future” section in chapter 1 for more information.)

- Lake Michigan Boat Access — Boat access to Lake Michigan would remain at the end of Lake Michigan Road, near the mouth of the Platte River.
- Inland Lake Use and Access — Motorized boats would continue to be allowed on School, Bass (Leelanau County), North Bar, and Loon lakes.
- Picnic Areas — Existing picnic areas would remain.
- Ferry Service — Ferry service for day and overnight stays on South Manitou Island and overnight stays on North Manitou Island would continue.
- Boat Access for River Use — Motorized and nonmotorized watercraft use along the Platte and Crystal rivers would continue.
- Dune Climb — The Dune Climb would remain essentially the same. (By late summer 2008, the parking area is expected to be paved and wheelchair accessibility and drainage issues are expected to be addressed. See the “Ongoing NPS Projects and Projects Planned for the Near Future” section in chapter 1 for more information).
- Bicycle Use — Bicycle use would continue to be allowed on roads used by motor vehicles but not on hiking trails.
- Hang Gliding — Hang gliding would continue to be allowed at designated sites within the Lakeshore.

Benzie Corridor

The National Park Service would continue to acquire lands within the Benzie Corridor on a willing-seller basis (subject to available

funding) for future development of a scenic road. The scenic road would include bike lanes (or in some stretches a separate bike trail, as appropriate). However, the road and bike lanes/trail would not be expected to be built within the life of this plan.

Land acquisition costs are not included in the cost estimates below. Merely stating that the National Lakeshore would continue to purchase lands within the Benzie Corridor would not immediately make funds available for acquisition. It might be several years before funds are actually available to implement the plan.

Bow Lakes

Nature observation and backcountry hiking on informal, undesignated trails would continue. The National Park Service would acquire properties within this area of the Lakeshore on a willing-seller basis as they become available (subject to available funding).

BOUNDARY ADJUSTMENTS

There would be no boundary adjustments under this alternative.

STAFFING AND COSTS

The staffing level under the no-action alternative would continue to be the equivalent of 66 full-time staff members.

Volunteers and partnerships would continue to be key contributors to NPS operations.

The cost estimates provided here are given for comparison to other alternatives only; they are not to be used for budgeting purposes. Although the numbers appear to be absolutes, they represent a midpoint in a possible range of costs. The costs developed are estimates inclusive of all one-time capital costs (see “Ongoing NPS Projects and Projects Planned for the Near Future” in chapter 1) and non-facility costs such as major resource plans and projects are estimated at \$6.6 million. Ongoing plans and projects include improvements to selected beach access parking areas and overlooks, Glen Haven improvements, restoration/ rehabilitation of the South Manitou Island Lighthouse complex, and restoration of areas disturbed by past land uses. Deferred maintenance costs of the no-action alternative are estimated at \$15.4 million. The total cost of this alternative (one-time capital costs plus deferred maintenance costs) is estimated at \$22 million. Annual operating costs under this alternative would be \$3.9 million. Presentation of these costs in this plan does not guarantee future NPS funding. Project funding will not come all at once; it will likely take many years to secure and may be provided by partners, donations or other nonfederal sources. Although the National Lakeshore hopes to secure this funding and will prepare itself accordingly, the Lakeshore may not receive enough funding to achieve all desired conditions within the timeframe of the *General Management Plan* (the next 20 or more years). More information on costs is provided in appendix C.

PREFERRED ALTERNATIVE

OVERALL VISION

The Lakeshore is valued primarily for preservation of its natural resources, and for the opportunities it provides for visitor enjoyment of natural, cultural, and recreational resources in a scenic outdoor setting. The preferred alternative was determined through a planning process that included public involvement. See “Appendix D: Development of the Preferred Alternative” for rationale and other information about the preferred alternative.

WILDERNESS

About 32,100 acres (45% of the National Lakeshore) in the north, central, south, and island areas of the Lakeshore would be proposed as wilderness (see Preferred Alternative map in back pocket). No developed county roads are within areas proposed for wilderness. None of the Lake Michigan active beach zone is in areas proposed for wilderness. Please note that the acreage figures for the various wilderness proposals are estimates based on small-scale maps; the acreage for the approved wilderness proposal will be refined prior to legislation, using detailed, large-scale maps.

Areas of proposed wilderness are as follows:

- North area of the mainland — an area north of M-22 and east of Port Oneida; none in Port Oneida
- Central area of the mainland — Sleeping Bear Plateau
- South area of the mainland — much of the area north and west of M-22
- North Manitou Island — most of the island (the historic village and Cottage Row would be excluded)
- South Manitou Island — most of the island (the lighthouse complex, historic

village, schoolhouse, farm loop tour and surrounding cultural landscape, and the route to the Giant Cedars would be excluded)

NATURAL RESOURCES

Based on the emphasis placed on natural resource conditions and experiences in this alternative, the experience nature zone would extend across much of the Lakeshore. Some selected areas would be zoned high use or recreation to allow for possible future recreational opportunities. Natural resource management programs that would occur regardless of the general management plan are outlined in the “Desired Conditions and Strategies” section in chapter 1. Examples include controlling invasive species, restoring disturbed sites, protecting open dune areas, and protecting threatened and endangered species.

CULTURAL RESOURCES

Based on the emphasis placed on opportunities for enjoyment of cultural resources in this alternative, the experience history zone would encompass most of the National Lakeshore’s historic resources. Historic structures and landscapes would be preserved at a minimum and managed as specified for the management zone in which they lie (see alternative map and zone descriptions).

- Glen Haven (same in all alternatives) — The Glen Haven Historic District and Sleeping Bear Point Life-Saving Station would be preserved, rehabilitated, or restored. Some buildings would be rehabilitated for visitor and/or staff use. The Sleeping Bear Inn and garage would be placed in the NPS historic leasing program to allow rehabilitation for

adaptive use. All other structures would be stabilized and maintained in their current condition.

- Port Oneida (same in all alternatives) — Historic structures and landscapes would be preserved, rehabilitated, or restored. Structures on at least one farmstead would be restored for interpretive purposes. Some buildings in the district would be rehabilitated for visitor and/or staff use, including a visitor contact station and staff housing. At least one farmstead would be placed in the NPS historic leasing program to allow rehabilitation and adaptive use. All other structures and landscapes would be stabilized and maintained in their current condition.
- North Manitou Island — The historic life-saving station and Cottage Row structures would be preserved, rehabilitated, or restored. Preservation and/or adaptive use of the rehabilitated historic former Manitou Island Association structures for administrative and operational purposes would continue. Historic structures and landscapes elsewhere on the island would be preserved.
- South Manitou Island — The historic life-saving station, lighthouse complex, village historic structures, schoolhouse, and farm loop tour historic structures would be preserved, rehabilitated, or restored. Structures and landscapes elsewhere on the island would be preserved.
- Other Mainland Historic Structures and Landscapes — Historic structures and landscapes would be managed as specified for the management zone in which they lie (see alternative map and zone descriptions).

VISITOR ORIENTATION, INTERPRETATION, AND EDUCATION

Visitor orientation services would continue at the NPS visitor center in Empire, at Glen Haven, and at the visitor contact station on South Manitou Island. Interpretation activities would continue throughout the Lakeshore, with special emphasis at the Dune Climb, the major campgrounds, Port Oneida, Glen Haven, and Sleeping Bear Point Maritime Museum. A variety of interpretive and educational programs (e.g., guided hikes, summer and school programs, etc.) would continue. On South Manitou Island, concession-operated farm loop tours would continue. Concession auto tours to near the Giant Cedars would be allowed, provided there is demand and the service is economically feasible. (Concession autos would go as far as the end of the county road; the tours would continue on foot to the cedars from there).

VISITOR FACILITIES, OPPORTUNITIES, AND ACTIVITIES

Opportunities for experiencing solitude and natural quiet would abound in many areas of the Lakeshore. Opportunities for recreational activities such as hiking, backpacking, fishing and hunting, paddling, cross-country skiing, and backcountry camping would be facilitated or expanded as described below:

- Roads — Roads would remain essentially the same as now. All developed county roads would be zoned compatible with motor vehicle and bicycle use.
- Trails — Trails would remain the same, except for a few additions: (1) a hike/bike trail located primarily along M-22 and M-109 could be developed at the initiative of partners; a separate study would be needed to make certain that such a trail would have no significant impact. Several candidate areas for the hike/bike trail that are zoned recreation

(such as Wilco hill, north of the Dune Climb, and near M-109 at Alligator Hill) would revert to experience nature if they are not needed for the M-22/M-109 hike/bike trail; (2) a “bay-to-bay” trail for hikers and Lake Michigan paddlers would parallel the mainland shoreline within the Lakeshore; on land, this trail would make use of active beach areas or existing disturbed areas and corridors to the extent possible; and (3) a loop hiking trail and trailhead parking area would be provided at Bow Lakes.

- Campgrounds — Campgrounds and camping would remain essentially the same, except that (1) four or five small, primitive campgrounds would be constructed an easy day’s hike or paddle apart along the Lake Michigan shoreline, for paddlers and hikers (see “trails” above); (2) Valley View backcountry campground would be abandoned and the area returned to more natural conditions; a replacement campground for hikers and paddlers would be provided closer to the Lake Michigan shoreline (location to be determined); and (3) on North Manitou Island, in addition to dispersed camping, additional designated campgrounds would be provided (locations to be determined).
- Lake Michigan Beach Access — The following beach access points that are accessible to motor vehicles would remain essentially the same: Lake Michigan Road (Leelanau County), Glen Haven, North Bar Lake, Peterson Road, and Tiesma Road. Parking at the end of Esch Road would be improved. The beach access area at the end of Lake Michigan Road near the mouth of the Platte River would be zoned high use to allow for parking improvements; a separate study would examine the appropriateness of these developments in more detail.
- Lake Michigan Boat Access — A high use zone would be located around and east of the mouth of the Platte River. The high use zone would allow for boat ramps or docks for access to Lake Michigan, although no new boat ramps or docks are proposed by the National Park Service. A separate study would be needed to determine whether any such facility would be appropriate in this area. If this study indicated that a new boat ramp or dock was not appropriate near the mouth of the Platte River, the high use zone beyond the Lake Michigan Road area would revert to the experience nature zone and Tiesma Road would revert to the recreation zone.
- Inland Lake Use and Access — Motorized boats would be allowed on School and Loon lakes. Motorized boats would no longer be allowed on North Bar Lake. Electric motors would be allowed in the experience nature zone on Bass Lake (Leelanau County), Tucker Lake, and Otter Lake. Access for boats would be improved at a few inland lakes (locations to be determined).
- Picnic Areas — Existing picnic areas would remain. The Glen Lake picnic area would be improved to facilitate beach and picnic use.
- Ferry Service — Ferry service for day and overnight stays on South Manitou Island and overnight stays on North Manitou Island would continue. Day trips to North Manitou Island would be allowed once or twice a week (not daily), provided there is demand and the service is economically feasible.
- Boat Access for River Use — Motorized and nonmotorized watercraft use along the Platte and Crystal rivers would continue. The Crystal River access area would be upgraded or relocated, and a small parking area would be provided.
- Dune Climb — The Dune Climb would remain essentially the same (see the no-action alternative).
- Bicycle Use — Bicycle use would continue to be allowed on roads used by motor vehicles, but not on hiking trails. An exception would be that as part of the

M-22/M-109 hike/bike trail, bicycle use would be evaluated for portions of the Bay View Trail immediately adjacent to the M-22 corridor. Bicycle use would be evaluated for expansion in zones that permit it (recreation, high use, and experience history) — e.g., the Burnham Woods area south of the Glen Lakes.

- Hang Gliding — Hang gliding would continue to be allowed at designated sites within the Lakeshore.

Benzie Corridor

The National Park Service would continue to acquire lands within the Benzie Corridor on a willing-seller basis (subject to available funding) for future development of a scenic road and/or a bike/hike trail (determined and evaluated via a future study). The road/trail would not be expected to be built within the life of this plan.

Land acquisition costs are not included in the cost estimates below. Merely stating that the National Lakeshore would continue to purchase lands within the Benzie Corridor would not immediately make funds available for acquisition. It might be several years before funds are actually available to implement the plan.

Bow Lakes

Nature observation and backcountry hiking would be facilitated by development of a small parking area and a loop trail. The National Park Service would acquire properties within this area of the Lakeshore on a willing-seller basis as they become available (subject to available funding).

BOUNDARY ADJUSTMENTS

There would be no boundary adjustments under this alternative.

STAFFING AND COSTS

The staffing level needed to implement the preferred alternative would be the equivalent of 79 full-time staff members. Volunteers and partnerships would continue to be key contributors to NPS operations.

The cost estimates provided here are given for comparison to other alternatives only; they are not to be used for budgeting purposes. Although the numbers appear to be absolutes, they represent a midpoint in a possible range of costs. The costs developed are estimates inclusive of all one-time capital costs of the preferred alternative, including projects that are planned for the near future. One-time capital costs of the preferred alternative, including projects that are planned for the near future or are underway, new construction, and non-facility costs such as major resource plans and projects, are estimated at \$17.5 million. In addition to items mentioned for the no-action alternative, this includes costs of new trails and campgrounds, picnic area improvements, improved access for nonmotorized boats at inland lakes and rivers, and historic preservation/ rehabilitation/ restoration (various areas). Deferred maintenance costs of the preferred alternative are estimated at \$15.4 million. The total cost of this alternative (one-time capital costs plus deferred maintenance costs) is estimated at \$32.9 million. Annual operating costs under this alternative would be \$4.4 million. Presentation of these costs in this plan does not guarantee future NPS funding. Project funding will not come all at once; it will likely take many years to secure and may be provided by partners, donations or other nonfederal sources. Although the National Lakeshore hopes to secure this funding and will prepare itself accordingly, the Lakeshore may not receive enough funding to achieve all desired conditions within the timeframe of the *General Management Plan* (the next 20 or more years). More information on costs is provided in appendix C.

ALTERNATIVE A

OVERALL VISION

Under alternative A, the Lakeshore would be valued primarily for conservation of its natural resources.

WILDERNESS

About 33,600 acres (47% of the National Lakeshore) in the north, central, south, and island areas of the National Lakeshore would be proposed as wilderness (see Alternative A map in back pocket). No developed county roads are within areas proposed for wilderness. None of the Lake Michigan active beach zone is in areas proposed for wilderness. Please note that the acreage figures for the various wilderness proposals are estimates based on small-scale maps.

Areas of proposed wilderness are as follows:

- North area of the mainland — an area north of M-22 and east of Port Oneida; none in Port Oneida
- Central area of the mainland — Sleeping Bear Plateau
- South area of the mainland — much of the area north and west of M-22
- North Manitou Island — most of the island (the historic village and Cottage Row would be excluded)
- South Manitou Island — most of the island (the lighthouse complex, historic village, and county roads on the farm tour and Giant Cedars routes would be excluded)

NATURAL RESOURCES

Based on the emphasis on natural resources conditions and experiences in this alternative, the experience nature zone would extend across most of the Lakeshore. Natural

resource management programs that would occur regardless of the general management plan are outlined in the “Desired Conditions and Strategies” section in chapter 1. Examples include controlling invasive species, restoring disturbed sites, protecting open dune areas, and protecting threatened and endangered species.

CULTURAL RESOURCES

Historic structures and landscapes would be managed as specified for the management zone in which they lie (see alternative map and zone descriptions). More information on individual areas is provided below:

- Glen Haven (same in all alternatives) — The Glen Haven Historic District and Sleeping Bear Point Life-Saving Station would be preserved, rehabilitated, or restored. Some buildings would be rehabilitated for visitor and/or staff use. The Sleeping Bear Inn and garage would be placed in the NPS historic leasing program to allow rehabilitation for adaptive use. All other structures would be stabilized and maintained in their current condition.
- Port Oneida (same in all alternatives) — Historic structures and landscapes would be preserved, rehabilitated, or restored. Structures on at least one farmstead would be restored for interpretive purposes. Some buildings in the district would be rehabilitated for visitor and/or staff use, including a visitor contact station and staff housing. At least one farmstead would be placed in the NPS historic leasing program to allow rehabilitation and adaptive use. All other structures and landscapes would be stabilized and maintained in their current condition.

- North Manitou Island — The historic life-saving station structures would be preserved, rehabilitated, or restored. Preservation and/or adaptive use of the rehabilitated historic former Manitou Island Association structures for administrative and operational purposes would continue. Historic structures and landscapes on Cottage Row and elsewhere on the island would be preserved.
- South Manitou Island — The historic life-saving station, lighthouse complex, and village historic structures would be preserved, rehabilitated, or restored. Historic structures and landscapes elsewhere on the island would be preserved.
- Other Mainland Historic Structures and Landscapes — Historic structures and landscapes would be managed as specified for the management zone in which they lie (see alternative map and zone descriptions).

VISITOR ORIENTATION, INTERPRETATION, AND EDUCATION

Visitor orientation services would continue at the NPS visitor center in Empire, at Glen Haven, and at the visitor contact station on South Manitou Island. Interpretive activities would continue throughout the Lakeshore, with special emphasis at the Dune Climb, the major campgrounds, Port Oneida, Glen Haven, and Sleeping Bear Point Maritime Museum. Interpretive opportunities relating to natural resource interpretive themes would be emphasized. On South Manitou Island, concession-operated farm tours would stop at the west end of Chicago Road rather than continue around the farm loop. Tours would continue to the farms on foot rather than by vehicle.

VISITOR FACILITIES, OPPORTUNITIES, AND ACTIVITIES

Opportunities for experiencing solitude and natural quiet would abound, and opportunities for recreational activities such as hiking, backpacking, fishing and hunting, paddling, cross-country skiing, and backcountry camping would be facilitated or expanded as described below:

- Roads — Roads would remain essentially the same as now, except that two NPS-owned roads in the experience nature zone would be closed and returned to more natural conditions — Tiesma Road on the mainland and the NPS portion of the current farm loop route off Chicago Road on South Manitou Island. All developed county roads would be zoned compatible with motor vehicle and bicycle use.
- Trails — Trails would remain the same, except for a few additions: (1) a hike/bike trail located primarily along M-22 and M-109 could be developed at the initiative of partners; a separate study would be needed to make certain that such a hike/bike trail would have no significant impact; (2) a “bay-to-bay” trail for hikers and Lake Michigan paddlers would parallel the mainland shoreline within the Lakeshore; on land, this trail would make use of active beach areas or existing disturbed areas and corridors; and (3) a short loop hiking trail (with trailhead parking area) would be provided at Bow Lakes.
- Campgrounds — Campgrounds and camping would remain essentially the same, except that (1) four or five small, primitive campgrounds would be constructed an easy day’s hike or paddle apart along the Lake Michigan shoreline, for paddlers and hikers (see “trails” above), and (2) Valley View backcountry campground would be abandoned and the area returned to more natural conditions; a replacement campground

for hikers and paddlers would be provided closer to the Lake Michigan shoreline (location to be determined).

- Lake Michigan Beach Access — The following beach access points that are accessible to motor vehicles would remain essentially the same: Lake Michigan Road (Leelanau County), Glen Haven, North Bar Lake, Esch Beach, Peterson Road, and Lake Michigan Road (Platte River mouth). Tiesma Road (NPS owned) would be closed.
- Lake Michigan Boat Access — Boat access to Lake Michigan would remain at the end of Lake Michigan Road, near the mouth of the Platte River (same as in the no-action alternative).
- Inland Lake Use and Access — Motorized boats would be allowed on School, Loon, and North Bar lakes. Motorized boats would no longer be allowed on Bass Lake (Leelanau County).
- Picnic Areas — Existing picnic areas would remain, except for Little Glen Lake picnic area, which would be restored to a natural state in keeping with the experience nature zone.
- Ferry Service — Ferry service for day and overnight stays on South Manitou Island and overnight stays on North Manitou Island would continue (same as in the no-action alternative).
- Boat Access for River Use — Motorized and nonmotorized watercraft use along the Platte and Crystal rivers would continue (same as in the no-action alternative).
- Dune Climb — The Dune Climb would remain essentially the same.
- Bicycle Use — Bicycle use would continue to be allowed on roads used by motor vehicles, but not on hiking trails. An exception would be that as part of the M-22/M-109 hike/bike trail, bicycle use would be evaluated for portions of the Bay View Trail immediately adjacent to the M-22 corridor. Bicycle use would be evaluated for expansion in zones that

permit it (recreation, high use, and experience history).

- Hang Gliding — Hang gliding would continue to be allowed at designated sites within the Lakeshore, although not at Empire Bluff.

Benzie Corridor

The National Park Service would cease acquisition of lands within the Benzie Corridor. No scenic roadway or trail would be developed. The National Park Service would recommend that the Lakeshore’s enabling legislation be amended to remove the Benzie Corridor from the boundary.

Land acquisition costs are not included in the cost estimates below. Merely stating that the National Lakeshore would cease to purchase lands within the Benzie Corridor would not immediately stop any ongoing acquisitions, but would be dependent upon the passage of legislation removing the Benzie Corridor from the boundary. It might be several years before the plan could be implemented.

Bow Lakes

Nature observation and backcountry hiking would be facilitated by development of a small parking area and a short loop trail. The National Park Service would acquire properties within this area of the Lakeshore on a willing-seller basis as they become available (subject to available funding).

BOUNDARY ADJUSTMENTS

Under this alternative the Benzie Corridor would be removed from the National Lakeshore boundary. This would require congressional action.

STAFFING AND COSTS

The staffing level needed to implement alternative A would be the equivalent of 77 full-time staff members. Volunteers and partnerships would continue to be key contributors to NPS operations.

The cost estimates provided here are given for comparison to other alternatives only; they are not to be used for budgeting purposes. Although the numbers appear to be absolutes, they represent a midpoint in a possible range of costs. The costs developed are estimates inclusive of all one-time capital costs of the preferred alternative, including projects that are planned for the near future. One-time capital costs of alternative A, including projects that are planned for the near future or are underway, new construction, and non-facility costs such as major resource plans and projects, are estimated at \$14.4 million. In addition to items mentioned for the no-action

alternative, this includes costs of new trails and campgrounds and historic preservation/ rehabilitation/ restoration (various areas). Deferred maintenance costs of alternative A are estimated at \$15.4 million. The total cost of this alternative (one-time capital costs plus deferred maintenance costs) is estimated at \$29.8 million. Annual operating costs under this alternative would be \$4.2 million. Presentation of these costs in this plan does not guarantee future NPS funding. Project funding will not come all at once; it will likely take many years to secure and may be provided by partners, donations, or other nonfederal sources. Although the National Lakeshore hopes to secure this funding and will prepare itself accordingly, the Lakeshore may not receive enough funding to achieve all desired conditions within the timeframe of the *General Management Plan* (the next 20 or more years). More information on costs is provided in appendix C.

ALTERNATIVE B

OVERALL VISION

Under alternative B the National Lakeshore would be valued primarily for its recreational opportunities in scenic outdoor settings.

WILDERNESS

About 14,400 acres (20% of the National Lakeshore), all on North Manitou Island, would be proposed as wilderness (see Alternative B map in back pocket). No county roads are within areas proposed for wilderness. None of the Lake Michigan active beach zone is in areas proposed for wilderness. Please note that the acreage figures for the various wilderness proposals are estimates based on small-scale maps.

Areas of proposed wilderness are as follows:

- North area of the mainland — none
- Central area of the mainland — none
- South area of the mainland — none
- North Manitou Island — most of the island (the historic village and Cottage Row would be excluded)
- South Manitou Island — none

NATURAL RESOURCES

Based on the large extent of the recreation zone in this alternative, natural resources might be modified to provide for a variety of recreational activities. Natural resource management programs that would occur regardless of the general management plan are outlined in the “Desired Conditions and Strategies” section in chapter 1. Examples include controlling invasive species, restoring disturbed sites, protecting open dune areas, and protecting threatened and endangered species.

CULTURAL RESOURCES

Historic structures and landscapes would be managed as specified for the management zone in which they lie (see alternative map and zone descriptions). More information on individual areas is provided below.

- Glen Haven (same in all alternatives) — The Glen Haven Historic District and Sleeping Bear Point Life-Saving Station would be preserved, rehabilitated, or restored. Some buildings would be rehabilitated for visitor and/or staff use. The Sleeping Bear Inn and garage would be placed in the NPS historic leasing program to allow rehabilitation for adaptive use. All other structures would be stabilized and maintained in their current condition.
- Port Oneida (same in all alternatives) — Historic structures and landscapes would be preserved, rehabilitated, or restored. Structures on at least one farmstead would be restored for interpretive purposes. Some buildings in the district would be rehabilitated for visitor and/or staff use, including a visitor contact station and staff housing. At least one farmstead would be placed in the NPS historic leasing program to allow rehabilitation and adaptive use. All other structures and landscapes would be stabilized and maintained in their current condition.
- North Manitou Island (same as the preferred alternative) — The historic life-saving station and Cottage Row structures would be preserved, rehabilitated, or restored. Preservation and/or adaptive use of the rehabilitated historic former Manitou Island Association structures for administrative and operational purposes would continue. Historic structures and landscapes elsewhere on the island would be preserved.

- South Manitou Island — The historic life-saving station, lighthouse complex, and village historic structures would be preserved, rehabilitated, or restored. Historic structures and landscapes elsewhere on the island would be preserved or rehabilitated.
- Other Mainland Historic Structures and Landscapes — Historic structures and landscapes would be managed as specified for the management zone in which they lie (see alternative map and zone descriptions).

VISITOR ORIENTATION, INTERPRETATION, AND EDUCATION

Visitor orientation services would continue at the NPS visitor center in Empire, at Glen Haven, and at the visitor contact station on South Manitou Island. Interpretive activities would continue throughout the Lakeshore, with special emphasis at the Dune Climb, the major campgrounds, Port Oneida, Glen Haven, and Sleeping Bear Point Maritime Museum. On South Manitou Island, concession-operated farm loop tours would continue. Concession auto tours to near the Giant Cedars would be allowed, provided there is demand and the service is economically feasible. (Concession autos would go as far as the end of the county road; the tours would continue on foot to the Cedars from there.)

VISITOR FACILITIES, OPPORTUNITIES, AND ACTIVITIES

Opportunities for recreational activities such as hiking, backpacking, fishing and hunting, paddling, cross-country skiing, and backcountry camping would be expanded as described below:

- Roads — Roads would remain essentially the same as now, except that a new scenic road would eventually be built within the

Benzie Corridor. All county road rights-of-way would be zoned compatible with motor vehicle and bicycle use.

- Trails — Trails would be expanded in several areas of the National Lakeshore: (1) a hike/bike trail located primarily along M-22 and M-109 could be developed at the initiative of partners; a separate study would be needed to make certain that such a trail would have no significant impact; (2) a “bay-to-bay” trail for hikers and Lake Michigan paddlers would parallel the mainland shoreline within the Lakeshore; on land, this trail would make use of active beach areas or existing disturbed areas and corridors; (3) a modest, multi-loop hiking trail system (with trailhead parking area) would be provided at Bow Lakes; (4) existing trails would be evaluated to see if a few could be groomed for skiing in winter; and (5) bike lanes (or in some stretches a separate bike trail, as appropriate), would accompany the Benzie Corridor scenic road.
- Campgrounds — Campgrounds and camping would remain essentially the same, except that (1) four or five small, primitive campgrounds would be constructed an easy day’s hike or paddle apart along the Lake Michigan shoreline, for paddlers and hikers (see “trails” above); (2) the D. H. Day group campground would be relocated to the main D.H. Day campground; and (3) on North Manitou Island, dispersed camping would no longer occur; instead, designated campgrounds would be provided (locations to be determined).
- Lake Michigan Beach Access — The following beach access points that are accessible to motor vehicles would remain essentially the same — Lake Michigan Road (Leelanau County), Glen Haven, North Bar Lake, and Tiesma Road. Parking at the ends of Peterson Road and Esch Road would be improved. The area around the mouth of the Platte River would be zoned high use and

managed as a more developed beach access area (e.g., expanded parking area, picnicking, and comfort station).

- Lake Michigan Boat Access — A high use zone is located around and east of the mouth of the Platte River. The high use zone allows for boat ramps or docks for access to Lake Michigan, although no new boat ramps or docks are proposed by the National Park Service. A separate study would be needed to determine whether any such facilities would be appropriate for this area.
- Inland Lake Use and Access — Motorized boats would be allowed on School, Bass (Leelanau County), Loon, North Bar, Shell, and Tucker lakes. Access (parking areas, ramps or docks) would be improved at a few inland lakes (locations to be determined).
- Picnic Areas — Existing picnic areas would remain. A few of these areas would be upgraded.
- Ferry Service — Ferry service for day and overnight stays on South Manitou Island and overnight stays on North Manitou Island would continue. Day trips to North Manitou Island would be added, but these would occur once or twice a week, not daily.
- Boat Access for River Use — Motorized and nonmotorized watercraft use along the Platte and Crystal rivers would continue. The Crystal River access area would be upgraded or relocated, and a small parking area would be provided.
- Dune Climb — The Dune Climb would remain essentially the same.
- Bicycle Use — Bicycle use would continue to be allowed on roads used by motor vehicles, but not on hiking trails. An exception would be that as part of the M-22/M-109 hike/bike trail, bicycle use would be evaluated for portions of the Bay View Trail immediately adjacent to the M-22 corridor. Bicycle use would be evaluated for expansion in zones that permit it (recreation, high use, and experience history). Bicycle rentals on

South Manitou Island would be considered.

- Hang Gliding — Hang gliding would continue to be allowed at designated sites within the Lakeshore (same as in the no-action alternative).

Benzie Corridor

The National Park Service would continue to acquire lands within the Benzie Corridor on a willing-seller basis (subject to available funding) for future development of a scenic road. The scenic road would include bike lanes (or in some stretches a separate bike trail, as appropriate). For cost and impact comparison purposes, the scenic road was assumed to be built in year 25 of the plan.

Land acquisition costs are not included in the cost estimates below. Merely stating that the National Lakeshore would continue to purchase lands within the Benzie Corridor would not immediately make funds available for acquisition. It might be several years before funds are actually available to implement the plan.

Bow Lakes

Nature observation and backcountry hiking would be facilitated by development of a modest, multi-loop trail system, which would link up with the nearby public school if possible, to facilitate use by students. The National Park Service would acquire properties within this area of the Lakeshore on a willing-seller basis as they become available (subject to available funding).

BOUNDARY ADJUSTMENTS

There would be no boundary adjustments under this alternative.

STAFFING AND COSTS

The staffing level needed to implement alternative B would be the equivalent of 79 full-time staff members. Volunteers and partnerships would continue to be key contributors to NPS operations.

The cost estimates provided here are given for comparison to other alternatives only; they are not to be used for budgeting purposes. Although the numbers appear to be absolutes, they represent a midpoint in a possible range of costs. The costs developed are estimates inclusive of all one-time capital costs of the preferred alternative, including projects that are planned for the near future. One-time capital costs of alternative B, including projects that are planned for the near future or are underway, new construction, and non-facility costs such as major resource plans and projects, are estimated at \$42.8 million. In addition to items mentioned for the no-action alternative, this includes costs of the Benzie Corridor scenic road, new trails and

campgrounds, picnic area improvements, improved access for nonmotorized boats at inland lakes and rivers, beach access improvements, and historic preservation/rehabilitation/restoration (various areas). Deferred maintenance costs of alternative B are estimated at \$15.4 million. The total cost of this alternative (one-time capital costs plus deferred maintenance costs) is estimated at \$58.2 million. Annual operating costs under this alternative would be \$4.4 million. Presentation of these costs in this plan does not guarantee future NPS funding. Project funding will not come all at once; it will likely take many years to secure and may be provided by partners, donations or other nonfederal sources. Although the National Lakeshore hopes to secure this funding and will prepare itself accordingly, the Lakeshore may not receive enough funding to achieve all desired conditions within the timeframe of the *General Management Plan* (the next 20 or more years). More information on costs is provided in appendix C.

ALTERNATIVE C

OVERALL VISION

Under alternative C the Lakeshore would be managed so that most visitor use is concentrated in selected areas, with more natural, primitive conditions promoted in the rest of the Lakeshore.

WILDERNESS

About 23,200 acres (32% of the National Lakeshore) in the central, south, and island areas of the Lakeshore would be proposed as wilderness (see Alternative C map in back pocket). No developed county roads are within areas proposed for wilderness. None of the Lake Michigan active beach zone is in areas proposed for wilderness. Please note that the acreage figures for the various wilderness proposals are estimates based on small-scale maps.

Areas of proposed wilderness are as follows:

- North area of the mainland — none
- Central area of the mainland — Sleeping Bear Plateau
- South area of the mainland — much of the area north of M-22
- North Manitou Island — most of the island (the historic village and Cottage Row would be excluded)
- South Manitou Island — the northwestern two-thirds of the island (the lighthouse complex, historic village, farm loop tour route, Florence Lake, and Giant Cedars would be excluded)

NATURAL RESOURCES

Within the high use and experience history zones there would be less emphasis on managing the Lakeshore for natural conditions. Outside those concentrated use

areas, the Lakeshore would be managed for more natural conditions. Natural resource management programs that would occur regardless of the general management plan are outlined in the “Desired Conditions and Strategies” section in chapter 1. Examples include controlling invasive species, restoring disturbed sites, protecting open dune areas, and protecting threatened and endangered species.

CULTURAL RESOURCES

Historic structures and landscapes would be managed as specified for the management zone in which they lie (see alternative map and zone descriptions). More information on individual areas is provided below.

- Glen Haven (same in all alternatives) — The Glen Haven Historic District and Sleeping Bear Point Life-Saving Station would be preserved, rehabilitated, or restored. Some buildings would be rehabilitated for visitor and/or staff use. The Sleeping Bear Inn and garage would be placed in the NPS historic leasing program to allow rehabilitation for adaptive use. All other structures would be stabilized and maintained in their current condition.
- Port Oneida (same in all alternatives) — Historic structures and landscapes would be preserved, rehabilitated, or restored. Structures on at least one farmstead would be restored for interpretive purposes. Some buildings in the district would be rehabilitated for visitor and/or staff use, including a visitor contact station and staff housing. At least one farmstead would be placed in the NPS historic leasing program to allow rehabilitation and adaptive use. All other structures and landscapes would be stabilized and maintained in their current condition.

- North Manitou Island (same as the preferred alternative) — The historic life-saving station and Cottage Row structures would be preserved, rehabilitated, or restored. Preservation and/or adaptive use of the rehabilitated historic former Manitou Island Association structures for administrative and operational purposes would continue. Historic structures and landscapes elsewhere on the island would be preserved.
- South Manitou Island (same as the preferred alternative) — The historic life-saving station, lighthouse complex, village historic structures, the schoolhouse, and farm loop tour historic structures would be preserved, rehabilitated, or restored. Historic structures and landscapes elsewhere on the island would be preserved.
- Other Mainland Historic Structures and Landscapes — Historic structures and landscapes would be managed as specified for the management zone in which they lie (see alternative map and zone descriptions).

VISITOR ORIENTATION, INTERPRETATION, AND EDUCATION

Visitor orientation services would continue at the NPS visitor center in Empire, at Glen Haven, and at the visitor contact station on South Manitou Island. Interpretive activities would continue throughout the Lakeshore, with special emphasis at the Dune Climb, the major campgrounds, Port Oneida, Glen Haven, and Sleeping Bear Point Maritime Museum. Educational and interpretive programs for visitors would be more structured (e.g., more guided programs) in the concentrated use areas. Outside the concentrated use areas, most interpretive opportunities would be self-guided. On South Manitou Island, concession-operated farm loop tours would continue. Concession auto tours to near the Giant Cedars would be

allowed, provided there is demand and the service is economically feasible. (Concession autos would go as far as the end of the county road; the tours would continue on foot to the Cedars from there.)

VISITOR FACILITIES, OPPORTUNITIES, AND ACTIVITIES

Concentrated use areas would be managed for more developed facilities and guided recreational opportunities. Opportunities for recreational activities such as hiking, backpacking, fishing and hunting, paddling, cross-country skiing, and backcountry camping would be expanded as discussed below:

- Roads — Roads would remain essentially the same as now. All developed county roads would be zoned compatible with motor vehicle and bicycle use.
- Trails — Additional trails would be considered within the high use zone near Little Glen Lake to increase both recreational options and connectivity between Lakeshore attractions. Other trail opportunities would be added: (1) a hike/bike trail located primarily along M-22 and M-109 could be developed at the initiative of partners; a separate study would be needed to make certain that such a trail would have no significant impact; (2) a “bay-to-bay” trail for hikers and Lake Michigan paddlers would parallel the mainland shoreline within the Lakeshore; on land, this trail would make use of active beach areas or existing disturbed areas and corridors; (3) a short loop hiking trail (with trailhead parking area) would be provided at Bow Lakes; and (4) a hike/bike trail would eventually be developed within the Benzie Corridor.
- Campgrounds — Campgrounds and camping would remain essentially the same, except that: (1) the D. H. Day group campground would be relocated to the main D. H. Day campground; (2) the D. H. Day campground would be zoned

high use, allowing for improved facilities and/or campground expansion; and (3) on North Manitou Island, in addition to dispersed camping, additional designated campgrounds would be provided (locations to be determined).

- Lake Michigan Beach Access — The following beach access points that are accessible to motor vehicles would remain essentially the same: Lake Michigan Road (Leelanau County), Glen Haven, North Bar Lake, Peterson Road, and Tiesma Road. The areas around the ends of County Road 669, Esch Road, and the Platte River mouth would be zoned high use and managed as more developed beach access areas (e.g., expanded parking and picnicking and comfort station).
- Lake Michigan Boat Access — High use zones would be located near the end of County Road 669, around the Platte River mouth, and near the end of Esch Road. The high use zone allows for boat ramps or docks for access to Lake Michigan, although no new boat ramps or docks are proposed by the National Park Service. Separate studies would be needed to determine whether any such facilities would be appropriate in these areas.
- Inland Lake Use and Access — Motorized boats would be allowed on School, Bass (Leelanau County), North Bar, and Loon Lakes. Access (parking areas, ramps, or docks) would be improved at a few inland lakes (locations to be determined).
- Picnic Areas — Existing picnic areas would remain, and the Glen Lake picnic area would be formalized and upgraded (including a comfort station) to facilitate beach and picnic use.
- Ferry Service — Ferry service for day and overnight stays on South Manitou Island and overnight stays on North Manitou Island would continue (same as in the no action alternative).

- Boat Access for River Use — Motorized and nonmotorized watercraft use along the Platte and Crystal rivers would continue (same as in the no action alternative).
- Dune Climb — Facilities at the Dune Climb would be upgraded (e.g., picnic tables and pedestrian paths would be better defined) to support continued heavy use.
- Bicycle Use — Bicycle use would continue to be allowed on roads used by motor vehicles, but not on hiking trails. An exception would be that as part of the M-22/M-109 hike/bike trail, bicycle use would be evaluated for portions of the Bay View Trail immediately adjacent to the M-22 corridor. Bicycle use would be evaluated for expansion in zones that permit it (recreation, high use, and experience history).
- Hang Gliding — Hang gliding would continue to be allowed at designated sites within the Lakeshore (same as in the no action alternative).

Benzie Corridor

The National Park Service would continue to acquire lands within the Benzie Corridor on a willing-seller basis (subject to available funding) for future development of a scenic nonmotorized hike/bike trail. For cost and impact comparison purposes, the scenic trail was assumed to be built in year 25 of the plan.

Land acquisition costs are not included in the cost estimates below. Merely stating that the National Lakeshore would continue to purchase lands within the Benzie Corridor would not immediately make funds available for acquisition. It might be several years before funds are actually available to implement the plan.

Bow Lakes

Nature observation and backcountry hiking would be facilitated by development of a small parking area and a short loop trail. The National Park Service would acquire properties within this area of the Lakeshore on a willing-seller basis as they become available (subject to available funding).

BOUNDARY ADJUSTMENTS

There would be no boundary adjustments under this alternative.

STAFFING AND COSTS

The staffing level under alternative C would be the equivalent of 85 full-time staff members. Volunteers and partnerships would continue to be key contributors to NPS operations.

The cost estimates provided here are given for comparison to other alternatives only; they are not to be used for budgeting purposes. Although the numbers appear to be absolutes, they represent a midpoint in a possible range of costs. The costs developed are estimates inclusive of all one-time capital costs of the preferred alternative, including projects that are planned for the near future. One-time

capital costs of alternative C, including projects that are planned for the near future or are underway, new construction, and non-facility costs such as major resource plans and projects, are estimated at \$30.5 million. In addition to items mentioned for the no-action alternative, this includes costs of new trails, new or upgraded campgrounds, picnic area improvements, improved access for non-motorized boats at inland lakes, beach access and Dune Climb improvements, and historic preservation/ rehabilitation/ restoration (various areas). Deferred maintenance costs of alternative C are estimated at \$15.4 million. The total cost of this alternative (one-time capital costs plus deferred maintenance costs) is estimated at \$45.9 million. Annual operating costs under this alternative would be \$4.5 million. Annual operating costs under this alternative would be \$4.5 million. Presentation of these costs in this plan does not guarantee future NPS funding. Project funding will not come all at once; it will likely take many years to secure and may be provided by partners, donations or other nonfederal sources. Although the National Lakeshore hopes to secure this funding and will prepare itself accordingly, the Lakeshore may not receive enough funding to achieve all desired conditions within the timeframe of the *General Management Plan* (the next 20 or more years). More information on costs is provided in appendix C.

MITIGATIVE MEASURES FOR THE ACTION ALTERNATIVES

In the legislation that created the National Park Service, Congress charged the agency with managing lands under its stewardship “in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (National Park Service Organic Act). As a result, the National Park Service routinely considers and implements mitigative measures whenever activities that could adversely affect the resources or systems are anticipated. Mitigation means to take action to avoid, reduce, or compensate for the effects of environmental damage.

A common set of mitigative measures would be applied to the action alternatives in this *General Management Plan*. The National Park Service would avoid, minimize, and mitigate adverse impacts whenever practicable.

GENERAL

New facilities (e.g., campsites, trails, bicycle trails) would be sited to minimize impacts on resources, including avoiding steep slopes and sensitive areas and placing new facilities as close to existing disturbances as feasible. Before any construction activity, construction zones would be identified with temporary fencing to confine disruptions to the minimum area required. All protection measures would be clearly stated in the construction specifications, and workers would be instructed to avoid areas beyond the fencing.

Construction activities would implement standard soil erosion and stormwater runoff prevention methods such as use of silt fencing to avoid erosion and runoff in flowing water environments or during rain events.

Outdoor lighting for new or rehabilitated facilities would be the minimum amount required to provide for personal safety. Lights

would also be shielded and/or directed downward to minimize impact on the night sky.

Standard noise abatement measures would be implemented, as appropriate, during park operations and construction activities. Examples include: scheduling activities so that impacts are minimized, use of the best available noise control techniques, use of hydraulically or electrically powered tools, and situating noise-producing machinery as far as possible from sensitive uses or resources.

CULTURAL RESOURCES

Archeological Resources

The Archeological Resources Protection Act of 1979 requires that all federal land managers develop plans for surveying lands under their control to determine the nature and extent of archeological resources on those lands. Funding for a comprehensive survey has been requested and site-specific surveys continue to be conducted in the interim. The following procedures would be taken to ensure that archeological resources are not lost or damaged due to National Lakeshore activities:

As appropriate, archeological surveys and/or monitoring would precede any construction. Known archeological resources would be avoided to the greatest extent possible. If archeological resources listed in or eligible for listing in the national register could not be avoided, an appropriate mitigation strategy would be developed in consultation with the state historic preservation officer and, if necessary, associated American Indian tribes. If during construction previously undiscovered archeological resources were uncovered, all work in the immediate vicinity of the discovery would be halted until the resources could be identified and documented and an

appropriate mitigation strategy developed in consultation with the state historic preservation officer and, if necessary, associated American Indian tribes.

Human Remains

In the event that human remains, funerary objects, sacred objects, or objects of cultural patrimony were discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001) and other applicable laws would be followed.

Ethnographic Resources

Sleeping Bear Dunes National Lakeshore staff would consult with associated American Indian tribes to develop and accomplish programs in a way that respects the beliefs, traditions, and other cultural values of the American Indian tribes who have ancestral ties to National Lakeshore lands. NPS staff will maintain government-to-government relations with associated tribes to ensure a collaborative working relationship, and will consult regularly with them before taking actions that would affect natural and cultural resources that are of interest and concern to them. Access to, and ceremonial use of, American Indian sacred sites by American Indian religious practitioners would be accommodated in a manner that is consistent with National Lakeshore purposes and applicable law, regulations, and policy.

Historic Structures and Landscapes

All structures and landscapes in the National Lakeshore have been or are being inventoried and evaluated using the criteria of the National Register of Historic Places. Not all of these structures and landscapes have been fully documented and submitted to the keeper of the national register. Until that action has

occurred, however, all properties listed on or appearing to meet national register criteria will be treated as though they are listed. No action affecting any of these resources may proceed without appropriate consultation with the state historic preservation officer and documentation of the action under Section 106 of the National Historic Preservation Act of 1966, as amended, as promulgated under the Advisory Council on Historic Preservation's "Regulations for the Protection of Historic and Cultural Properties" (36 CFR 800).

NATURAL RESOURCES

General

For alternatives that include a concessions farm tour to near the Giant Cedars, tour vehicles could travel as far as the end of the county-owned road. From there, visitors would continue on foot for a short distance to the trees. Mitigating measures (e.g., education, supervision by tour leaders, fences, and/or boardwalks) would be used as needed to prevent visitor-use-related impacts to the cedar trees, which are believed to be vulnerable to trampling due to shallow root systems.

Activities with the potential to disturb natural resources would be monitored for use-related impacts. Management options could range from (a) placing structures to limit impacts (e.g., sand ladders and boardwalks) or redirect visitors (i.e., fences), (b) education, and (c) guided activities, and (d) limiting access through a permit system.

Wetlands

Trails and other developments would avoid wetlands and "Waters of the United States" (all waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce) to the extent feasible. Where crossing or impingement upon wetlands is unavoidable, design and

construction would minimize impacts on the wetlands. All potential impacts on wetlands would require state and federal permits.

Geology and Soils

Structures such as sand ladders, boardwalks, and sidewalks would be used to reduce impacts to the substrate, and silt fences would be used to control erosion and runoff. Steep slopes and inundated areas would be avoided.

Vegetation and Wildlife

Trails/paths would be placed as close to existing disturbances as possible. The construction footprint would be minimized for both temporary and permanent impacts. Construction would take place outside peak breeding and nesting seasons.

Threatened and Endangered Species

Surveys would be conducted, as appropriate, for threatened and endangered species and species of concern before ground-disturbing activities are undertaken.

Impacts on three federally threatened or endangered species are analyzed in detail in this document— the piping plover (and piping plover critical habitat), the Michigan monkey flower, and the Pitcher’s thistle. (See chapter 5 for details.)

Conservation measures would be undertaken to reduce potential impacts on federally listed species or candidate species as needed. Conservation measures would be implemented in consultation with the U.S.

Fish and Wildlife Service and would be required if

- activities expected to have impacts on piping plovers or their designated critical habitat beyond those addressed in this document were initiated
- additional Michigan monkey flower occurrences were identified within the Lakeshore
- activities anticipated to have impacts on Michigan monkey flower populations were initiated
- activities anticipated to have impacts on Pitcher’s thistle populations beyond those addressed in this document were initiated

Should any of the above events occur, renewed discussion and consultation with the U.S. Fish and Wildlife Service would focus on development of specific conservation measures to reduce potential impacts on these species and/or designated critical habitat. Such conservation measures would be based on the recommendations provided by the U.S. Fish and Wildlife Service.

Conservation measures would likely include, but would not be limited to, the following:

- Protecting piping plovers by fencing or another system designed to prevent impacts from human activity and discourage predators.
- Restricting dogs from piping plover breeding areas during the breeding season.
- Providing education about species and habitats.
- Designating alternate access points.

THE ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The environmentally preferable alternative is the alternative that promotes the national environmental policy expressed in the National Environmental Policy Act (Sec. 101(b)). This includes alternatives that

- (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- (2) ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- (3) attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- (4) preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
- (5) achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
- (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources" (NPS DO-12 Handbook, Section 2.7D).

The alternatives do not differ much with respect to criteria 2 and 6; therefore the evaluation focuses on criteria 1, 3, 4, and 5.

The no-action alternative represents "business as usual" and was included to provide a baseline against which to compare the effects of the other (action) alternatives. The no-action alternative realizes criterion 1 in that most of the Lakeshore would be managed as rather natural, and large areas would be managed to maintain their existing wilderness character. The no-action alternative would

not fully realize criteria 3, 4, and 5 to the same extent as alternatives B, C, and the preferred alternative because it has fewer recreational opportunities.

The preferred alternative proposes managing much of the National Lakeshore as the experience nature zone, provides limited new recreational opportunities, proposes substantial amounts of designated wilderness, and protects the National Lakeshore's fundamental resources and values; as such it realizes criteria 1, 3, 4, and 5.

Alternative A realizes criterion 1 by managing most of the Lakeshore as the experience nature zone and by proposing substantial amounts of designated wilderness. Because it proposes a narrower range of recreational opportunities (and fewer such opportunities) than alternatives B, C, and the preferred alternative, alternative A does not realize criteria 3, 4, and 5 to the same extent as these alternatives.

Alternative B realizes many aspects of criteria 3, 4, and 5 by providing a relatively wide range of and more new recreational opportunities. Alternative B realizes criterion 1 to a lesser degree than the other alternatives due to the more limited extent of the experience nature zone and its modest wilderness proposal.

Alternative C realizes criterion 1 to a lesser extent than the preferred alternative and alternative A, and to a greater extent than alternative B, based on the relative proportions of management zones and its moderate wilderness proposal. However, similar to alternative B and the preferred alternative, alternative C realizes many aspects of criteria 3, 4, and 5 by providing a relatively wide range of and more new recreational opportunities.

After considering the environmental consequences of the five management alternatives, including consequences to the human environment, the National Park Service has concluded that the preferred alternative is also the environmentally

preferable alternative. By a slight margin over alternative C, this alternative best realizes the full range of national environmental policy goals as stated in section 101 of the National Environmental Policy Act.

TABLE 2: COMPARISON OF ALTERNATIVES

This table is included with the maps in the back pocket of this document.

TABLE 3: RANGE OF TREATMENT FOR HISTORIC PROPERTIES UNDER THE ALTERNATIVES

	experience history zone (allows for preservation, rehabilitation, or restoration)
	recreation zone (allows for preservation or rehabilitation)
	experience nature zone (allows for preservation)

The shading in the table below reflects the management zone and the possible treatment range (see table box above) where the property is located. (There are no historic properties in the high use zone.) See definitions for preservation, rehabilitation, and restoration on page 40.

Treatment	No Action			Preferred Alternative			Alternative A			Alternative B			Alternative C		
	Preservation	Rehabilitation	Restoration	Preservation	Rehabilitation	Restoration	Preservation	Rehabilitation	Restoration	Preservation	Rehabilitation	Restoration	Preservation	Rehabilitation	Restoration
FUNDAMENTAL HISTORIC RESOURCES															
Sleeping Bear Point Life-Saving Station (4) ^a	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
North Manitou Life-Saving Station (8) ^a	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
South Manitou Island Lighthouse Complex and Life-Saving Station Historical District (13) ^a	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Glen Haven Village Historic District (15) ^a	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Port Oneida Rural Historic District (121) ^a (18 farms)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SUBTOTAL (161)															
OTHER HISTORIC RESOURCES															
North Manitou Island Village (Manitou Island Association) (10) ^a	•	•		•	•	•	•	•	•	•	•	•	•	•	•
North Manitou Island Village (Cottage Row) (13) ^a	•			•	•	•	•			•	•	•	•	•	•
North Manitou Island Westside Barn (1) ^a	•			•			•			•			•		
Bournique Cabin (4) ^a	•			•			•			•			•		
South Manitou Island Loop (Schoolhouse, August Beck farm, G.C. Hutzler farm) (13) ^a	•		○	•	•	•	•			•	•	•	•	•	•

Table 3: Range of Treatment for Historic Properties under the Alternatives

Treatment	No Action			Preferred Alternative			Alternative A			Alternative B			Alternative C		
	Preservation	Rehabilitation	Restoration	Preservation	Rehabilitation	Restoration	Preservation	Rehabilitation	Restoration	Preservation	Rehabilitation	Restoration	Preservation	Rehabilitation	Restoration
South Manitou Island non-farm loop (G. J. Hutzler farm, T. Beck farm) (5) ^a	•			•			•			•	•		•		
Remainder of South Manitou Island Village (9) ^a	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Bufka Farm (8) ^a	•	•		•	•		•			•			•	•	
Kropp Farm (5) ^a	•	•		•	•		•			•			•	•	
Eitzen Farm (7) ^a	•	•		•	•		•			•			•	•	
Shalda Log Cabin (1) ^a	•	•		•	•		•			•	•		•		
Tweddle School (1) ^a	•	•		•	•		•			•	•		•	•	
Pelky Barn (1) ^a	•	•		•	•		•			•	•		•	•	
Treat Farm (9) ^a	•	•		•			•			•	•		•	•	
Esch Farm (1) ^a	•	•		•	•		•	•		•	•		•	•	
Lyle Schmidt Farm (3) ^a	•	•		•			•			•	•		•		
Tweddle Farm (6) ^a	•	•		•	•		•	•		•	•		•	•	
Bokeloo Log Cabin (2) ^a	•	•		•	•		•			•	•		•		
Ken-Tuck-U Inn (3) ^a	•	•		•	•		•			•			•	•	
SUBTOTAL (102)															
TOTAL (263)															
Figures refer to numbers of structures.				206 (78%)			180 (68%)			193 (73%)			206 (78%)		
				35 (13%)			7 (03%)			42 (16%)			41 (16%)		
				22 (08%)			76 (29%)			28 (11%)			16 (06%)		

a Number of buildings at each property. All landscapes are preserved. Numbers do not include other landscape features such as fence rows, cemeteries, sidewalks, etc.

o Restoration of Schoolhouse only, preservation of all others.

TABLE 4: SUMMARY OF THE IMPACTS OF THE ALTERNATIVES

There would be *no impairment* of National Lakeshore resources or values from actions proposed in the alternatives.

NO-ACTION ALTERNATIVE		PREFERRED ALTERNATIVE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C
Impacts on Historic Resources					
	The no-action alternative would have a determination of no adverse effect under the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties" (36 CFR 800).	The preferred alternative would have a determination of no adverse effect under the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties" (36 CFR 800).	Alternative A would have a determination of no adverse effect under the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties" (36 CFR 800).	Alternative B would have a determination of no adverse effect under the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties" (36 CFR 800).	Alternative C would have a determination of no adverse effect under the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties" (36 CFR 800).
Impacts on Natural Resources					
Soils and Geologic Resources	The no-action alternative would have short- and long-term, minor to moderate adverse impacts and short- and long-term moderate beneficial impacts on soils and geologic resources.	The preferred alternative would have short- and long-term, minor to moderate adverse and beneficial impacts on soils and geologic resources.	Alternative A would have short- and long-term, negligible to moderate adverse impacts, and long-term, minor beneficial impacts on soils and geologic resources.	Alternative B would have short- and long-term, negligible to moderate adverse and beneficial impacts on soils and geologic resources.	Alternative C would have short- and long-term, negligible to moderate adverse and beneficial impacts.
Vegetation and Wildlife	The no-action alternative would have long-term, moderately beneficial impacts, and short- and long-term negligible to moderate adverse impacts on the vegetation and wildlife of the Lakeshore.	The preferred alternative would have short- and long-term negligible to minor adverse impacts, and short- and long-term minor to moderate beneficial impacts.	Alternative A would have short- and long-term negligible to moderate adverse impacts, and short- and long-term negligible to moderate beneficial impacts.	Alternative B would have short- and long-term negligible to moderate adverse impacts, and short- and long-term negligible to moderate beneficial impacts.	Alternative C would have short- and long-term negligible to moderate adverse impacts, and short- and long-term, minor to moderate beneficial impacts.

Table 4: Summary of the Impacts of the Alternatives

IMPACT TOPIC	NO-ACTION ALTERNATIVE	PREFERRED ALTERNATIVE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C
Federal Threatened and Endangered Species	The no-action alternative may affect but would not be likely to adversely affect addressed federally listed species and designated critical habitat.	Any adverse impacts of the preferred alternative on the addressed federally listed species and designated critical habitat would be no more than insignificant or discountable over both the short and long terms. Implementation of the preferred alternative may affect but would not likely adversely affect the addressed listed species and critical habitat.	Any adverse impacts of alternative A on the addressed federally listed species and designated critical habitat would be no more than insignificant or discountable over both the short and long terms. Implementation of alternative A may affect but would not likely adversely affect the addressed listed species and critical habitat.	Any adverse impacts of alternative B on the addressed federally listed species and designated critical habitat would be no more than insignificant or discountable over both the short and long terms. Implementation of alternative B may affect but would not likely adversely affect the addressed listed species and critical habitat.	Any adverse impacts of alternative C on the addressed federally listed species and designated critical habitat within the Lakeshore would be no more than insignificant or discountable over both the short and long terms. Implementation of alternative C may affect but would not likely adversely affect the addressed listed species and critical habitat.
Michigan State-Listed Species	The no-action alternative would have short- and long-term, minor to moderate, adverse impacts on Michigan state-listed species.	The preferred alternative would have short- and long-term, minor to moderate adverse and beneficial impacts on state-listed species.	Alternative A would have short- and long-term negligible to moderate adverse impacts and short- and long-term minor to moderate beneficial impacts on Michigan state-listed species.	Alternative B would have short- and long-term, negligible to moderate, adverse impacts and short- and long-term negligible to moderate beneficial impacts on state-listed species.	Alternative C would have short- and long-term, minor to moderate, adverse impacts, and short- and long-term minor to moderate beneficial impacts on state-listed species.
Wetlands and Water Quality	The no-action alternative would have short- and long-term, minor to moderate, adverse impacts on wetlands and water quality.	The preferred alternative would have short- and long-term, negligible to moderate adverse, and short- and long-term negligible to moderate beneficial impacts on wetlands and water quality.	Alternative A would contribute short- and long-term negligible to moderate adverse, and negligible to moderate beneficial impacts on wetlands and water quality.	Alternative B would have short- and long-term, negligible to moderate, adverse and short- and long-term, negligible to moderate, beneficial impacts on wetlands and water quality.	Alternative C would have short-term, negligible to moderate, adverse; short-term, negligible to minor, beneficial; and long-term negligible to moderate beneficial impacts on wetlands and water quality.

IMPACT TOPIC		NO-ACTION ALTERNATIVE	PREFERRED ALTERNATIVE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C
Impacts on Visitor Opportunities and Use		<p>Visitors seem satisfied overall with most current opportunities in the Lakeshore. Maintaining the current access, scenic resources, range of visitor opportunities, experiences, and recreation-oriented facilities have a long-term, minor to moderate beneficial impact on visitor opportunities and use. Some visitors would prefer some additional improvements in recreation-oriented facilities, a few additional visitor opportunities, or a reduction of crowding on the Platte River, and the lack of these would result in a long-term, minor adverse impact on these visitors.</p>	<p>Increased access and visitor opportunities related to additional recreation-oriented facilities would have a long-term, moderate beneficial impact on visitor opportunities and use. Implementation of user capacity management strategies would have a long-term, minor beneficial impact on the visitor experience, but potentially long-term minor adverse effects on use. The removal of Valley View campground and disallowing gas-powered motorboats on two inland lakes would have long-term, minor, adverse impacts. The increased visitor opportunities and facilities would have a long-term, minor, adverse impact on natural sound and the night sky. Construction activities would have short-term, minor, adverse impacts.</p>	<p>Increased access and visitor opportunities related to additional recreation-oriented facilities would have a long-term, minor to moderate beneficial impact on visitor opportunities and use. Implementation of user capacity management strategies would have a long-term, minor beneficial impact on the visitor experience, but potentially long-term minor adverse effects on visitor use. The loss of some vehicle access, visitor opportunities, and recreation-oriented development (e.g., Tiesma Road, Glen Lake picnic area, and part of the farm tour) would have a long-term, moderate adverse impact. The removal of the Benzie Corridor from the Lakeshore boundary would have long-term, minor to moderate adverse impacts on visitor access and opportunities, scenic resources, natural soundscapes, and the night sky. Construction activities would have short-term, minor adverse impacts.</p>	<p>Increased access and visitor opportunities related to additional recreation-oriented facilities would have a long-term, minor to moderate beneficial impact on visitor opportunities and use. Implementation of user capacity management strategies would have a long-term, minor beneficial impact on visitor experiences but potentially long-term minor adverse effects on visitor use. The removal of dispersed camping on North Manitou Island would have a long-term minor adverse impact. The increased visitor opportunities and facilities would have a long-term minor adverse impact on scenic resources, natural sound, and the night sky. Construction activities would have short-term minor adverse impact.</p>	<p>Increased access and visitor opportunities related to additional recreation-oriented facilities would have a long-term, minor to moderate beneficial impact on visitor opportunities and use. Implementation of user capacity management strategies would have a long-term, minor, beneficial impact on the visitor experience, but potentially long-term minor, adverse effects on visitor use. The increased visitor opportunities and facilities in the high-use zones would have a long-term, minor, adverse impact on scenic resources, natural sounds and the night sky. Construction activities would have short-term, minor, adverse impacts.</p>

Table 4: Summary of the Impacts of the Alternatives

IMPACT TOPIC	NO-ACTION ALTERNATIVE	PREFERRED ALTERNATIVE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C
<p>Impacts on Wilderness Character</p>	<p>As the result of ongoing management of nearly 31,000 acres to maintain its existing wilderness character, as directed by Congress, the National Lakeshore would continue to include extensive, largely natural undeveloped areas where outstanding opportunities for solitude or primitive, unconfined recreation would continue to be available. Impacts of the no-action alternative would continue to be mostly beneficial, moderate, and long term — but there would also be some continuing localized, minor adverse impacts on wilderness character.</p>	<p>Establishment of 32,100 acres of designated wilderness in all three portions of the mainland and on both islands would protect wilderness values (naturalness and opportunities for solitude or primitive, unconfined recreation). Impacts of the preferred alternative on wilderness character would be mostly beneficial, moderate, and long term (permanent), but there would also be some continuing localized, minor adverse impacts.</p>	<p>Establishment of 33,600 acres of designated wilderness (the most of any alternative) in all three portions of the mainland and on both islands would permanently protect naturalness and opportunities for solitude or primitive, unconfined recreation. Impacts of alternative A on wilderness character would be mostly beneficial, moderate, and long term (permanent), but there would also be some localized minor adverse impacts on wilderness character.</p>	<p>Establishment of 14,400 acres of designated wilderness on North Manitou Island would permanently protect wilderness values therein. However, about 16,503 acres on the mainland and South Manitou Island would no longer have wilderness protection, so naturalness and opportunities for solitude and primitive recreation would be substantially reduced there. Alternative B would have long-term (some permanent), minor beneficial and minor to major adverse impacts on wilderness character.</p>	<p>Establishment of 23,200 acres of designated wilderness in the central and south portions of the mainland and on both islands would permanently protect wilderness values (naturalness and opportunities for solitude or primitive unconfined recreation). However, wilderness values in several areas (north portion of the mainland, Otter Creek area, and southeast portion of South Manitou Island) would no longer have wilderness protection. Impacts of alternative C on wilderness character would be long term (some permanent), minor, and adverse and beneficial.</p>

CHAPTER 2: ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE

IMPACT TOPIC		NO-ACTION ALTERNATIVE	PREFERRED ALTERNATIVE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C
Impacts on Regional Socioeconomics						
	<p>The economic and social effects of the no-action alternative would include negligible to minor short-term and long-term economic benefits and negligible, indeterminate, or adverse effects on population growth and demands on community services and facilities. Long-term consequences on attitudes and lifestyle are indeterminate, but in general would be more likely to be adverse than beneficial.</p>	<p>The economic effects of the preferred alternative would include negligible to minor short-term and moderate long-term economic benefits, the latter due to increased visitation. Short- and long-term consequences on lifestyles and attitudes would be minor benefits, because many interested parties could support the management direction established in the preferred alternative. Long-term social consequences would include a negligible to minor contribution to long-term population growth and demands on community infrastructure and services.</p>	<p>The economic and social effects of alternative A would include negligible to minor short-term and moderate long-term economic benefits compared to the no-action alternative. Short- and long-term effects on lifestyles and attitudes would be indeterminate. Long-term social consequences would include a negligible to minor contribution to long-term population growth and demands on community infrastructure and services.</p>	<p>The economic and social effects of alternative B would include negligible to minor short-term and moderate long-term economic benefits compared to the no-action alternative. Short- and long-term effects on lifestyles and attitudes are indeterminate. Long-term social consequences would include a negligible to minor contribution to long-term population growth and demands on community infrastructure and services.</p>	<p>The economic effects of alternative C would include negligible to minor short-term and moderate long-term economic benefits, the latter due to increased visitation. Short- and long-term consequences on lifestyles and attitudes are indeterminate; many interested parties would support this alternative, but some would be disappointed in one or more of its aspects. Long-term social consequences include a negligible to minor contribution to long-term population growth and demands on community infrastructure and services.</p>	
Impacts on NPS Operations						
	<p>Ongoing impacts (long-term minor to moderate beneficial and adverse) would continue, but the no-action alternative would have no new impacts on NPS operations.</p>	<p>The preferred alternative would have long-term, minor beneficial and adverse impacts on NPS operations.</p>	<p>Alternative A would have long-term, minor beneficial and adverse impacts on NPS operations.</p>	<p>Alternative B would have long-term minor beneficial and moderate adverse impacts on NPS operations.</p>	<p>Alternative C would have long-term minor beneficial and moderate adverse impacts on NPS operations.</p>	