

assessment of alternatives

general management plan

august 1979

SLEEPING BEAR DUNES

NATIONAL LAKESHORE / MICHIGAN



SLEEPING BEAR DUNES
NATIONAL LAKESHORE

ASSESSMENT OF ALTERNATIVES
FOR THE
GENERAL MANAGEMENT PLAN

August 1979

United States Department of the Interior
National Park Service
Denver Service Center

C O N T E N T S

INTRODUCTION / 1

FACTORS AFFECTING PLANNING / 2

POTENTIAL WILDERNESS / 2

SIGNIFICANT NATURAL/CULTURAL/SOCIOECONOMIC
RESOURCES / 2

PLANNING UNITS / 4

VISITOR EXPERIENCE / 4

VISITOR USE CONCEPTS, ALTERNATIVES, AND SIGNIFICANT
IMPACTS / 5

VISITOR USE CONCEPTS / 5

ALTERNATIVES AND SIGNIFICANT IMPACTS / 6

North Manitou Island / 8

South Manitou Island / 16

Good Harbor / 24

Glen Lake / 30

Empire / 44

Platte / 56

CONSULTATION AND COORDINATION / 68

PLANNING TEAM AND CONSULTANTS / 70

M A P S

Alternatives for North Manitou Island Planning Unit	/ 9
Alternatives for South Manitou Island Planning Unit	/ 17
Alternatives for Good Harbor Planning Unit	/ 25
Alternatives for Glen Lake Planning Unit	/ 31
Alternatives for Empire Planning Unit	/ 45
Alternatives for Platte Planning Unit	/ 57

I N T R O D U C T I O N

This Assessment of Alternatives for the general management plan for Sleeping Bear Dunes National Lakeshore focuses on analyzing the impacts of various alternatives for the visitor use and management of the national lakeshore. During planning, numerous resources were evaluated with respect to how they would be affected by, or how they would affect, various alternatives. Many of the resources were found to not be of significance to planning. Consequently, only those resources that have significant effects on planning, or that would be affected by planning, are considered in this assessment.

The first section of this document deals with specific factors that have affected planning. These factors include potential wilderness, significant natural/cultural/socioeconomic resources, the determination of planning units, and the visitor experience. (Detailed descriptions of the natural environment, cultural resources, and the socioeconomic environment are included in the Resource Information Base, which is available for review at lakeshore headquarters, the Hart Visitor Center, and local libraries; or a copy can be obtained by writing the superintendent at 400 Main Street, Frankfort, Michigan 49635.)

The concepts for visitor use for each planning unit, the alternatives for achieving those concepts, and the significant environmental impacts resulting from the implementation of alternative actions are presented in the second section of this assessment. For each alternative there is a map of the planning unit showing development as it would occur under that alternative. Only the significant impacts arising from the implementation of the major actions are identified--essentially, those actions that would call for extensive new development or the removal of existing facilities.

The third section of this assessment discusses consultation and coordination efforts that have been pursued throughout the planning process.

FACTORS AFFECTING PLANNING

During the planning process for Sleeping Bear Dunes National Lakeshore, a number of factors having a direct bearing on the general management plan were identified. These factors include federal wilderness policies and the 1975 Wilderness Recommendation for Sleeping Bear Dunes; significant natural, cultural, and socioeconomic resources; the definition of planning units; and the desired visitor experience.

POTENTIAL WILDERNESS

The 1975 Wilderness Recommendation listed six potential wilderness units for Sleeping Bear Dunes National Lakeshore. However, landownership (county roads and private lands) and traditional visitor and interpretive activities (for example, the Hart Nature Trail) have prompted the reconsideration of potential wilderness in these units. Lands that will be recommended to the President as being worthy of wilderness designation will be managed under National Park Service policies for wilderness until Congress formally acts on the wilderness proposals.

SIGNIFICANT NATURAL/CULTURAL/SOCIOECONOMIC RESOURCES

Significant natural features and cultural resources were identified after a resource inventory for the national lakeshore had been completed. Significance was established by applying one or more of the following criteria:

- 1) a resource with outstanding values or qualities illustrating natural and cultural themes of national, state, or local interest
- 2) endangered, threatened, and rare plant or animal species
- 3) habitats essential to the existence of a plant or animal species

These significant natural and cultural features are summarized in table 1.

Two of the most significant socioeconomic factors that affect planning for the national lakeshore include the importance of tourism to Benzie and Leelanau counties and the recreational attractiveness of the region. Another factor that has affected planning is the presence of small towns nearby--specifically, Leland, Glen Arbor, and Empire--and how they would be affected by increased visitation to the national lakeshore.

Table 1: Summary of Significant Resources

<u>Planning Unit</u>	<u>Geologic Features</u>	<u>Vegetation</u>	<u>Wildlife</u>	<u>Visual Quality</u>	<u>Cultural Resources</u>
North Manitou	Forested "blowout" area (potholes; perched dunes--Old Baldy Hill)	Beech/maple forest	White-tailed deer population	Views of South Manitou, U.S. Coast Guard crib, and mainland (from southern portion of island)	Cultural resources are known to exist, but additional evaluation is needed to determine their significance
South Manitou	Perched dune complex	Record-sized trees; rare plant species (not found on mainland or other Lake Michigan islands)	Herring and ring-billed gull colonies	Views from lighthouse	Hutzler, Burdick, Beck, and Haas farm complexes; cemetery (new); old schoolhouse; lighthouse and lifesaving station complex; village; further evaluation is needed to determine significance of archeological sites 20 LU 24 and 20 LU 25.
Good Harbor	Lake-level, vegetated dunes; glacial drainage channel	Well-illustrated plant succession; leather-leaf bog (Bow lakes); orchards (northeast corner); record-sized and threatened plant species	Shalda Creek habitat	Views of bay from Pyramid Point and School Lake	Further evaluation is needed to determine significance of archeological site
Glen Lake	Glacial landforms evident; wave-cut bluffs; symmetrical kettle; glacial drainage channel and outwash fan; perched dune complex and morainal plateau	Lost lake bog (spruce); record-sized and threatened plant species	Glen Lake Pond habitat	Views of Glen Lake, islands, dunes, Sleeping Bear Bay, and Lake Michigan	D.H. Day farm; U.S. Coast Guard station; Sleeping Bear Inn and garage; Port Oneida area; further evaluation is needed to determine significance of archeological sites 20 LU 26, 20 LU 27, 20 LU 28, and 20 LU 29
Empire	Glacial drainage channel; wave-cut bank; perched dunes and shoreline bluffs; lake succession features	Dune forest with rich spring flora	Otter Creek habitat		Esch farm; Aral townsite
Platte	Nipissing dunes; glacial embayment features (ridge and swale, etc.)	Foredune flora; well-illustrated plant succession; pine/oak/aspen forest	Water-related habitat (Platte, Loon, Mud lakes); fish (trout and salmon)	Views of Platte River from Crystal Highlands	

PLANNING UNITS

To make sure that all areas of the national lakeshore were given equal consideration during the planning process, the lakeshore was divided into six planning units. (These planning units should not be confused with the six wilderness units.) The units are North Manitou Island, South Manitou Island, Good Harbor, Glen Lake, Empire, and Platte (the four mainland units were defined according to drainage basins). All of the units on the mainland include areas outside the boundary of the national lakeshore because conditions in these areas directly influence both the visitor experience and resources management within the lakeshore. For example, the National Park Service does not have jurisdiction over state or county roads that provide visitor access to the lakeshore or other visitor services provided outside the lakeshore boundary. However, it is necessary to take these factors into consideration so that a complete assessment of impacts can be made, including the impacts of National Park Service actions on surrounding areas as well as the consequences of actions taken outside the boundary on the lakeshore itself.

VISITOR EXPERIENCE

When Congress designated Sleeping Bear Dunes as a unit of the National Park System in 1970, it stipulated that it should be administered in a manner that provides for recreational and educational opportunities consistent with maximum protection of the area's scenic beauty and natural character. The Manitou islands and the mainland portion of Sleeping Bear Dunes offer different opportunities for meeting this mandate, so a distinction was made in the overall types of experiences that would be offered to visitors:

The islands would be managed as isolated, seasonal use areas, with access by boat only (the islands are inaccessible December through March); hiking would be the primary means of exploring and discovering the islands' resources; and solitude, remoteness, and self-reliance would be the principal elements of the visitor experience.

The mainland would be managed to provide experiences ranging from dispersed to concentrated outdoor recreational uses; and a variety of year-round interpretive and recreational facilities and programs would be provided, with the towns continuing to serve as focal points for visitor services.

Once the national lakeshore had been divided into planning units, a specific concept for each of the units was developed, based on the unit's resources. These unit concepts are included in the following section.

VISITOR USE CONCEPTS, ALTERNATIVES, AND SIGNIFICANT IMPACTS

VISITOR USE CONCEPTS

The visitor use concept for each planning unit was developed by the planning team and, as previously mentioned, is based on the unit's resources. The alternatives for each unit represent different ways of achieving a particular concept. Together, the concepts provide for recreational and educational opportunities consistent with maximum protection of the area's scenic beauty and natural character.

North Manitou

The natural characteristics of this island--its inaccessibility, lack of development, and relatively large size (14,753 acres)--will be emphasized. Essential aspects of the visitor experience will be a high degree of solitude, a feeling of self-reliance, and a sense of exploration.

South Manitou

A sense of discovery and a feeling of solitude and isolation will be integral to the visitor experience. The island still has well-preserved examples of man's former presence that have withstood the forces of nature. As visitors arrive on the island and enter the village area, they will be encouraged to discover the island's unique features on their own. The sense of exploration will increase as they move inland through former farmland areas, and when they reach the undeveloped western slopes with their outstanding sand dune formations and record-sized trees, the feeling should be one of seclusion.

Good Harbor

Accessibility to diverse natural resources--a scenic, undisturbed embayment with wide sandy beaches, dunes, lakes, and swamps--encourages year-round activities such as hiking and nature observation. Because these activities relate to the resource, they will not require major developments. Plant succession is clearly illustrated, affording outstanding opportunities for environmental study and research.

Glen Lake

This unit's natural and cultural resources make it one of the focal points for year-round recreation in the northwest Michigan region. The lakes, dunes, and moraines clearly illustrate the geologic processes that shaped the landscape, and the views from these features are the most spectacular of the entire lakeshore. Sleeping Bear Dune and Glen Lake will continue to be the hub for recreation and natural history interpretation, and the village of Glen Haven will be a center for illustrating maritime history.

Empire

This scenic, centrally located coastal unit contains diverse terrain features such as bluffs, dunes, glacial drainage channels, lakes, and wetlands within a relatively small area. Among its outstanding natural resources are plants that are rare or are limited in distribution. Because of the concentration of features in this unit, visitors will have an outstanding opportunity to observe and learn about glacial history, shoreline dynamics, and plant life.

Platte

The diverse natural resources in this unit offer several types of visitor experiences. In the ridge and swale lowland forest and the low, shoreline dunes, visitors can experience a feeling of solitude and adventure along the Platte River corridor; they can continue to enjoy water-oriented recreation; and from the Crystal Highlands, they can enjoy panoramic views of Crystal Lake and the Platte embayment.

ALTERNATIVES AND SIGNIFICANT IMPACTS

The alternatives discussed in this section reflect public comments made during the workshops and review of the Planning Alternatives Workbook held during November-December 1978. The major development that would take place under each alternative is shown on accompanying maps.

Only the significant impacts of major actions--those that involve extensive new development or the removal of existing facilities--are discussed for each alternative. To organize the discussion of impacts, the actions themselves are listed according to the following categories: access and circulation, visitor facilities, management facilities, natural and cultural resources management, and land acquisition. Corresponding actions for each alternative are discussed together to make the comparison of impacts easier.

Impacts deal specifically with vegetation and wildlife for the natural environment (impacts on geology/topography, soils, and water resources are mentioned when the cumulative effect is important), archeologic and historic resources, the visitor experience, and costs of the major actions. Measures that would mitigate adverse impacts are identified, as well as unavoidable adverse impacts whenever their effect would be notable. Irreversible and/or irretrievable consequences are also mentioned when they are significant. Cumulative effects are summarized for each planning unit. Blank spaces on the impact charts indicate either minimal impacts resulting from implementation or no effect.:

The cumulative effect of any set of actions that is selected as part of the general management plan will be to make Sleeping Bear Dunes more attractive to regional visitors as well as to national visitors, in accordance with the establishment act. Between 855,000 and 906,000 annual visits can be expected by 1980, assuming an annual growth rate between 2 and 3 percent, and approximately 2 million annual visits after all the actions of the general management plan have been implemented. Assuming that present trends will continue, the effects of increased numbers of visitors will be an increased seasonal population, greater personal income, and higher county revenues as a result of rising real estate valuations. Collectively, money spent for all actions will be put into the regional economy, providing employment, income, and increased business activity.

Activities that would be allowed throughout the national lakeshore include hiking, hunting (except when and where it conflicts with public safety, administration, or public use and enjoyment), fishing, photography, scenic driving/sightseeing, and swimming in unprotected areas. Cross-country skiing would be permitted in most areas, but snowmobiling would be allowed only on county roads, as provided for by county regulations. In addition to these activities, other activities that could be pursued in areas within a planning unit are listed for each alternative.

NORTH MANITOU ISLAND PLANNING UNIT

ALTERNATIVE 1

Emphasize natural conditions. Remove the introduced white-tailed deer population. Maintain roads or trails. Provide no visitor facilities or docking areas. Encourage visitors to explore the island on their own. Provide no onsite interpretive facilities. Remove or allow all structures to deteriorate from natural conditions. Provide administrative and maintenance functions from South Manitou. Manage the entire island as wilderness.

Activities*

- A (see general activities below)
- B Backpacking
- C Backpacking

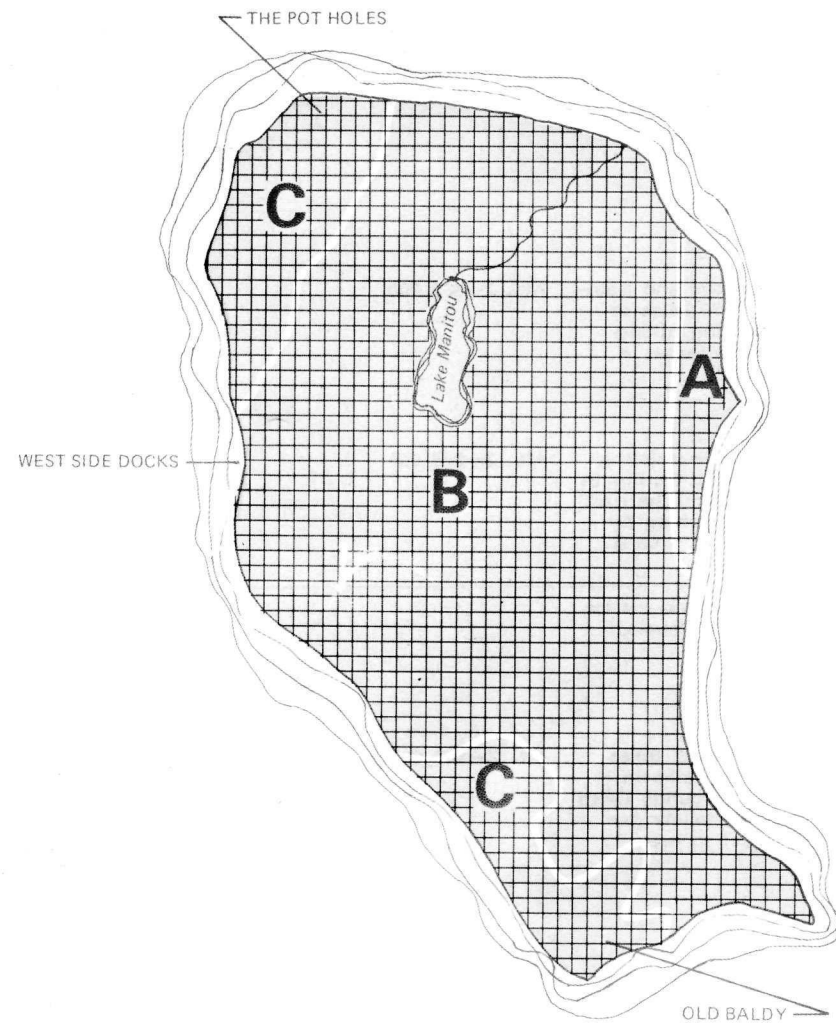
ALTERNATIVE 2

Emphasize backcountry use, with minimal support facilities. Maintain the introduced white-tailed deer population in accordance with the island's resource capability. Improve and maintain a trail system. Establish and maintain dispersed primitive campsites. Provide all-weather docking facilities, one in A and one in B. Provide picnicking at designated docking areas. Limit interpretive facilities to those required for self-guided interpretation. Adapt the lifesaving station as an administrative facility. Remove, or allow to deteriorate, all other structures that are not needed for visitor or resource protection. Manage areas B, C, and all but 27 acres of area A as wilderness.

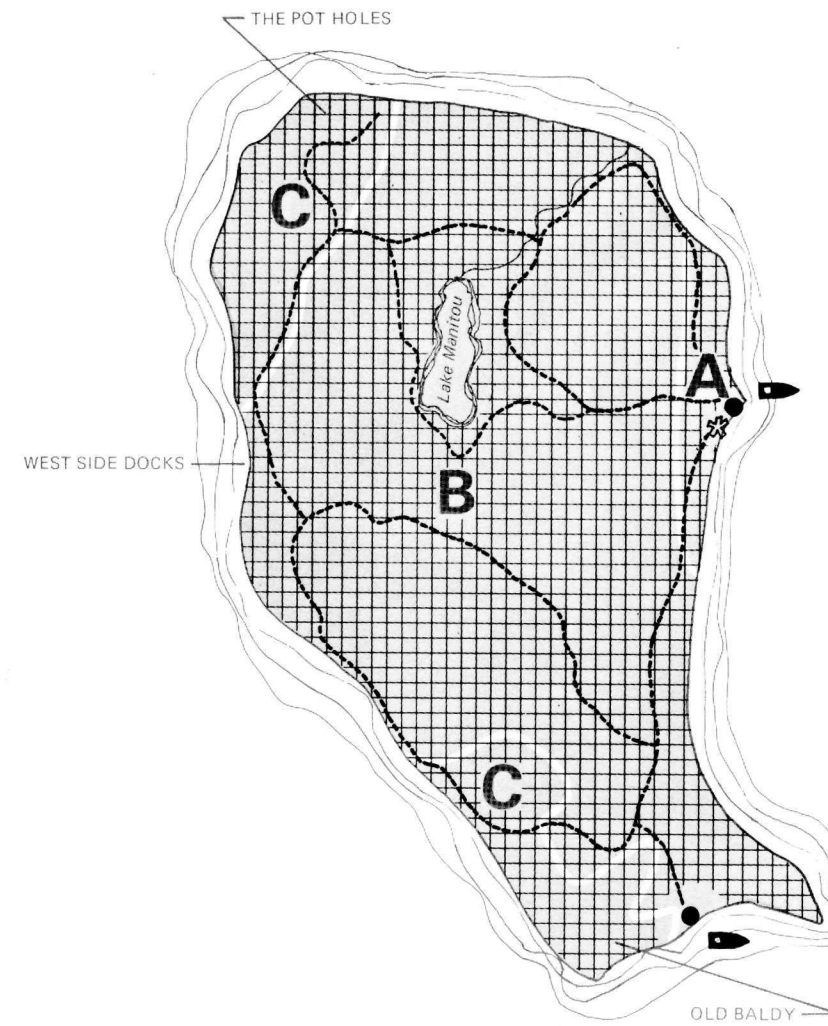
Activities*

- A Picnicking
- B Backpacking (designated campsites)
Picnicking
- C Backpacking (designated campsites)

*General activities: hiking, hunting, fishing, photography, sight-seeing, swimming



ALTERNATIVE 1

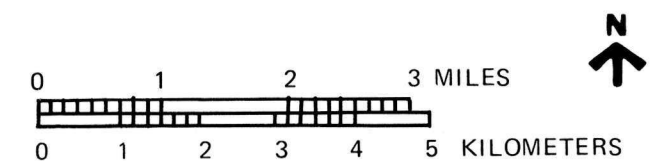


ALTERNATIVE 2

-  LAKESHORE
- A** NORTH MANITOU VILLAGE
- B** NORTH MANITOU PLAIN
- C** NORTH MANITOU DUNES
-  POTENTIAL WILDERNESS
-  HIKING TRAIL
-  BOAT LANDING (public transportation)
-  TRAILHEAD
-  ADMINISTRATIVE FACILITY

ALTERNATIVES FOR NORTH MANITOU ISLAND PLANNING UNIT

SLEEPING BEAR DUNES NATIONAL LAKESHORE
United States Department of the Interior / National Park Service



NORTH MANITOU ISLAND PLANNING UNIT

	ALTER-NATIVES	ACTIONS	COSTS	IMPACTS ON RESOURCES		
				VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
ACCESS AND CIRCULATION	1 and 2	Close and scarify existing roads: Alt. 1--48 miles Alt. 2--18 miles	Alt. 1--\$384,000 Alt. 2--\$144,000	The following amounts of land would revegetate, eventually re-turning to a beech/maple forest: Alt. 1--69.8 acres Alt. 2--26.2 acres	Under alternative 1, the natural integrity of wildlife habitat would be restored.	Under alternative 1 the Smith & Hull Company railroad grade would revegetate.
	2	Improve and maintain 30 miles of existing hiking trails (areas A and B)	Alt. 2--\$60,000			Archeologic sites along proposed trail sections could be adversely affected by vandalism.
	2	Improve existing docking facility in area A; construct new docking facility in area B.	Alt. 2--\$48,000			Construction and use of a docking facility in area B could result in damage to site 20 LU 35.
VISITOR FACILITIES	1	Provide no visitor facility development.				
	2	Construct three 20-site hike-in campgrounds (with 4 pit toilets per area) in area B.	Alt. 2--\$60,000	20 acres of vegetative cover would be removed.	Individual species, such as small mammals, would be displaced but overall populations would not be affected.	

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Under alternative 1, trail access to key scenic features would be eliminated. Under alternative 2, trail access would be maintained. Under both alternatives, the wilderness experience would be enhanced for backpackers.			Under alternative 1, the Smith & Hull Company railroad grade would re-vegetate. Trail access would be eliminated.	Irretrievable
Trail access to significant island features would be provided.		Trails would avoid archeological sites to reduce potential vandalism.		Irretrievable and irreversible
Visitor safety would be improved, especially during bad weather. Continuous boat service would be ensured.				
A wilderness experience would be enhanced. Boat access to the islands would be impossible during bad weather.			Boat access to the island would be impossible during bad weather.	Irretrievable
Designated campsites would improve the visitor experience for those who desire these amenities.		Most campground sites would be developed on already disturbed sites. Further survey and evaluation of cultural resources would occur prior to construction.	Vegetative cover would be removed; small wildlife species would be displaced.	Irretrievable

NORTH MANITOU ISLAND PLANNING UNIT

				IMPACTS ON RESOURCES		
	ALTER-NATIVES	ACTIONS	COST	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
VISITOR FACILITIES	2	Construct a picnic area for 40 visitors in the village; adaptively use an existing structure as a comfort station (area A)	Alt. 2--\$44,000			
MANAGEMENT FACILITIES	2	Adaptively utilize the lifesaving station and boathouse in area A as a ranger station and small maintenance facility.	Alt. 2--\$2,000			Use of the lifesaving station (which may be eligible for the National Register of Historic Places) for management purposes would ensure its preservation.
RESOURCES MANAGEMENT	1	Remove deer population (entire island)	Operating funds	The understory and ground cover vegetation would return.	Distribution and numbers of wildlife species would change.	
	2	Maintain deer population in accordance with island's resource capability	Operating funds		Control might require reduction in present numbers of deer.	
	1	Remove or allow to deteriorate 25 to 30 structures in areas A, B, and C	Operating funds	1,000 acres now occupied by farmsteads and fields would return to a natural condition (primarily beech/maple forest).	Vegetative cover and food for wildlife would be restored.	

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Opportunities for day use would be increased, making the island more attractive to more visitors;		Picnic area would be located at a disturbed site.		
Visitor safety would be improved because NPS staff and a building for emergency use would be available.				
No deer hunting, opportunities would be available.			Removal of deer would eliminate hunting opportunities.	Irretrievable
Wildlife observation opportunities would be increased and hunting opportunities might be provided.		Control would help protect vegetation from overbrowsing by deer.	The deer population and their progeny would be reduced.	
The wilderness character of the island would be improved. Evidence of man's habitation would eventually disappear except for the ranger station in area A. Deteriorating buildings could present a safety hazard.		Literature would point out public safety hazards.	Evidence of man's habitation would eventually disappear.	Irretrievable and irreversible

NORTH MANITOU ISLAND PLANNING UNIT

IMPACTS ON RESOURCES

	ALTER-NATIVES	ACTIONS	COSTS	IMPACTS ON RESOURCES		
				VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
RESOURCES MANAGEMENT	2	Preserve significant maritime and agricultural structures in area A; remove all other structures (significant historic resources need to be identified).	Operating funds	Approximately 800 acres now occupied by existing structures would return to a natural condition.	Vegetative cover and food for wildlife species would be restored.	
	1 and 2	Manage the majority of the island as wilderness: Alt. 1--14,753 acres (entire island) Alt. 2--14,726 acres (27 acres excluded)	No special funding			Under alternative 1, all man-made structures would be removed or allowed to deteriorate. Under alternative 2, all structures except for significant historic resources would be removed or allowed to deteriorate.
SUMMARY	1 and 2		Alt. 1--\$384,000 Alt. 2--\$358,000			Under alternative 1, all structures would be removed or allowed to deteriorate. Under alternative 2, all structures that were determined to be significant would be preserved if economically feasible.

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Preservation of significant structures would illustrate man's relationship with the island. More opportunities for day visitors would be provided. Removal of nonhistoric structures would enhance the island's wilderness attributes. North Manitou Island would eventually return to a completely natural state. Wilderness status would prevent some people from experiencing the island because of physical limitations.			Visitors unable or unwilling to walk would be prevented from experiencing the island's resources. In alternative 1, evidence of man's habitation would eventually disappear.	
Under alternative 1, a true wilderness would be emphasized, with very limited support facilities. Under alternative 2, improved landing facilities and a developed trail system would appeal to a wider range of visitors. Capacities (visitors at one time): Alt. 1--200 Alt. 2--400		All or most new development would occur on previously disturbed sites.	Vegetative cover, wildlife habitat, and all or most structures would be removed. Under alternative 1, the island would be inaccessible during bad weather. Visitors with physical limitations would be prevented from experiencing the island under both alternatives.	Irretrievable

SOUTH MANITOU ISLAND PLANNING UNIT

ALTERNATIVE 1

Emphasize backcountry use with no improved facilities. Maintain few trails and let visitors explore the island on their own with a map of key features. Provide no management for the fox and gull populations. Preserve, interpret, and adaptively use significant maritime structures in area D; provide no onsite interpretive facilities for the rest of the island. Continue to use the existing boat dock near the lifesaving station. Remove, or allow to deteriorate, all other structures. Manage areas E, F, and all but 52 acres of D as wilderness.

Activities*

- D Interpretation (maritime and fishing history)
- E Backpacking
- F Backpacking

ALTERNATIVE 2

Emphasize overnight use, with designated campgrounds and overnight facilities. Maintain a trail system for touring the island. Improve camping facilities; adapt several existing buildings as overnight facilities and concession food services in area D. Perpetuate and interpret the gull population to the extent possible. Preserve, interpret, and adaptively use significant maritime and agricultural structures in areas D and E. Provide conducted interpretation in the lighthouse and either self-guided or conducted interpretation on the rest of the island. Maintain a museum in the post office to interpret logging, maritime, agricultural, and village history. Provide for environmental study programs. Continue to use the existing boat dock near the lifesaving station. Remove, or allow to deteriorate, all structures that are not needed for visitor or resource protection. Manage areas E, F, and all but 52 acres of D as wilderness.

Activities*

- D Interpretation (maritime, fishing, and agricultural history)
Environmental Education
Camping
Picnicking
- E Backpacking (designated campsites)
- F Backpacking (designated campsites)

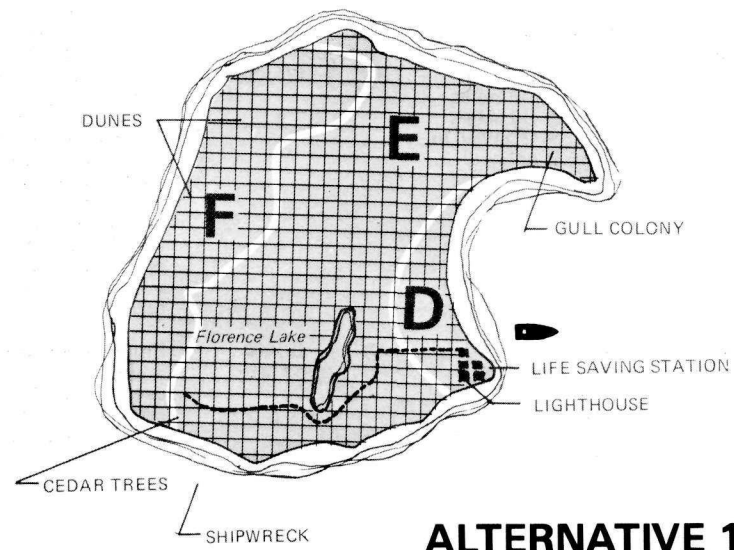
ALTERNATIVE 3

Emphasize day use, with access to the majority of the island's significant features. Provide short loop trails to link these features with a horse-drawn public transportation system. Provide conducted tours in conjunction with operating the transportation system in areas D and E. Perpetuate and interpret the gull colony to the extent possible. Preserve and provide self-guided interpretation for the lighthouse, lifesaving station, and village. Provide facilities for the handicapped in the village. Continue to use the existing boat dock near the lifesaving station. Adapt existing structures in the village and farm area for administration and concession food service. Remove, or allow to deteriorate, all other structures that are not needed for visitor or resource protection. Improve camping facilities. Maintain selected areas adjacent to historic structures as farmlands. Manage area F and the majority of areas D and E as wilderness.

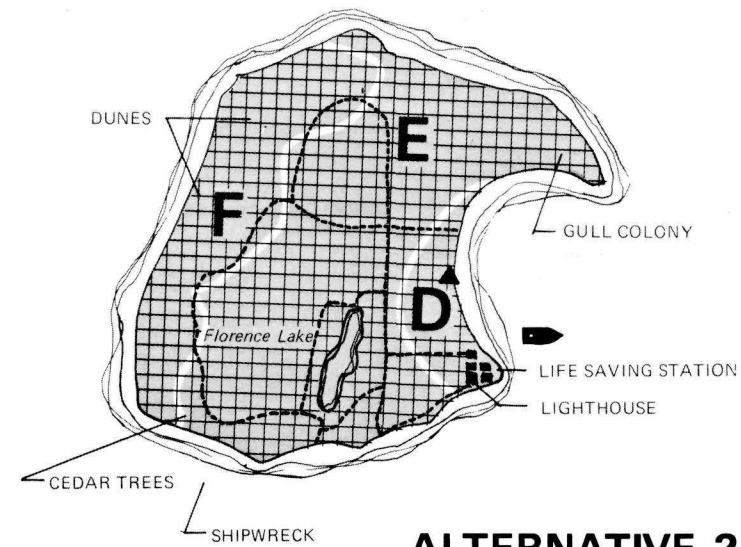
Activities*

- D Interpretation (maritime, fishing, and agricultural history)
Camping
Picnicking
Public Transportation
- E Backpacking (designated campsites)
Public Transportation
- F Backpacking (designated campsites)

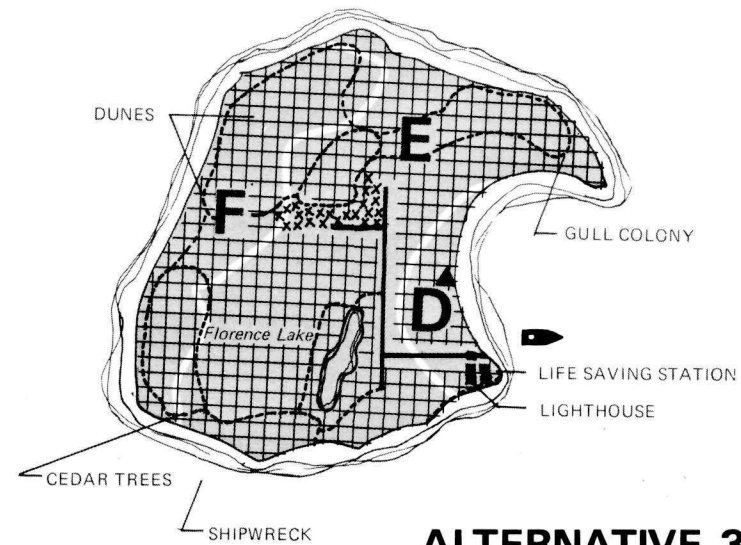
*General activities: hiking, hunting, fishing, photography, sightseeing, swimming



ALTERNATIVE 1



ALTERNATIVE 2

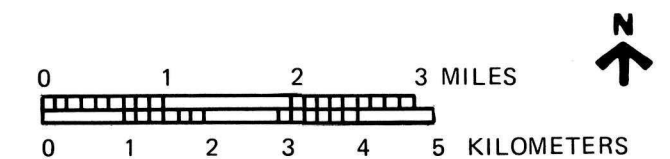


ALTERNATIVE 3

- LAKESHORE
- D** SOUTH MANITOU VILLAGE
- E** SOUTH MANITOU PLAIN
- F** SOUTH MANITOU DUNES
- POTENTIAL WILDERNESS
- ROAD
- VILLAGE
- BOAT LANDING (public transportation)
- CAMPGROUND
- HIKING TRAIL
- FARMSTEAD/FIELD

ALTERNATIVES FOR SOUTH MANITOU ISLAND PLANNING UNIT

SLEEPING BEAR DUNES NATIONAL LAKESHORE
United States Department of the Interior / National Park Service



SOUTH MANITOU ISLAND PLANNING UNIT

IMPACTS ON RESOURCES

ACCESS AND CIRCULATION

ALTER-NATIVES	ACTIONS	COSTS	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
1, 2, and 3	Close and scarify existing roads in areas D and E: Alt. 1--10 miles Alt. 2--10 miles Alt. 3--3 miles in area E only	Alts. 1 and 2--\$80,000 Alt. 3--\$24,000	Under alternatives 1 and 2, 24.2 acres would revegetate, eventually climaxing in pine/oak/aspen forest in area D and beech/maple forest in area E. Under alternative 3, 7.3 acres would revegetate, eventually climaxing in beech/maple forest.	Vegetative cover and food for wildlife species would be restored.	
1, 2, and 3	Maintain existing roads as foot trails: Alt. 1--3 miles Alt. 2--10 miles Alt. 3--10 miles	Alt. 1--\$6,000 Alt. 2 and 3--\$20,000	Under alternatives 2 and 3, off-trail use in area F could modify the dune grasses and locally accelerate dune migration.	Under alternative 3, trail use in area E could result in disturbance to nesting and reproduction of the herring and ring-billed gull colonies.	Under alternatives 2 and 3, there would be access to the old schoolhouse, raising the potential for damage or vandalism. Under alternative 3, archeological sites along a section of the proposed trail could be subject to damage.
1, 2, and 3	Improve existing docking in area D.	Alts. 1, 2, and 3--\$24,000			Construction and use could result in damage to archeological site 20 LU 24.
3	Maintain 7 miles of existing dirt roads in areas D and E for horse-drawn wagon(s).	Operating funds			
3	Provide horse-drawn public transportation in areas D and E.	Concession operated			

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
The wilderness character of the island (areas D and E) would be enhanced.				
Under alternatives 2 and 3, the island's major features would be accessible by trail. Hiking opportunities would be more extensive.		Visitor use would be restricted from the gull colonies during the nesting period. Trails would avoid significant archeological sites.	Dune migration would accelerate from off-trail use under alternatives 2 and 3. Potential vandalism to schoolhouse. Under alternatives 1 and 2, visitors with physical limitations would be prevented from experiencing the island.	
Improved visitor safety and access to the island would be provided.				
Transportation would be provided to historic farm complexes on the island, allowing an important facet of the island's past to be interpreted.				
Public transportation would improve access to significant island features. A broad range of visitors would have opportunities to enjoy the island's resources. Horse-drawn public vehicles would be in keeping with the historic setting and the management of major portions as wilderness.				

SOUTH MANITOU ISLAND PLANNING UNIT

IMPACTS ON RESOURCES

	ALTER-NATIVES	ACTIONS	COSTS	IMPACTS ON RESOURCES		
				VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
VISITOR FACILITIES	1, 2, and 3	Under all alternatives, adaptively use existing historic structures in village in area D (lighthouse, boat-house, lifesaving station) for interpretation, park housing, and a ranger station. Under alternatives 2 and 3, stabilize the exteriors of four additional structures in the village, and adaptively use two historic farm complexes in area E.	Alt. 1--\$490,000 Alts. 2 and 3--\$530,000			Use of historic structures for interpretation and management would ensure their preservation. A ranger station and the presence of park personnel would improve resource management.
	2 and 3	Adaptively use two buildings in the village--one for food service and one as a hostel.	Alts. 2 and 3--\$100,000			Adaptive use of structures would ensure their preservation.
	2 and 3	Maintain and improve 20 acres for hike-in camp-grounds in areas D and E; provide four self-contained toilets.	Alts. 2 and 3--\$80,000	20 acres of vegetation would be modified.	Individual species such as small mammals would be displaced but overall populations would not be affected.	
	2 and 3	Provide picnic areas: Alt. 2--0.5 acre with 20 sites in area D. Alt. 3--0.75 acre with 30 sites in area D.	Alt. 2--\$20,000 Alt. 3--\$25,000			
RESOURCES MANAGEMENT	1, 2, and 3	Remove or allow to deteriorate all structures or sites that are not needed for resource management or visitor safety in areas D and E.	Operating funds	Under alternatives 1 and 2, approximately 980 acres would revegetate. Under alternative 3, approximately 360 acres would revegetate.	Vegetative cover and food for wildlife would be restored.	All cultural resources that have been nominated or that are on the National Register of Historic Places would be stabilized and, where feasible, adaptively used.

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Visitors would have an opportunity to learn about the island's history and experience its historic character. A ranger station in the village would improve visitor safety and information.				
Visitor facilities would make a stay more comfortable and convenient, appealing to a broad range of visitors.				
Overnight accommodations would be available for visitors desiring to stay longer.		Most of the campground sites would be on previously disturbed sites. An archeological survey and evaluation of the campgrounds would occur before construction.		
Picnic areas would expand the recreational opportunities for day users.		The picnic areas would be located on previously disturbed sites.		
Visitors could experience the transition of previously inhabited sites returning to a natural condition.				

SOUTH MANITOU ISLAND PLANNING UNIT

IMPACTS ON RESOURCES

RESOURCES MANAGEMENT

ALTER-
NATIVES

ACTIONS

COSTS

VEGETATION

WILDLIFE

ARCHEOLOGIC
AND HISTORIC
RESOURCES

1, 2,
and 3

Manage the major-
ity of the island as
wilderness:
Alt. 1--5,478 acres
Alt. 2--5,478 acres
Alt. 3--3,100 acres

Wilderness designa-
tion would offer
maximum protection
for the island's
record-sized trees,
and rare and
threatened plant
species.

3

Maintain 500 acres
of open field
(grazed or mowed)
in area E and use
farm structures
for maintenance and
housing needs; re-
move 100 acres
from wilderness for
access by means of
wagon to farm
structures.

Operating funds

Species that oc-
cupy fields and
zones between
open land and
forest would bene-
fit from food
and cover.

A portion of the his-
toric agricultural
setting in area E
would be maintained.

1

Do not manage the
gull colonies.

No management
would lead to the
disappearance of
gull colonies.

2 and 3

Perpetuate and in-
terpret the herring
and ring-billed gull
colonies.

Operating funds

Protection of gull
colonies would be
achieved at the ex-
pense of the fox
population.

1, 2,
and 3

Alt. 1--\$600,000
Alt. 2--\$854,000
Alt. 3--\$803,000

Under alternatives
1 and 2, approxi-
mately 1,000 acres
would be allowed to
return to a natural
condition. Under
alternative 3, 367
acres would be
allowed to return to
a natural condition.

The village would be
preserved and main-
tained under all
three alternatives.
Two farm complexes
would be adaptively
used under alterna-
tives 2 and 3; and
under alternative 3,
the open fields
around these build-
ings would be main-
tained. Also under
alternative 3, horse-
drawn vehicles would
be used to transport
visitors.

SUMMARY

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
The natural character of the island would be enhanced. Evidence of man's habitation would eventually disappear. People unable or unwilling to hike would not be able to visit all areas of the island, although under alternative 3, a broader range of visitors would have an opportunity to see the historic farm complexes because public transportation would be provided. Visitors would have an opportunity to experience the historic agricultural setting of the farm complexes, which would appeal to a wide range of people. Farm structures and open fields in a natural setting would detract from the experience of some wilderness users. Perpetuation of the colonies would ensure visitors an outstanding opportunity to observe the gulls.			Visitors unable or unwilling to hike would not be able to experience all areas of the island. Maintenance of farmsteads and fields would detract from a wilderness experience. The gull colonies would be lost.	Irretrievable/irreversible

Recreational uses on the island would be emphasized, with significant features of the village area being the focal point. Access to the island's interior would be increased under alternatives 2 and 3: Under alternative 2, there would be an extensive trail system; under alternative 3, a public transportation system would be provided. Capacities (visitors at one time) would be as follows:
 Alt. 1--150
 Alt. 2--250
 Alt. 3--300

Vegetation would be modified, wildlife displaced, and structures removed. Under alternative 1, the gull colonies would be lost. Under all alternatives, visitors unable or unwilling to hike would be unable to experience all areas of the island.

GOOD HARBOR PLANNING UNIT

ALTERNATIVE 1

Preserve the natural integrity of the embayment by limiting road access and removing existing structures. Provide hiking trails as the primary means for touring the area. Provide minimal self-guided interpretation. Manage the majority of areas G and H north of M-22 as wilderness.

Activities*

- G Information/Orientation
Backpacking (designated campsites)
- H Environmental Education
Backpacking (designated campsites)

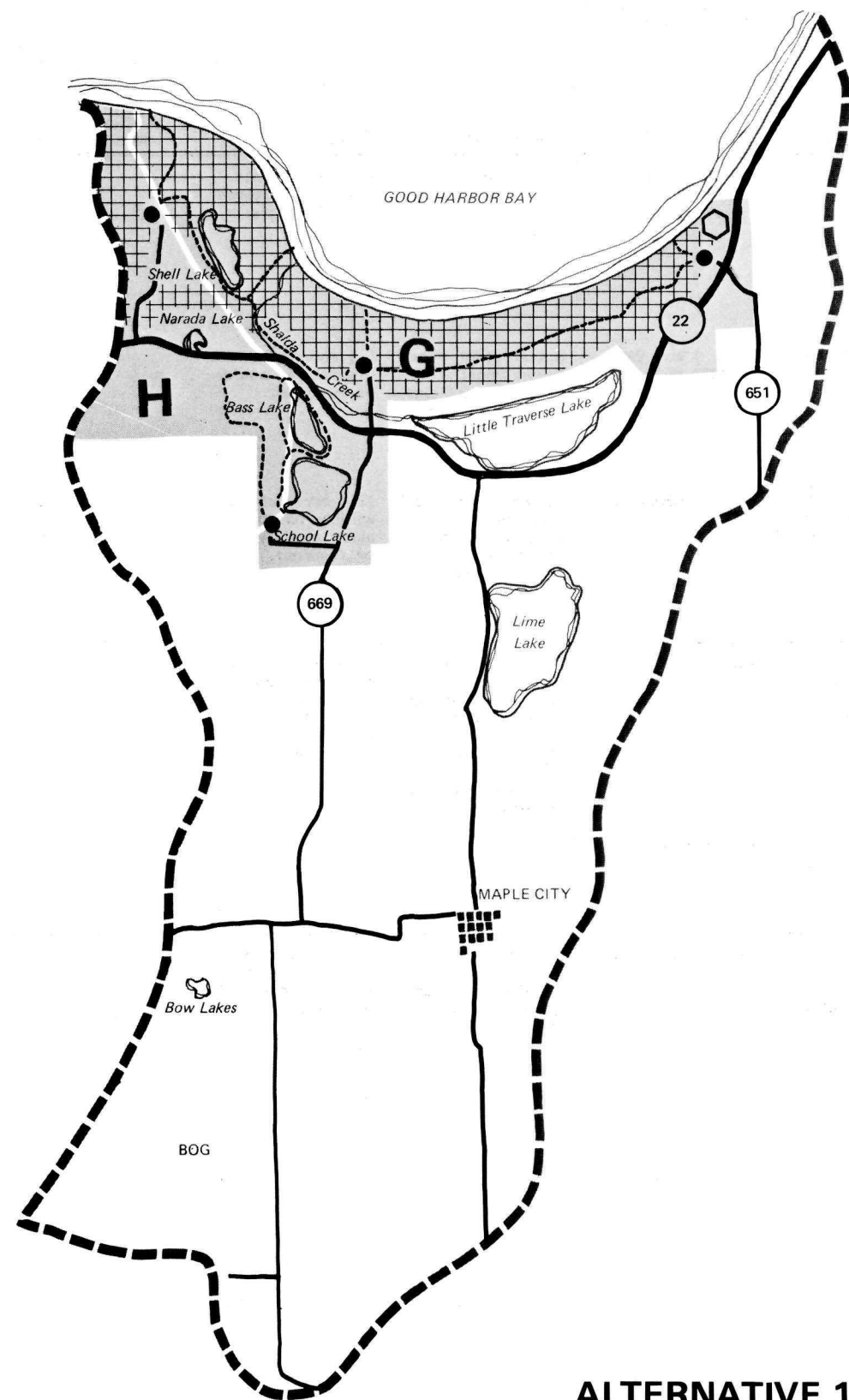
ALTERNATIVE 2

Provide recreational activities not in conflict with resource preservation. Develop a trail system. Provide self-guided and conducted interpretive programs. Provide a parking area and an open shelter near School Lake to supplement existing environmental education programs. Provide for boating on School and Bass lakes and for nonmotorized boating on Shell Lake. Provide a hostel in area G or H. Maintain orchards in the northeast corner of area G. Manage the majority of areas G and H north of M-22 as wilderness. Work with state and county governmental agencies to provide bicycle trails.

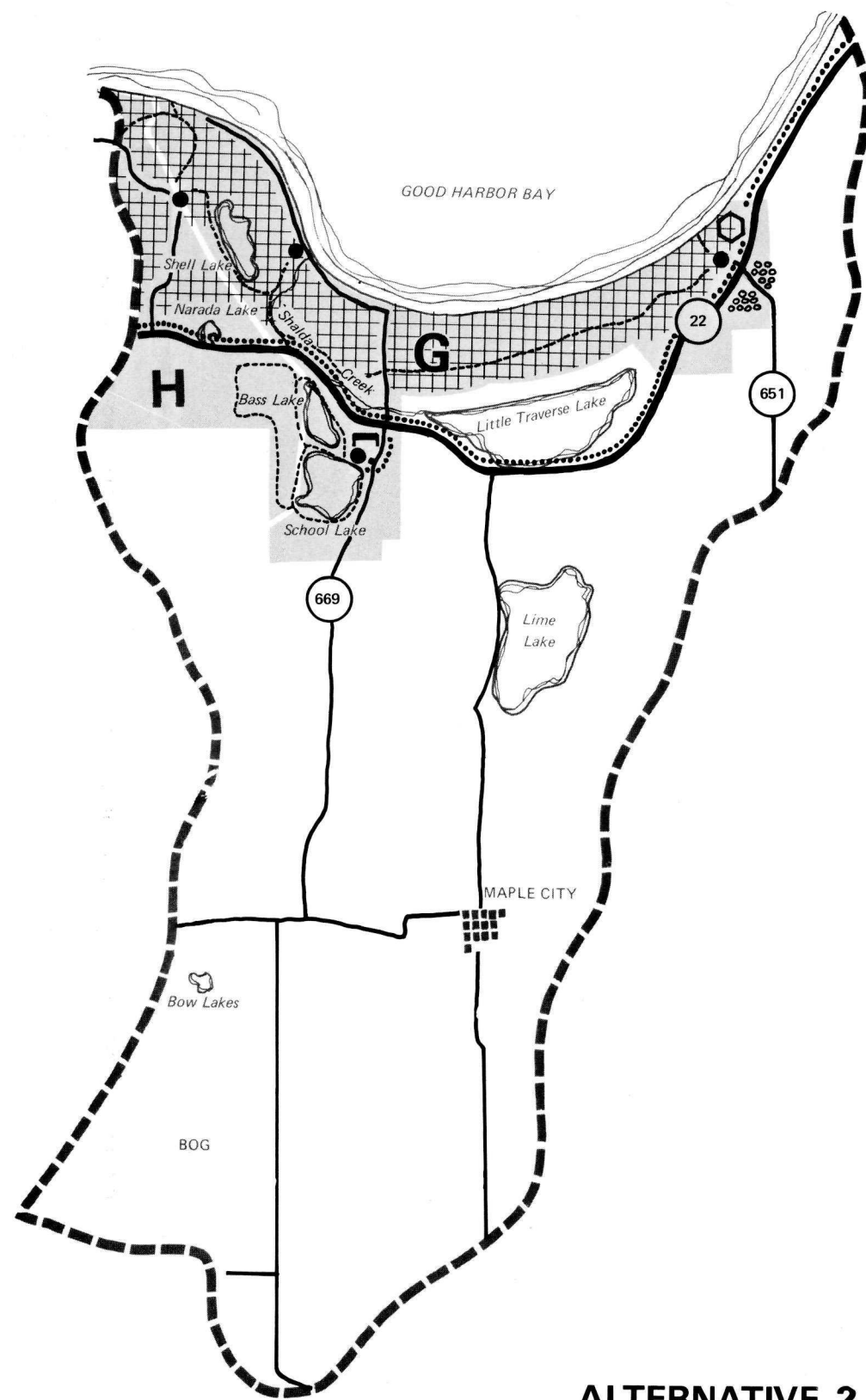
Activities*

- G Bicycling
Information/Orientation
Interpretation (forests, wetlands, and wildlife)
Environmental Education
Backpacking (designated campsites)
Picnicking
Canoeing/Rowing
- H Bicycling
Interpretation (dunes and shorelines)
Viewing (developed overlooks)
Environmental Education
Backpacking (designated campsites)
Picnicking
Hang-gliding

*General activities: hiking, hunting, fishing, photography, sight-seeing/scenic driving, swimming, and cross-country skiing



ALTERNATIVE 1

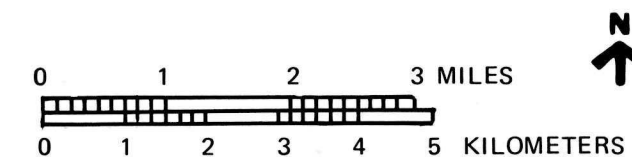


ALTERNATIVE 2

- UNIT BOUNDARY
- LAKESHORE
- GOOD HARBOR EMBAYMENT
- PORT ONEIDA / PYRAMID POINT
- POTENTIAL WILDERNESS
- STATE ROAD
- COUNTY OR NPS ROAD
- VILLAGE
- INFORMATION / ORIENTATION
- TRAILHEAD
- SHELTER
- BICYCLE TRAIL
- HIKING TRAIL
- ORCHARD

ALTERNATIVES FOR GOOD HARBOR PLANNING UNIT

SLEEPING BEAR DUNES NATIONAL LAKESHORE
United States Department of the Interior / National Park Service



GOOD HARBOR PLANNING UNIT

IMPACTS ON RESOURCES

	ALTER-NATIVES	ACTIONS	COSTS	IMPACTS ON RESOURCES		
				VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
ACCESS AND CIRCULATION	1	Close and scarify 8 miles of existing road.	Alt. 1--\$240,000	27.2 acres of roads would revegetate.	Wildlife habitat would be restored in a 27.2 acre area.	
	1 and 2	Construct 14 miles of hiking trails.	Alts. 1 and 2--\$210,000	5.1 acres of vegetation (mostly ground cover and saplings) would be removed.	5.1 acres of wildlife habitat would be removed.	
	2	Coordinate planning and development of 10 miles of bicycle trails with state and local governments.	Alt. 2--\$500,000	Approximately 12.1 acres of vegetation (mostly ground cover) would be removed from areas adjacent to roads.	12.1 acres of open wildlife habitat along roads would be removed.	
VISITOR FACILITIES	2	Provide a 20-car parking area and an open shelter with seating near School Lake.	Alt. 2--\$100,000	0.5 acre of vegetation (mostly ground cover and saplings) would be removed. Use in the vicinity of the shelter would result in localized trampling of vegetation.	Wildlife habitat for small mammals would be destroyed at the parking area and shelter site. (0.5 acre).	
	2	Provide a hostel in area G or H.	Alt. 2--\$100,000			
RESOURCES MANAGEMENT	1	Remove existing structures not needed for resource protection or visitor use.	Operating funds	Natural regeneration of vegetation would occur over approximately 500 acres.	Vegetative cover would be restored in a dispersed 500-acre area.	

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
The natural setting of the area would be enhanced. Access to Lake Michigan would become more difficult for those unable or unwilling to hike.			Access to Lake Michigan would be more difficult for those unable or unwilling to hike.	Irretrievable
Hiking opportunities would be provided, along with access to major overlooks and key resource features.		Trails would avoid 20 LU 30 (Stebner Site)	Vegetation would be removed and some wildlife species displaced.	
Providing bicycling trails would enhance the existing bicycling trail network. Safety hazards along existing routes would be reduced.		Further survey and evaluation of the bicycle trail system would be undertaken before construction.	Vegetation and wildlife habitat would be removed.	
Expanded opportunities for interpretation of forest and lake ecosystems would have appeal for many visitors.		An already disturbed site would be used.	Vegetation would be removed and some wildlife species displaced.	
Provision of low-cost accommodations would enhance the experience for hikers and bicyclers.		An existing structure would be adapted for this use.		
The visual integrity of a natural setting would be enhanced.				

GOOD HARBOR PLANNING UNIT

			IMPACTS ON RESOURCES		
ALTER-NATIVES	ACTIONS	COSTS	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
RESOURCES-MANAGEMENT	1 and 2	Manage most of the unit as potential wilderness: Alt. 1--4,412 acres Alt. 2--4,910 acres			
	1	Do not maintain 50 acres of orchards in the northeast corner of the lakeshore (area G).	Natural regeneration of vegetation would occur over a 50-acre area.	Natural plant regeneration would favor forest-dwelling species.	
	2	Maintain 50 acres of orchards in the northeast corner of the lakeshore (area G). The orchards would probably be maintained by outside interests under contract to National Park Service.		Species that occupy orchard areas and zones between open land and forest would be benefited by food and cover.	Perpetuation of agricultural practices would help maintain the historic setting of the Port Oneida area.
SUMMARY	1 and 2	Alt. 1--\$450,000 Alt. 2--\$910,000	Under alternative 1, approximately 527 acres would be allowed to revegetate, and 5.1 acres of vegetation would be removed. Under alternative 2, no land would be allowed to revegetate, and 17.7 acres of vegetation would be removed.	Wildlife habitat would be increased or decreased depending on the amount of vegetation that would be altered.	Neither alternative would cause significant impacts on known cultural resources.

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Under alternative 1, the removal of Pyramid Point access and the partial removal of CO 651 would eliminate hang-gliding and provide beach access only for hikers. Under both alternatives, the natural setting of the area would be enhanced. The lack of facilities would limit opportunities for less active visitors.			Visitors unable or unwilling to hike would be denied access to some features in wilderness areas. Hang-gliding would be eliminated under alternative 1.	Irretrievable
Opportunities would be provided to interpret agricultural practices and the role of fruit farming in the region.				
Under alternative 1, the natural setting and wilderness recreation would be emphasized. There would be few provisions for activities other than hiking, hunting, and fishing. Under alternative 2, there would be more opportunities for recreation, for example, bicycling, interpretation, picnicking, and hang-gliding. Capacities (visitors at one time): Alt. 1--250 Alt. 2--350			Vegetation and wildlife habitat would be removed. Under alternative 1, access to Lake Michigan would be difficult for visitors unable or unwilling to hike and hang-gliding would be eliminated.	Irretrievable

GLEN LAKE PLANNING UNIT

ALTERNATIVE 1

Continue year-round recreational use, but maximize wilderness. Prohibit vehicles on the Hart Nature Trail and provide hiking trails instead. Remove the dune ride. Improve the D. H. Day Campground. Interpret the major natural and cultural resources at a new interpretive facility in area K. Adapt the Sleeping Bear Point lifesaving station and Glen Haven village for interpretation and management. Encourage and supplement existing environmental education programs. Allow natural succession to reclaim the majority of agricultural lands in area H. Do not acquire a scenic corridor (areas I and J). Manage the majority of areas K, M, and N, along with portions of H north of M-22, as wilderness. Cooperate with the county in developing scenic overlooks along county roads. Encourage scheduled boat service to the Manitou islands from Leland or Empire.

Activities*

- H

Cross-country Skiing
Viewing (developed overlooks at School Lake)
Environmental Education
Backpacking (designated campsites)
Picnicking
- I

Would not be acquired
- J

Would not be acquired
- K

Cross-country Skiing
Interpretation (glaciers, shorelines, dunes, and biota; and

- K

(cont.)
maritime, logging, agricultural, and recreation history at new visitor facility)
- L

Interpretation (maritime history)
Camping
Picnicking
- M

Cross-country Skiing
Interpretation (glaciers, shorelines, dunes, and forests)
Viewing (developed overlooks)
Backpacking (designated campsites)
Skating (Glen Lake)
Swimming (protected beach)
Dune-climbing
- N

Cross-country Skiing
Backpacking (designated campsites)

ALTERNATIVE 2

Retain year-round recreational use patterns, with emphasis on road and trail use. Modify and improve the Hart Nature Trail. Modify and improve the dune-ride to reduce conflicts with dune-climbers. Improve the D. H. Day Campground. Provide roads and trails to key natural and scenic features in the Burnham Woods, Port Oneida, and Alligator Hill areas. Interpret the major natural and cultural resources at the existing interpretive facility in area N. Adapt most of the buildings in Glen Haven, including the lifesaving station, for interpretation and management. Encourage and supplement existing environmental education programs. Maintain agricultural practices in portions of area H; manage other portions of area H as wilderness. Acquire all or parts of a scenic corridor in areas I and J and construct trails in both areas. Develop a launching facility for private boats and a public docking facility for boat trips to the Manitou islands at Port Oneida. Work with state and county governmental agencies to provide bicycle trails.

Activities*

- H

Cross-country Skiing
Bicycling
Horseback Riding
Interpretation (dunes and shorelines)
Viewing (developed overlooks at School Lake)
Environmental Education
Backpacking

- I

Cross-country Skiing
Bicycling
Horseback Riding
Viewing (developed overlooks)
Environmental Education
Backpacking
- J

(see general activities below)
- K

Cross-country Skiing
Bicycling
Viewing (developed overlooks)
- L

Bicycling
Interpretation (maritime and logging history)
Camping
Picnicking
Swimming (protected beach)
- M

Cross-country Skiing
Bicycling
Interpretation (glaciers, shorelines, dunes, and forests)
Viewing (developed overlooks)
Picnicking
Skating (Glen Lake)
Swimming (protected beach)
Dune-climbing
- N

Cross-country Skiing
Bicycling
Horseback Riding
Interpretation (glaciers, shorelines, dunes and biota, and maritime, logging, agricultural, and recreation history at existing interpretive facility)
Backpacking (designated campsites)

ALTERNATIVE 3

Emphasize year-round recreation, maximize road use, and provide for public transportation. Modify and improve the Hart Nature Trail to accommodate public transportation during the peak season and private vehicles at other times. Modify and improve the dune-ride to reduce conflicts with dune-climbers. Improve the D. H. Day Campground. Provide roads and trails to key scenic and natural features in the Alligator Hill area. Provide hostels along a bike trail in areas H and L. Construct a new campground in area N. Adapt most of the buildings in Glen Haven, including the lifesaving station, for interpretation and management. Provide public transportation in the Glen Haven area. Develop a launching facility for private boats and a public docking facility for boat trips to the Manitou islands and excursions around the mainland at Glen Haven. Provide no major interpretive facility in this planning unit, but emphasize onsite interpretation. Acquire a scenic corridor in area I and construct a road for access to natural features and viewpoints. Do not acquire land in area J. Manage portions of area H as wilderness. Work with state and county governmental agencies to provide bicycle trails.

Activities*

- H

Cross-country Skiing
Bicycling (along M-22)
Interpretation (dunes and shorelines)

- H

(cont.)
Viewing (developed overlooks at School Lake)
Environmental Education
Backpacking (designated campsites)
Picnicking
Hang-gliding
- I

Interpretation (glaciers and wetlands)
Viewing (developed overlooks)
Snowmobiling
- J

Cross-country Skiing
- K

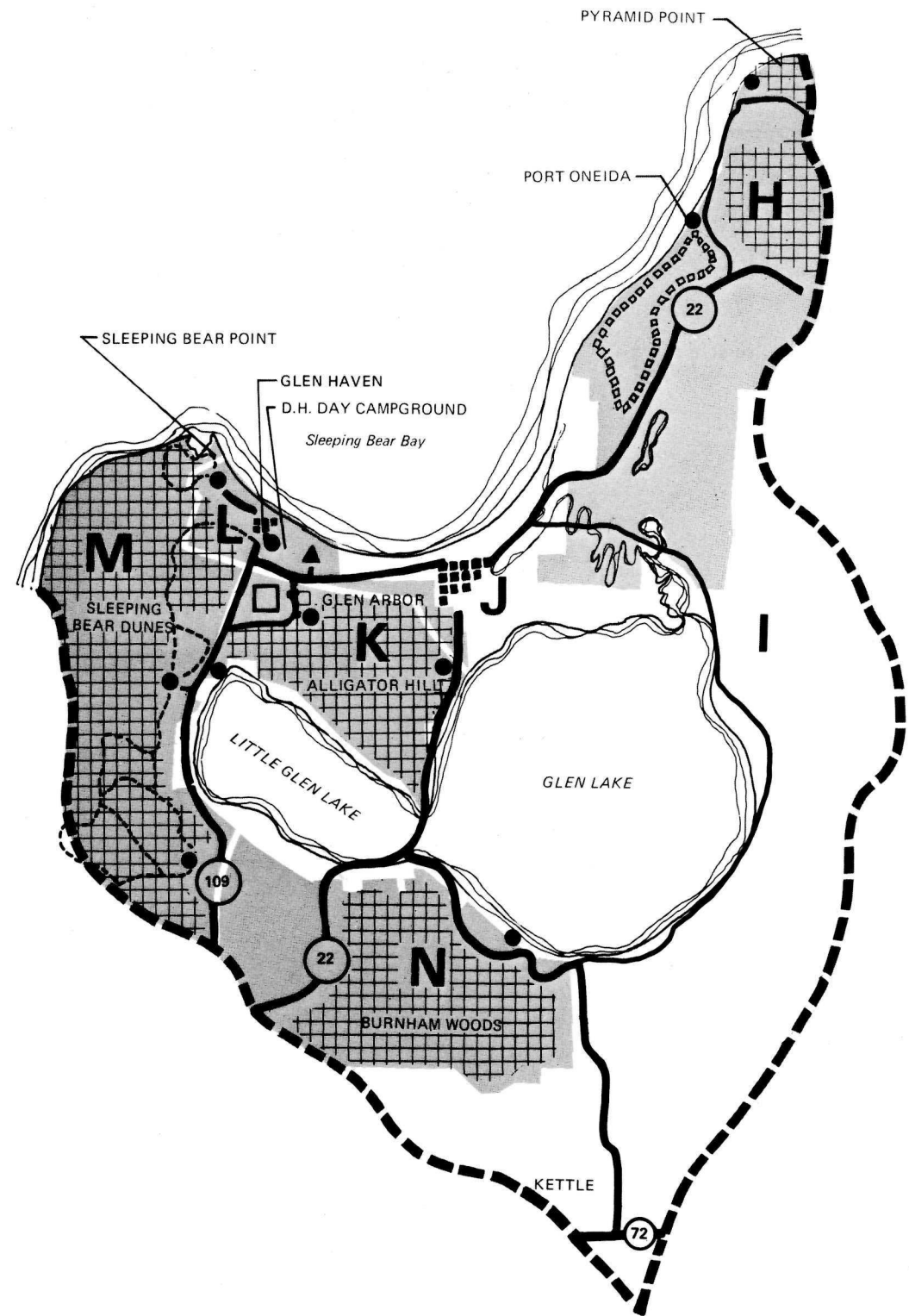
Bicycling
Interpretation (glaciers)
Viewing (developed overlooks)
- L

Bicycling
Interpretation (maritime and logging history)
Camping
Picnicking
Swimming (protected beach)
- M

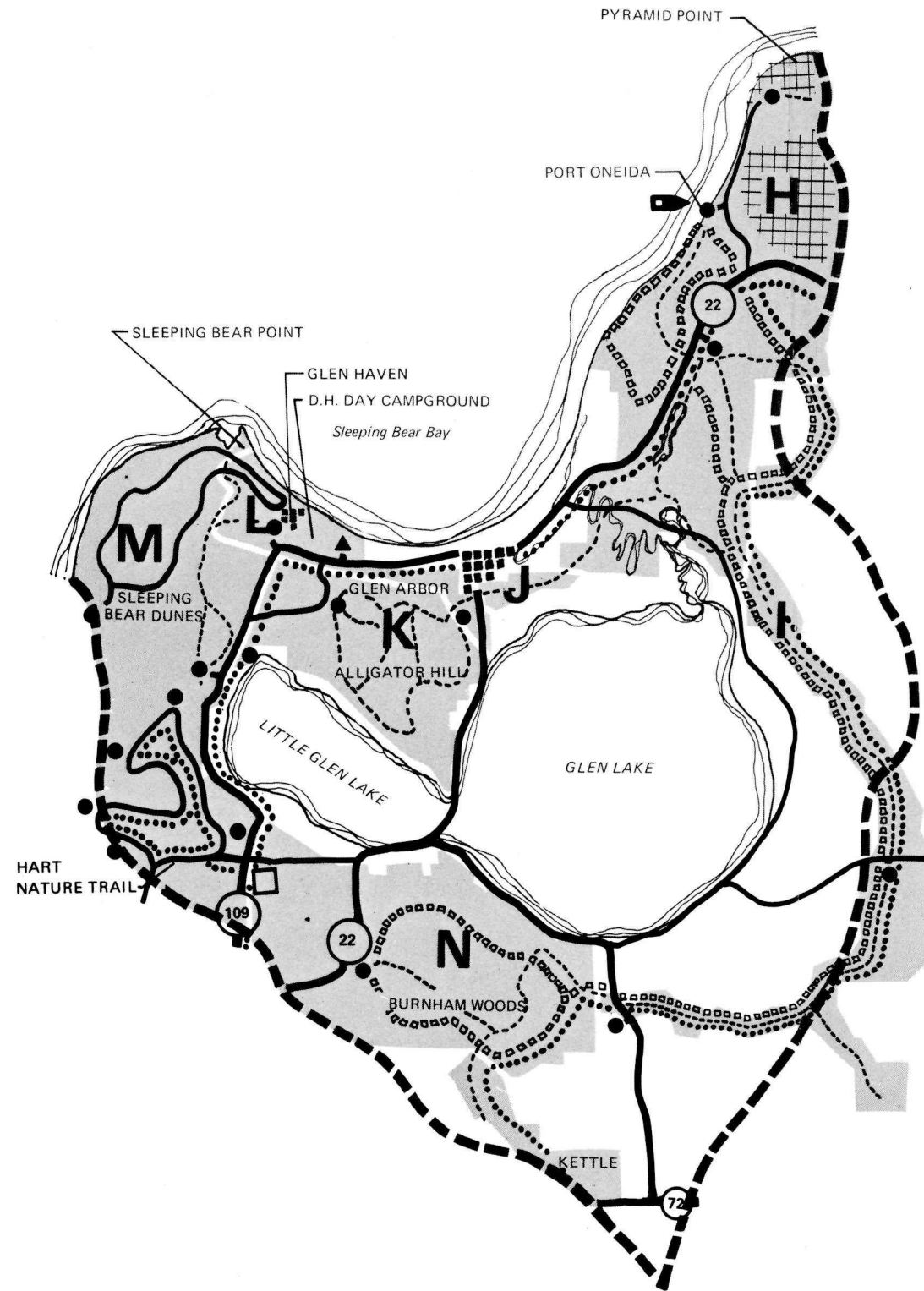
Bicycling
Interpretation (glaciers, shorelines, dunes, and forests)
Viewing (developed overlooks)
Backpacking
Picnicking
Skating (Glen Lake)
Swimming (protected beach)
Dune-climbing
Snowmobiling
- N

Bicycling
Interpretation (glaciers)
Camping
Viewing (developed overlooks)
Picnicking
Snowmobiling

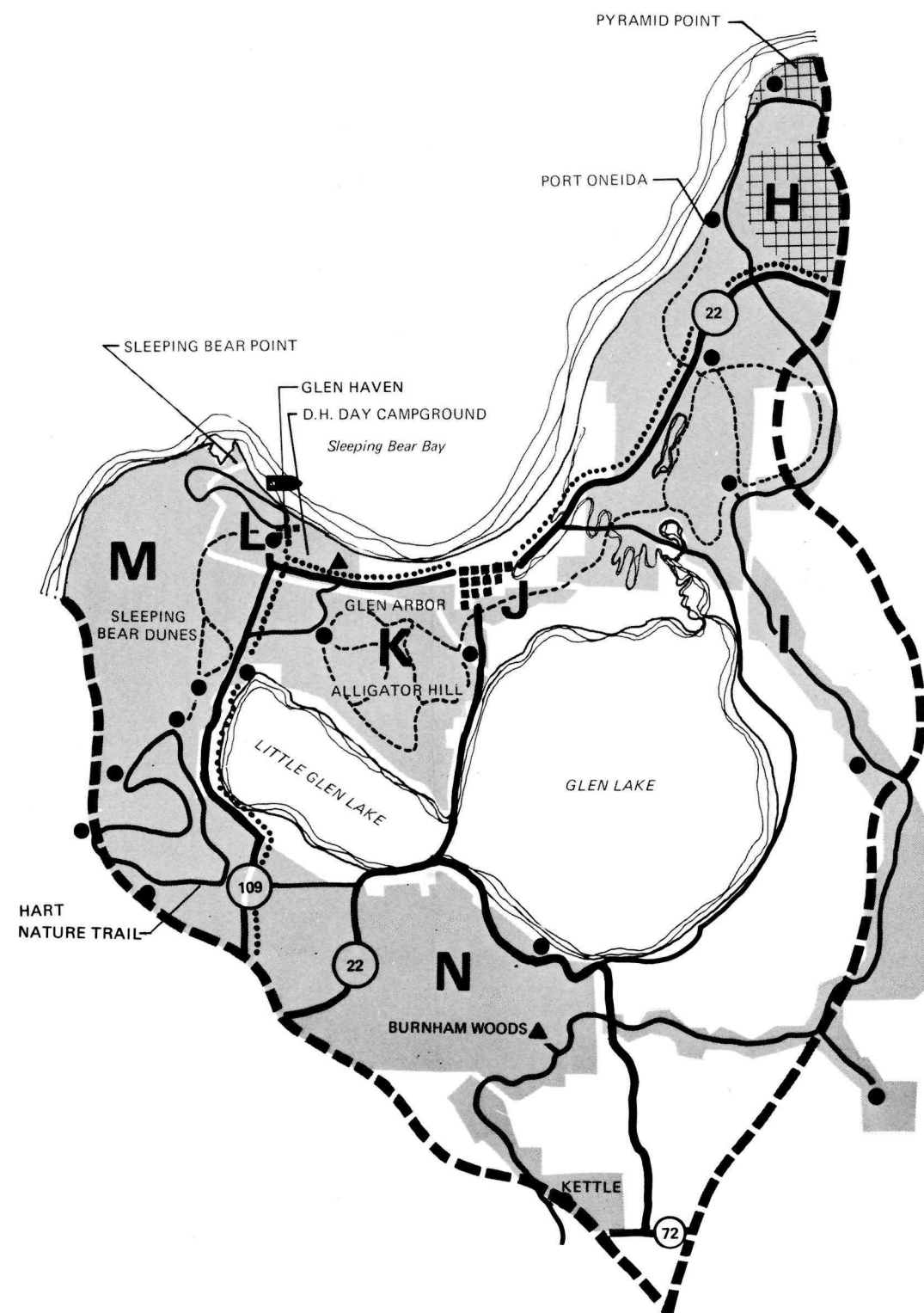
*General activities: hiking, hunting, fishing, photography, sightseeing/scenic driving, swimming



ALTERNATIVE 1



ALTERNATIVE 2

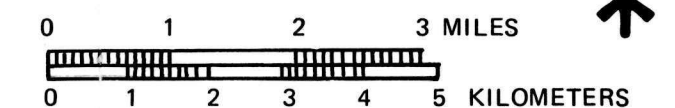


ALTERNATIVE 3

- UNIT BOUNDARY**
- LAKESHORE**
- H** PORT ONEIDA / PYRAMID POINT
- I** MILLER HILL (scenic corridor)
- J** GLEN ARBOR BYPASS (scenic corridor)
- K** ALLIGATOR HILL
- L** GLEN HAVEN
- M** SLEEPING BEAR DUNES
- N** BURNHAM WOODS
- POTENTIAL WILDERNESS**
- STATE ROAD**
- COUNTY OR NPS ROAD**
- VILLAGE**
- BOAT LANDING (public transportation and private launching)**
- INTERPRETIVE FACILITY**
- CAMPGROUND**
- TRAILHEAD**
- BICYCLE TRAIL**
- HORSEBACK-RIDING TRAIL**
- HIKING TRAIL**

ALTERNATIVES FOR GLEN LAKE PLANNING UNIT

SLEEPING BEAR DUNES NATIONAL LAKESHORE
United States Department of the Interior / National Park Service



GLEN LAKE PLANNING UNIT

IMPACTS ON RESOURCES

ACCESS AND CIRCULATION

ALTER-NATIVES	ACTIONS	COSTS	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
1	Close the Hart Nature Trail to vehicular access and scarify the 8-mile road.	Alt. 1--\$240,000	14.5 acres would revegetate, eventually returning to a beech/maple forest.	Vegetative cover would be restored in a 14.5-acre area.	
2 and 3	Modify and improve 8 miles of the Hart Nature Trail.	Alts. 2 and 3--\$2,400,000	2 acres at the entrance to the Hart Nature Trail would revegetate.	Wildlife habitat would be restored in a 2-acre area.	
3	Buy or lease six buses for public transportation in the Glen Haven area and along the Hart Nature Trail.	The cost would be borne by the concessioner.			
1	Remove the 8-mile dune-ride road.	Alt. 1--\$260,000	Approximately 10 acres would revegetate with dune grass, cottonwood, and other native vegetation.		

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
There would be fewer opportunities for interpretation of dunes and glaciation. One of the most popular attractions in the lakeshore would be closed to everyone except hikers.			Removal of vehicular access to Hart Nature Trail would limit viewing and interpretive opportunities to visitors willing and able to hike.	Irretrievable
Vehicular access to some of the best views in the lakeshore would be maintained, and interpretation would enhance the lakeshore experience	Minimal cuts and fills would disturb portions of moraines. Paving would make the surface impervious, and runoff would cause localized erosion. An area would be modified for borrow material.	Borrow material would be obtained from outside the lakeshore or at an already disturbed site.	Roadcuts, fills and paving the Hart Nature Trail would result in runoff, causing localized erosion.	
All visitors would have access to the unit's most important features. Congestion would also be reduced.	Use of buses would reduce quantities of air pollutants and fuel consumption.			
Conflicts between hikers and dune riders would be eliminated. The hiking experience would be improved. Visitors unable or unwilling to walk would not be able to experience the main dunes. An 8-mile-long intrusion would be removed, greatly improving visual quality and enhancing guided nature-walk potential.	Natural regime of drifting sand would be reestablished in a 10-acre area.		Vehicular access to the Sleeping Bear dune complex would be eliminated.	Irretrievable

GLEN LAKE PLANNING UNIT

IMPACTS ON RESOURCES

ACCESS AND CIRCULATION

ALTER-NATIVES	ACTIONS	COSTS	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
2	Remove 2.5 miles of the dune-ride road and improve the other 6 miles.	Alt. 2--\$975,000	Approximately 3 acres would revegetate with dune grass, cottonwood, and other native vegetation.		
3	Remove 6 miles of the dune-ride road and improve the other 2.5 miles.	Alt. 3--\$795,000	Approximately 6 acres would revegetate with dune grass, cottonwood, and other native vegetation.		
1, 2, and 3	Construct access roads and trailheads: Alt. 1--2 miles of road and eight trailheads with parking for 160 cars (areas H,K,M, and N) Alt. 2--3 miles of road and 12 trailheads with parking for 240 cars (areas H,I, K, M, and N) Alt. 3--15 miles of road and 13 trailheads with parking for 260 cars (areas H,I,K,M, and N).	Alt. 1--\$760,000 Alt. 2--\$1,140,000 Alt. 3--\$13,260,000	The following amounts of vegetation would be removed: Alt. 1--3.6 acres Alt. 2--5.4 acres Alt. 3--27 acres	The following amounts of wildlife habitat would be removed: Alt. 1--3.6 acres Alt. 2--5.4 acres Alt. 3--27 acres	Construction could result in damage to archeological sites 20 LU 27 and 20 LU 29.
1, 2, and 3	Maintain existing roads for foot trails: Alt. 1--11 miles of trails in areas L and M. Alt. 2--28 miles (11.5 miles in areas H and I, 1 mile in area J, 8 miles in area K, 5 miles in areas L and M, and 2.5 miles in area N) Alt. 3--31 miles (4 miles in area H, 10 miles in area I, 8 miles in area K, and 9 miles in areas L and M)	Alt. 1--\$330,000 Alt. 2--\$840,000 Alt. 3--\$930,000			

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/IRRETRIEVABLE COMMITMENTS
Conflicts between dune hikers and riders would be eliminated. Shortening the dune ride would disappoint some visitors, while it would limit an incompatible activity in the opinion of others. A 2.5-mile long intrusion would be removed, greatly improving visual quality and enhancing guided nature-walk potential.	Impacts of maintaining 2.5 miles of road in a natural regime of migrating sand would be eliminated. Natural conditions would be reestablished in a small area (3 acres). Paving would make the surface impervious, and resulting runoff and wind would increase erosion.		Runoff from paved surfaces and wind would result in localized erosion.	
Same as above, except a 6-mile-long intrusion would be removed.	Same as above, except 6 miles of road would be eliminated, and natural conditions would be reestablished on 6 acres.		Runoff from paved surfaces and wind would result in localized erosion.	
Opportunities for use would be improved. Under alternative 3, all of the key features and overlooks in the unit would be accessible by private vehicle, public transportation, or both.	Under alternative 3, cuts and fills would modify the topography in portions of area I. Paving would make the surface impervious, and runoff could result in localized erosion in surrounding areas.	Borrow material would be obtained outside the lake-shore or at an already disturbed site. Evaluation of site 20 LU 27 would occur prior to any construction.	Vegetation and wildlife habitat would be removed. Runoff from paved surfaces would result in localized erosion.	Irretrievable
Hiking opportunities would be improved in all the alternatives. Under alternatives 2 and 3, the road and trail system would provide access to all the key features and overlooks in the unit. All-persons trails would make access to some key features easier for visitors with restricted mobility.	Visitors leaving trails in dune areas would locally accelerate erosion and dune migration: Alternative 1--4 miles in areas L and M; alternative 2--2 miles in areas L and M; alternative 3--3 miles in areas L and M.		Off-trail use in dune areas would locally accelerate erosion and migration.	

GLEN LAKE PLANNING UNIT

IMPACTS ON RESOURCES

ACCESS AND CIRCULATION

ALTER-NATIVES	ACTIONS	COSTS	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
1 and 2	Construct horse-back-riding trails: Alt. 1--3 miles in area H only. Alt. 2--14 miles (8 miles in area H, and 3 miles each in areas M and N).	Alt. 1--\$15,000 Alt. 2--\$70,000	The following amounts of vegetation would be removed: alt. 1--1.7 acres alt. 2--5 acres	Individual species such as small mammals would be displaced but overall populations would not be affected.	
2 and 3	Coordinate planning and development of bicycle trails with state and local governments: Alt. 2--27.5 miles throughout the unit Alt. 3--16.5 miles in areas H,L,M, and N.	Alt. 2--\$1,375,000 Alt. 3--\$825,000	The following amounts of vegetation would be removed: alt. 1--20 acres alt. 2--5 acres	Vegetative ground cover would be removed along roads.	
1	Provide scheduled boat service to the Manitou islands from Leland; construct a 300-car parking area outside the town and provide a shuttle system to the dock. [This action would occur outside the lakeshore boundary and thus require legislation.]	Alt. 1--\$300,000			
2 and 3	Provide scheduled boat service to the islands from Sleeping Bear Bay. Develop a launching facility for private boats, a public docking facility, a break-water, and a 300-car parking area for boat trips to the Manitou islands: Alt. 2--at Port Oneida Alt. 3--at Glen Haven	Alts. 2 and 3--\$12,000,000	3 acres of vegetation would be removed under both alternatives.	The number of fish and bottom-dwelling organisms would increase on the sheltered side of the breakwater.	Under alternative 3, new docking facilities at Glen Haven would alter the historic setting.

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/IRRETRIEVABLE COMMITMENTS
Recreational opportunities would be expanded. Separate horseback-riding trails would eliminate encounters with hikers. Under alternative 2, all key features and overlooks in the unit would be accessible by horse.	Compaction of soils would accelerate erosion on steep slopes.	Trails would be maintained by trail crews and wash areas refilled.	Vegetation would be modified and wildlife species such as small mammals would be displaced. Soil compaction would accelerate erosion on steep slopes.	Irretrievable
Providing trails would expand present bicycling opportunities and improve safety along M-22 and other public roads not currently suitable for bike travel. Under alternative 3, bicycle access would be provided to all of the unit's key resources and overlooks.	Paving would make the surface impervious, and resulting runoff would cause minor erosion.		Vegetative ground cover would be removed. Runoff from paved surface would cause minor erosion.	
Public access would be provided to wilderness-type experiences on North Manitou, whereas no such opportunity exists now. Scheduled access to a variety of experiences on South Manitou would be increased.	More visitors would stop in Leland, increasing visitor spending. Visitor-related traffic congestion would decrease because of shuttle service.			
Same as above plus access to Lake Michigan would be improved. This would provide a dependable launch site on this section of Lake Michigan, and a point of refuge for fishermen and others during storms. The distance from the mainland to the islands is shorter than from Leland, thus visitor time on the boat would be shortened and operating costs decreased.	Emplacement of a breakwater would disrupt littoral currents carrying sediment. Locally, sediment would be deposited in a configuration other than the natural shape of the Sleeping Bear Bay shoreline. There would be minimal disturbance of offshore currents and temperatures.	The development would be on previously disturbed sites.	Vegetation would be removed, animal populations disturbed, and littoral currents changed resulting in shoreline modification. Under alternative 3, new docking facilities could alter the historic setting of the old dock.	Irretrievable and irreversible

GLEN LAKE PLANNING UNIT

IMPACTS ON RESOURCES

VISITOR FACILITIES

ALTER-NATIVES	ACTIONS	COSTS	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
1	Construct a 4,000-square-foot interpretive facility and 100-car parking area in area K on the ridge overlooking Sleeping Bear Bay.	Alt. 1--\$920,000			
2	Use the remodeled visitor center in area N as the main interpretive facility.				
3	Provide no interpretive facility in this unit.				
1, 2, and 3	Adapt the Sleeping Bear Point lifesaving station and the village of Glen Haven for interpretation and management functions: Alt. 1--construct a 50-car parking area at the lifesaving station and a 100-car parking area near the village. Alt. 2--construct a 150-car parking area near Glen Haven; use an existing building in the village as a hostel. Alt. 3--construct a 450-car parking area near Glen Haven (the additional 300-car parking area would be needed for visitors to the islands; see public transportation under Access and Circulation); use a building in the village as a hostel.	Alt. 1--\$800,000 Alt. 2--\$1,500,000 Alt. 3--\$1,700,000	The following amounts of vegetation would be removed: Alt. 1--0.8 acre Alt. 2--2.0 acres Alt. 3--7.0 acres	Habitat for species such as small mammals would be removed.	Use of the historic structures (lifesaving station and the Sleeping Bear Inn) for interpretation and management would ensure their preservation.

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Constructing a facility in this area would enhance interpretive opportunities. An outstanding view of Sleeping Bear Bay would be afforded visitors.	The parking area and visitor facility would require minor changes to the topography. Runoff from the parking area could cause minor erosion.	The facility would be developed at an already disturbed site.	Minor changes in topography and minor erosion would occur.	Irretrievable
The present location of the visitor facility makes it easily accessible to visitors. The existing building has a limited capacity and would not accommodate the anticipated visitor increase.			Existing facility would not accommodate expected visitation increases.	
Unless a facility was provided in another planning unit, visitors would be deprived of a central facility, thus reducing the opportunity for explaining the major interpretive themes that cannot be explained onsite.				
Visitors would have significant opportunities for maritime interpretation, whereas virtually no such opportunities exist at present. Providing a hostel under alternatives 2 and 3 would increase the availability of low-cost overnight accommodations.	Paved surfaces would be impervious, and resulting runoff could cause local erosion.		Vegetation and wildlife habitat would be removed. Runoff from paved surfaces would locally accelerate erosion.	Irretrievable

GLEN LAKE PLANNING UNIT

IMPACTS ON RESOURCES

VISITOR FACILITIES

ALTER-NATIVES	ACTIONS	COSTS	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
1, 2, and 3	Improve the D. H. Day Campground	Project is underway	Saplings, shrubs, and ground cover in a 12-acre area (pine/oak/aspen forest) would be removed.	Small mammals would be disturbed.	
1	Cooperate with Leelanau County in developing scenic overlooks in area I. [This action would be implemented outside the lakeshore boundary and could require legislation.]	Cost cannot be determined at this time.	2 acres of vegetation would be removed.	Wildlife habitat would be removed.	
1	Construct six comfort facilities with self-contained toilets in areas H, K, and M.	Alt. 1--\$30,000	1.0 acre of vegetation would be removed.	1.0 acre of wildlife habitat would be removed.	
2 and 3	Construct overlooks and comfort facilities with self-contained toilets: Alt. 2--six comfort facilities and five scenic overlooks in areas H, K, M, and N. Alt. 3--five comfort facilities and seven overlooks in areas I, K, and M.	Alt. 2--\$80,000 Alt. 3--\$95,000	The following amounts of vegetation would be removed: alt. 2--0.5 acre alt. 3--0.4 acre	Vegetative cover for small mammals would be removed.	
3	Construct a new 100-site campground in area N with road access, parking, and comfort facilities.	Alt. 3--\$500,000	10 acres of beech/maple forest would be modified.	Small mammals would be displaced in the campground area.	

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Decreased campsite density would offer campers greater privacy and would reduce conflicts between campers. Facilities would be available for group and walk-in campers.		Most of the development would occur within the existing 14-acre campground.	Limited vegetation and wildlife habitat would be removed.	
Visitors would have vehicular access to points outside the lakeshore boundary where they could view significant features.			Minimal vegetation and wildlife habitat would be removed.	
Better opportunities for scenic viewing and interpretation would be provided.			Limited vegetation and wildlife habitat would be removed.	
	Paving approximately 4 acres would make the surface impervious and resulting runoff would cause localized erosion. Use in the campground and adjacent areas would compact soils, increasing erosion.		Vegetative cover would be removed and small mammals displaced. Runoff from paved surfaces would cause local erosion. Soils would be compacted.	Irretrievable

GLEN LAKE PLANNING UNIT

				IMPACTS ON RESOURCES		
	ALTER-NATIVES	ACTIONS	COSTS	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
MANAGEMENT/ VISITOR FACILITIES	1, 2, and 3	Adapt an existing structure in area L, M, or N as the north district headquarters.	Alts. 1, 2, and 3--\$75,000			
	3	Adapt an existing structure as a hostel along the bicycle trail system.	Alt. 3--\$100,000			
RESOURCES MANAGEMENT	1, 2, and 3	Manage portions of the unit as potential wilderness: Alt. 1--6,450 acres Alts. 2 and 3--925 acres				Evidences of man's presence that are not historically significant would be allowed to deteriorate.
	2	Designate 500 acres of existing farmland in area H for agricultural purposes. [Much of this land would remain in private ownership.]			Species that occupy fields and zones between open lands and forest would benefit from additional food and cover.	An agricultural setting would enhance the historic setting from which Port Oneida partially derives its significance.
LAND ACQUISITION	2 and 3	Acquire 2,560 acres in areas I and J as part of the scenic corridor.	Cost would be determined at time of acquisition.	Additional acreages of beech/maple forest and bog-related plant communities would be included in the lakeshore.	Wildlife habitat within the lakeshore would be increased.	
SUMMARY	1, 2, and 3		Alt. 1--\$3,730,000 Alt. 2--\$20,455,000 Alt. 3--\$32,680,000	Under alternative 1, 25 acres would revegetate and 8.5 acres would be removed. Under alternative 2, 5 acres would revegetate and 23 acres would be removed. Under alternative 3, 5 acres would revegetate and 42.1 acres would be removed. Also under the third alternative, 2,560 acres would be added to the lakeshore.	Wildlife habitat would be increased or decreased the same amount that vegetation would be altered.	There would be minimal impacts on cultural resources in this high use area because most historic structures would be adaptively used and preserved. Trails would be located away from outlying historic sites. Only under alternative 3 would the agricultural activities in the Port Oneida area be perpetuated. Construction and use of a dock at Glen Haven (alternative 3) could impair the historical setting.

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
A hostel would provide low-cost accommodations in a pleasing setting.				
The natural setting would be enhanced. Visitors unable or unwilling to hike would not be able to experience the wilderness areas. Under alternative 1, the majority of the unit would be wilderness.			Visitors unable or unwilling to hike would be denied access to some features in wilderness areas.	Irretrievable
Agricultural practices and the historical role of agriculture would be interpreted, increasing the interpretive themes that would be presented.	500 acres of land would continue to be maintained for production.			
Under alternative 2, hiking trails would be developed in the acquired areas, improving hiking opportunities. Under alternative 3, a scenic highway would be constructed, providing visitors with outstanding scenic views of the area.	Acquisition would help protect the watershed for the Crystal River drainage basin. The preservation of important geologic features would be ensured.	Any potential tax loss would be mitigated under the provisions of Public Law 94-565.		
Under alternative 1, the diversity of recreational opportunities would be minimized because the Hart Nature Trail would be closed to vehicles and the concession dune ride would be eliminated. Major recreational opportunities would be provided under alternatives 2 and 3. The capacities (visitors at one time) would be as follows: Alt. 1--2,000 Alt. 2--2,650 Alt. 3--2,500.		A lot of the proposed development would occur on previously disturbed sites. Any potential tax loss would be mitigated.	Vegetation and wildlife habitat would be removed, modified, or revegetated. Localized erosion would occur in construction areas. Where boat launching facilities and breakwaters were constructed, shorelines would be modified.	Irreversible and irretrievable

EMPIRE PLANNING UNIT

ALTERNATIVE 1

Emphasize the primitive character of the unit. Minimize road access and development; limit access to trailheads at North Bar Lake, Empire Bluffs, Esch Road, and Otter Lake. Provide minimal, self-guided interpretation. Preserve the Aral townsite and Esch farm. Provide lakeshore headquarters in the town of Empire. Do not acquire the scenic corridor (area P). Manage the majority of areas O, Q, and R, as well as portions of S, as wilderness.

Activities*

- O Cross-country Skiing
Backpacking (designated campsites)
- P Would not be acquired
- Q Backpacking (designated campsites)
- R Cross-country Skiing
Backpacking (designated campsites)
- S Cross-country Skiing
Backpacking (designated campsites)

ALTERNATIVE 2

Emphasize the natural characteristics of the Empire unit, and provide a variety of interpretive activities to explain them. Designate backcountry campsites in areas O, Q, and R. Minimize road access and development; limit access to trailheads at North Bar Lake, Empire Bluffs, Esch Road, and Otter Creek. Connect the North Bar Lake area and Hart Nature Trail with paved roads suitable for private vehicles. Provide a parking area and an open shelter near Otter Creek (area R) as a starting point for guided interpretive walks. Preserve the Aral townsite and Esch farm. Adaptively utilize appropriate buildings at the air force base (for example, for a hostel, YCC camp, research station, and seasonal employee housing). Maintain an agricultural setting along M-22 and Esch and Norconk roads. Provide lakeshore headquarters and the main visitor information/interpretation center in the Empire area. Acquire all or part of the scenic corridor (area P) and construct trails. Manage the majority of areas Q, R, and S as wilderness. Work with state and county governmental agencies to provide bicycle trails.

Activities*

- O Cross-country Skiing
Bicycling
Backpacking (designated campsites)
- P Cross-country Skiing
Bicycling
Horseback Riding

- Q Bicycling
Backpacking (designated campsites)
- R Cross-country Skiing
Bicycling
Backpacking (designated campsites)
- S Cross-country Skiing
Bicycling
Horseback Riding
Backpacking (designated campsites)

ALTERNATIVE 3

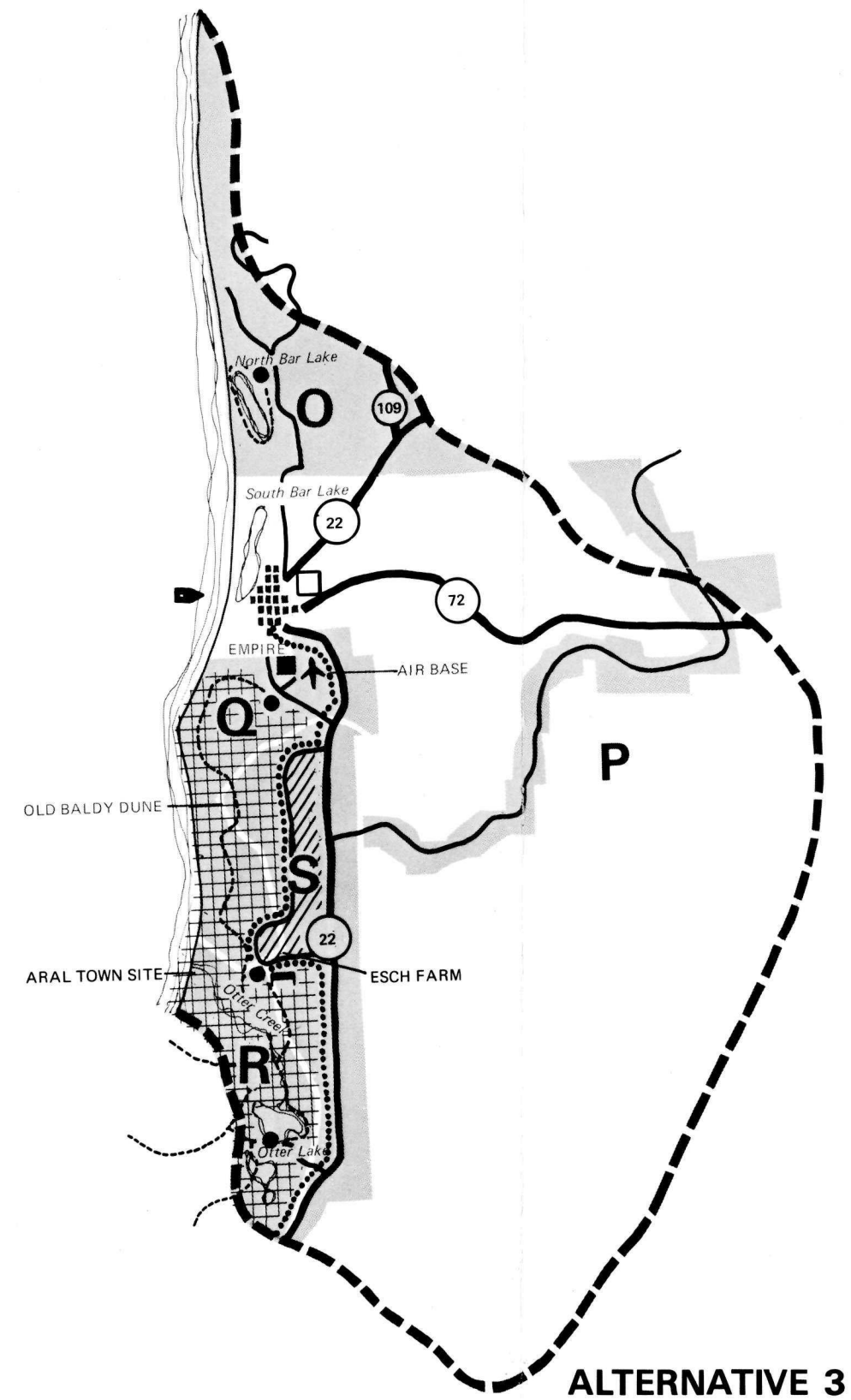
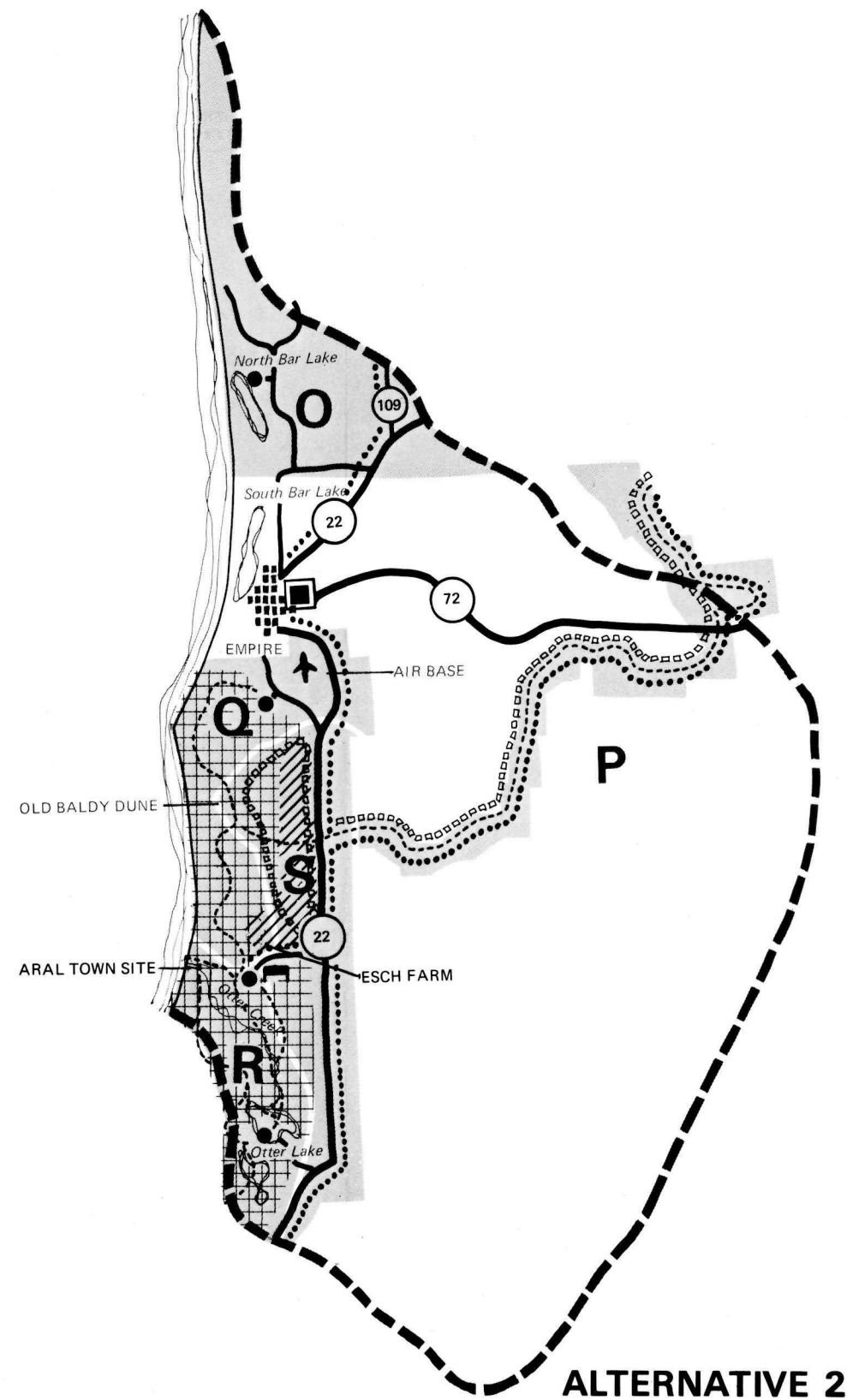
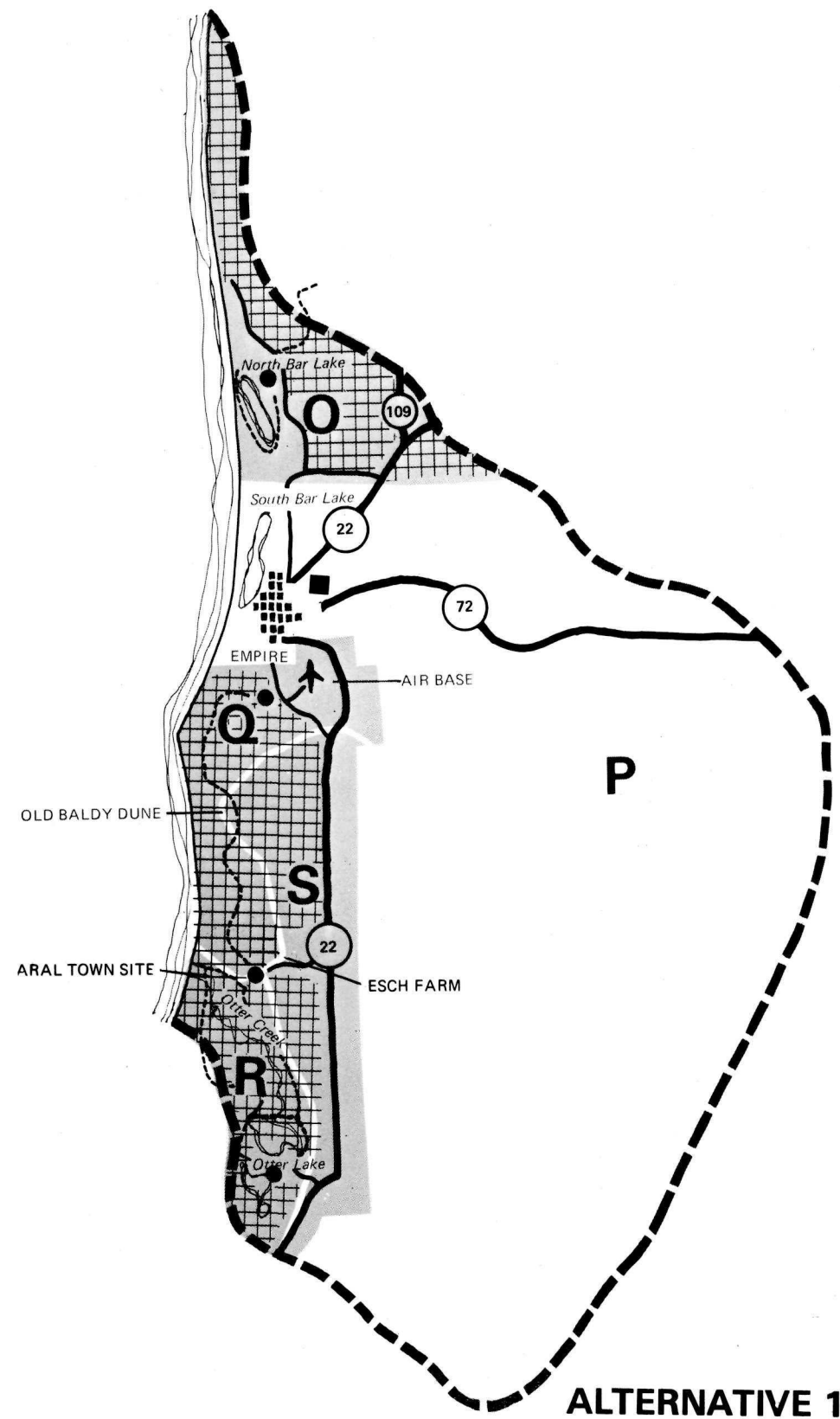
Emphasize interpretive and recreational opportunities, while maintaining a primitive character. Designate backcountry campsites in areas O, Q, and R. Maintain a road to North Bar Lake and provide a parking area; provide conducted nature walks. Connect the North Bar Lake area and Hart Nature Trail with paved roads suitable for both private vehicles and a public transportation system. Construct a parking area and an open shelter near Otter Creek (area R); provide conducted nature walks. Establish lakeshore headquarters and a hostel at the air force base, and provide the main information/interpretation center in the Empire area. Maintain an agricultural setting along M-22 and Esch and Norconk roads. Acquire a scenic corridor (area P) and construct a road. Cooperate with local and state authorities in providing launching facilities at Empire for private boats and a public docking facility for boat trips to the Manitou islands. Manage the majority of areas Q and R, as well as parts of S, as wilderness. Work with state and county governmental agencies to provide bicycle trails.

Activities*

- O Cross-country Skiing
Bicycling
Interpretation (shorelines)
Backpacking (designated campsites)
Canoeing/Rowing

- P Interpretation (glaciers)
Viewing (developed overlooks)
- Q Bicycling
Interpretation (dunes and shorelines)
Backpacking (designated campsites)
Hang-gliding
- R Cross-country Skiing
Bicycling
Interpretation (forests, wetlands, wildlife, and shorelines)
Backpacking (designated campsites)
Canoeing/Rowing
- S Cross-country Skiing
Bicycling
Interpretation (agricultural history)
Backpacking (designated campsites)

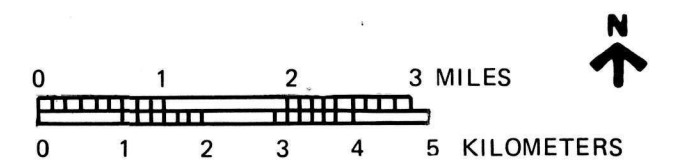
*General activities: hiking, hunting, fishing, photography, sightseeing/scenic driving, swimming



- UNIT BOUNDARY
- LAKESHORE
- NORTH BAR LAKE
- KETTLE (scenic corridor)
- EMPIRE DUNES
- OTTER CREEK
- NORCONK FARMS
- POTENTIAL WILDERNESS
- STATE ROAD
- COUNTY OR NPS ROAD
- VILLAGE
- BOAT LANDING/LAUNCHING (public transportation)
- INTERPRETIVE FACILITY
- HEADQUARTERS
- TRAILHEAD
- SHELTER
- BICYCLE TRAIL
- HORSEBACK-RIDING TRAIL
- HIKING TRAIL
- AGRICULTURAL SETTING

ALTERNATIVES FOR EMPIRE PLANNING UNIT

SLEEPING BEAR DUNES NATIONAL LAKESHORE
United States Department of the Interior / National Park Service



EMPIRE PLANNING UNIT

IMPACTS ON RESOURCES

ALTER-NATIVES	ACTIONS	COSTS	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
1	Close and scarify 2.25 miles of existing road in area O.	Alt. 1--\$67,500	7.6 acres would revegetate.	Wildlife habitat would be increased.	
2 and 3	Modify and improve 1 mile of road in area O.	Alts. 2 and 3--\$300,000			
1, 2, and 3	Close and scarify 0.5 mile of Esch Road.	Alts. 1, 2, and 3--\$25,000	5 acres would revegetate.	Wildlife habitat would be increased.	
3	Construct 6.5 miles of two-lane road in area P.	Alt. 3--\$6,500,000	22.1 acres of vegetation (primarily beech/maple forest) would be removed.	Wildlife species would be displaced.	
1, 2, and 3	Construct foot trails: Alt. 1--13 miles in areas O, Q, and R; Alts. 2 and 3--22.5 miles in all areas.	Alt. 1--\$195,000 Alts. 2 and 3--\$337,500	Under alternative 1, 4.5 acres of vegetation would be removed. Under alternatives 2 and 3, 8.2 acres of vegetation would be removed.	Wildlife habitat would be decreased by 4.5 acres under alternative 1, and by 8.2 acres under alternatives 2 and 3.	
2 and 3	Coordinate planning and development of bicycle trails with state and local governments to provide 19.5 miles of bicycling trails in areas P, Q, R, and S.	Alts. 2 and 3--\$925,000	18.9 acres of vegetation adjacent to existing or proposed roads would be removed.	18.9 acres of wildlife habitat along roads would be removed.	

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/IRRETRIEVABLE COMMITMENTS
A natural setting would be restored. Visitors unable or unwilling to hike would be denied access to these areas. Scenic driving and interpretive opportunities would be enhanced. Visitors would be denied vehicular access to Lake Michigan in this area. Opportunities for a continuous wilderness experience would be provided by the elimination of this section of the Esch Road.			Visitors unable or unwilling to hike would be denied access to these areas.	Irretrievable
Road construction would provide access to the unit's key features and overlooks. Scenic driving and interpretive opportunities would also be provided.	Cuts and fills would result in the modification of the topography. Paving 15 acres would make the surface impervious, and resulting runoff could cause localized erosion.		Runoff from paved surfaces would cause localized erosion. Vegetation would be removed; wildlife species would be displaced.	Irretrievable
Under alternative 1, most of the unit's significant features, except for the scenic corridor, would be accessible by foot. Under alternatives 2 and 3, all significant features would be accessible by foot.	If visitors left trails in areas bordering dunes (1 mile in area Q and 1 mile in R), they would locally accelerate dune migration and erosion. Use of trails across former embayments would locally damage beach ridges.	Most of these trails would be constructed on existing roads.	Vegetation would be removed; wildlife habitat would be decreased.	Irretrievable
Opportunities for bicycling would be enhanced. Bicyclist/motorist conflicts and safety hazards would be reduced. Access to the unit's key features and overlooks by bicycle would be increased.	Paving would make the surface impervious, and resulting runoff would cause minor erosion.		Vegetation would be removed. Runoff from paved surfaces would cause minor erosion.	

EMPIRE PLANNING UNIT

			IMPACTS ON RESOURCES		
	ALTER-NATIVES	ACTIONS	COSTS	IMPACTS ON RESOURCES	
				VEGETATION	WILDLIFE
ACCESS AND CIRCULATION	2	Construct 14 miles of horseback riding trails in areas P and S.	Alt. 2--\$70,000	17 acres of ground cover would be removed.	17 acres of wild-life habitat for species such as small mammals would be removed.
	3	Cooperate with local and state authorities in providing launching facilities at town of Empire for private boats and a public docking facility for scheduled boat trips to the Manitou islands.	Alt. 3--\$12,000,000		The number of fish and bottom-dwelling organisms would increase on the sheltered side of the breakwater.
VISITOR FACILITIES	2 and 3	Provide a 20-car parking area and a 1,000-square-foot open shelter near Otter Creek (area R).	Alts. 2 and 3--\$40,000	1 acre of vegetation would be removed.	1 acre of habitat for species such as small mammals would be removed.

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Access by horse would be provided to significant features and overlooks in the scenic corridor. Horseback-riding trails would eliminate encounters between hikers and horseback riders. Opportunities for horseback riding would be available.	Compaction of soils from use would cause erosion on steep slopes.	Steep slopes would be avoided, otherwise native materials such as wood chips would be used to reduce erosion. Some of these trails would be on existing roads.	Limited ground cover would be removed; wildlife habitat for species such as small mammals would be removed.	Irretrievable
Docking facilities at Empire would improve boat access to Lake Michigan and would make boating safer. Locating boat service to the islands at Empire would make this service easily accessible to major visitor flows.	Emplacement of a breakwater would disrupt littoral currents carrying sediment. Locally, sediment would be deposited in a configuration other than the natural shape of the Empire embayment shoreline. Dredging for a harbor would destroy the natural bottom of part of South Bar Lake, as well as the adjacent beaches. There would be minimal disturbance of off-shore water currents and temperature. More visitors would stop in Empire, increasing visitor spending. Visitor-related traffic congestion would increase. Traffic congestion in Leland associated with the concession boat service would be eliminated.		A breakwater would disrupt littoral currents, resulting in shoreline modification. Dredging would increase water turbidity and destroy the natural bottom of part of South Bar Lake.	Irretrievable and irreversible
More opportunities for guided nature walks and other interpretive activities would be provided.	Paving would make the ground surface impervious, and resulting runoff would cause localized erosion.		Vegetation and wildlife habitat would be removed.	Irretrievable

EMPIRE PLANNING UNIT

				IMPACTS ON RESOURCES		
				VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
ALTER-NATIVES	ACTIONS	COSTS				
VISITOR FACILITIES	2	Build a facility in Empire to serve as lakeshore headquarters and the main visitor information/interpretation center (7,000 square feet); provide a 125-car parking area.	Alt. 2--\$965,000	If an undisturbed site was selected, 3 acres of vegetation would be removed.		
	3	Construct a visitor information/interpretation center (4,000 square feet), with a 100-car parking area, in or near Empire.	Alt. 3--\$580,000	Approximately 3 acres of vegetation would be removed.	Small mammals would be displaced.	
MANAGEMENT FACILITIES	1	Build a headquarters facility (3,000 square feet), with a 25-car parking area, in the town of Empire.	Alt. 1--\$385,000	If an undisturbed site was selected, approximately 2 acres of vegetation would be removed.		
	2 and 3	Adaptively utilize buildings at the air force base on a seasonal basis, such as a hostel, YCC accommodations, research station, and seasonal employee housing.	Alts. 2 and 3--\$70,000			

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/IRRETRIEVABLE COMMITMENTS
Locating the main visitor information/interpretation center in this area would make it accessible to major visitor flows.	Paving would make the ground surface impervious, and resulting runoff could cause localized erosion.		If an undisturbed site was selected, limited vegetation would be removed. Runoff from paved surfaces would cause localized erosion.	Irretrievable
Locating the main visitor information/interpretation center in the Empire area would make it easily accessible to most lakeshore visitors.	Paving would make the ground surface impervious, and resulting runoff could cause erosion in local areas.		Small amounts of vegetation would be removed; wildlife would be displaced. Runoff from paved surfaces would cause localized erosion.	Irretrievable
Locating lakeshore headquarters in Empire would make it accessible to major visitor flows.	Because Empire is more centrally located with respect to the lakeshore, establishing headquarters here would make administration easier and would reduce travel time to various parts of the lakeshore. Paving would make the ground surface impervious and resulting runoff could cause erosion.		If an undisturbed site was selected, vegetation would be removed. Runoff from paved surfaces would cause localized erosion.	Irretrievable
Establishing a hostel at the air base would increase the availability of low-cost overnight accommodations.	Adaptive use of the air base facilities would be the most economical means for the National Park Service to meet administrative program needs.			

EMPIRE PLANNING UNIT

				IMPACTS ON RESOURCES		
	ALTER-NATIVES	ACTIONS	COSTS			
				VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
MANAGEMENT FACILITIES	3	Establish lakeshore headquarters at the air force base.	Alt. 3--\$500,000			
RESOURCES MANAGEMENT	1, 2, and 3	Manage portions of the unit as potential wilderness: Alt. 1--5,735 acres Alt. 2--4,186 acres Alt. 3--4,186 acres				Structures not listed on or nominated to the National Register of Historic Places would be removed or allowed to deteriorate. The Aral townsite would be stabilized and interpreted.
	3	Designate 640 acres of existing farmland in area S, in addition to the Esch farm, for agricultural purposes.			Species that occupy farmlands and zones between open land and forest would be benefited because food and cover would be provided.	An area illustrating the agricultural setting typical of the region would be maintained and perpetuated.
LAND ACQUISITION	2 and 3	Acquire 2,050 acres in the scenic corridor (area P).	Cost would be determined at time of acquisition.	An additional 2,050 acres of beech/maple forest and bog-related plant species would be included in the lakeshore.	Wildlife habitat in the lakeshore would be increased.	

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
	Few structures at the air force base would be large enough to accommodate all the administrative functions for the lakeshore. Extensive remodeling would be required to adapt the buildings. By having administrative and visitor information facilities at two different locations, construction and operating costs, as well as staffing, would increase.			
The natural setting of major portions of the unit would be enhanced. Visitors unwilling or unable to hike would not experience the wilderness areas.			Visitors unable or unwilling to hike would not experience the wilderness areas.	Irretrievable
An agricultural setting around historic structures would be maintained, increasing their interpretive potential.	640 acres would be kept in agricultural production.			
Several key features and overlooks would be protected. Under alternative 2, trails would be constructed in the corridor, providing hiking opportunities. Under alternative 3, a scenic highway would be constructed, enhancing sightseeing opportunities.		Any potential tax loss would be mitigated under provisions of Public Law 94-565.		

EMPIRE PLANNING UNIT

IMPACTS ON RESOURCES

SUMMARY

ALTER-NATIVES	ACTIONS	COSTS	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
1, 2, and 3		Alt. 1--\$672,500 Alt. 2--\$2,732,500 Alt. 3--\$21,277,500	The following amounts of vegetation would be removed: Alt. 1--4.5 acres Alt. 2--45.1 acres Alt. 3--53.2 acres Acquisition of the corridor (area P) under alternatives 2 and 3 would increase the size of the lakeshore by 2,050 acres.	Habitat for wildlife would be decreased by the same acreage that vegetation would be removed. Acquisition of the corridor would add wildlife habitat to the lakeshore.	Cultural resources would be evaluated for nomination to the National Register of Historic Places. The historical setting around the Esch farm would be maintained by keeping the agricultural lands in production.

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
The primitive character of the unit would be emphasized under alternative 1. Recreational opportunities would be increased under alternatives 2 and 3, along with providing better access for more visitors. Under alternative 3, use would be focused on Empire because it would be the site of the main interpretive facility and boat services. Capacities (visitors at one time) would be as follows: Alt. 1--300 Alt. 2--1,000 Alt. 3--850	Visitor spending would increase in the Empire area. Portions of the air base would be used under all three alternatives. Localized erosion would result from increased parking areas. The breakwater would modify the marine environment.	Much of the proposed development would occur on previously disturbed sites. Any potential tax loss would be mitigated.	Vegetation and wildlife habitat would be removed. Under alternative 3, the shoreline and South Bar Lake ecosystems would be modified by the breakwater and dredging of South Bar Lake.	Irreversible and irretrievable

PLATTE PLANNING UNIT

ALTERNATIVE 1

Preserve the area's natural integrity by eliminating motorboating. Modify Lake Michigan Road, Platte River Campground, and boat liveries to improve the river's integrity. Provide for recreational activities that continue to focus on the river; however, prohibit motorboats. Eliminate boat-launching facilities at the mouth of the Platte River. Provide hiking trails in areas T and V. Provide interpretation along the Platte River and at the river's mouth. Do not acquire a scenic corridor (area W). Work with the county to develop scenic overlooks on existing roads in the Crystal Highlands. Manage the majority of areas T and V, as well as a small portion of U, as wilderness.

Activities*

- T Backpacking (designated camp-sites)
- U Interpretation (forests, wetlands, wildlife/fish, and shorelines)
Camping
Picnicking
Canoeing/Rowing
Sailing
- V Information/Orientation
Backpacking (designated camp-sites)
- W Would not be acquired

ALTERNATIVE 2

Protect the area's natural integrity by restricting motorboating to certain areas. Modify Lake Michigan Road, Platte River Campground, and boat liveries to improve the river's integrity. Provide for recreational activities that continue to focus on the river; however, prohibit motorboats except on Loon Lake, where a launching facility for boats with motors of limited size would be provided during the coho salmon fishing season. Improve launching facilities at the mouth of the Platte River for both motorized and nonmotorized boats. Provide for hiking trails in areas T and V. Provide interpretation along the Platte River and at the river's mouth. Acquire a scenic corridor (area W) and construct trails. Manage the majority of areas T and V, as well as a small portion of U, as wilderness. Work with state and local governmental agencies to provide bicycle trails.

Activities*

- T Bicycling
Backpacking (designated camp-sites)
- U Bicycling
Interpretation (forests, wetlands, wildlife/fish, and shorelines)
Camping
Picnicking
Canoeing/Rowing
Sailing
Motorboating (Loon Lake)

- V Bicycling
Information/Orientation
Backpacking (designated camp-sites)
- W Bicycling
Interpretation (glaciers and shorelines)
Viewing (developed overlooks)

ALTERNATIVE 3

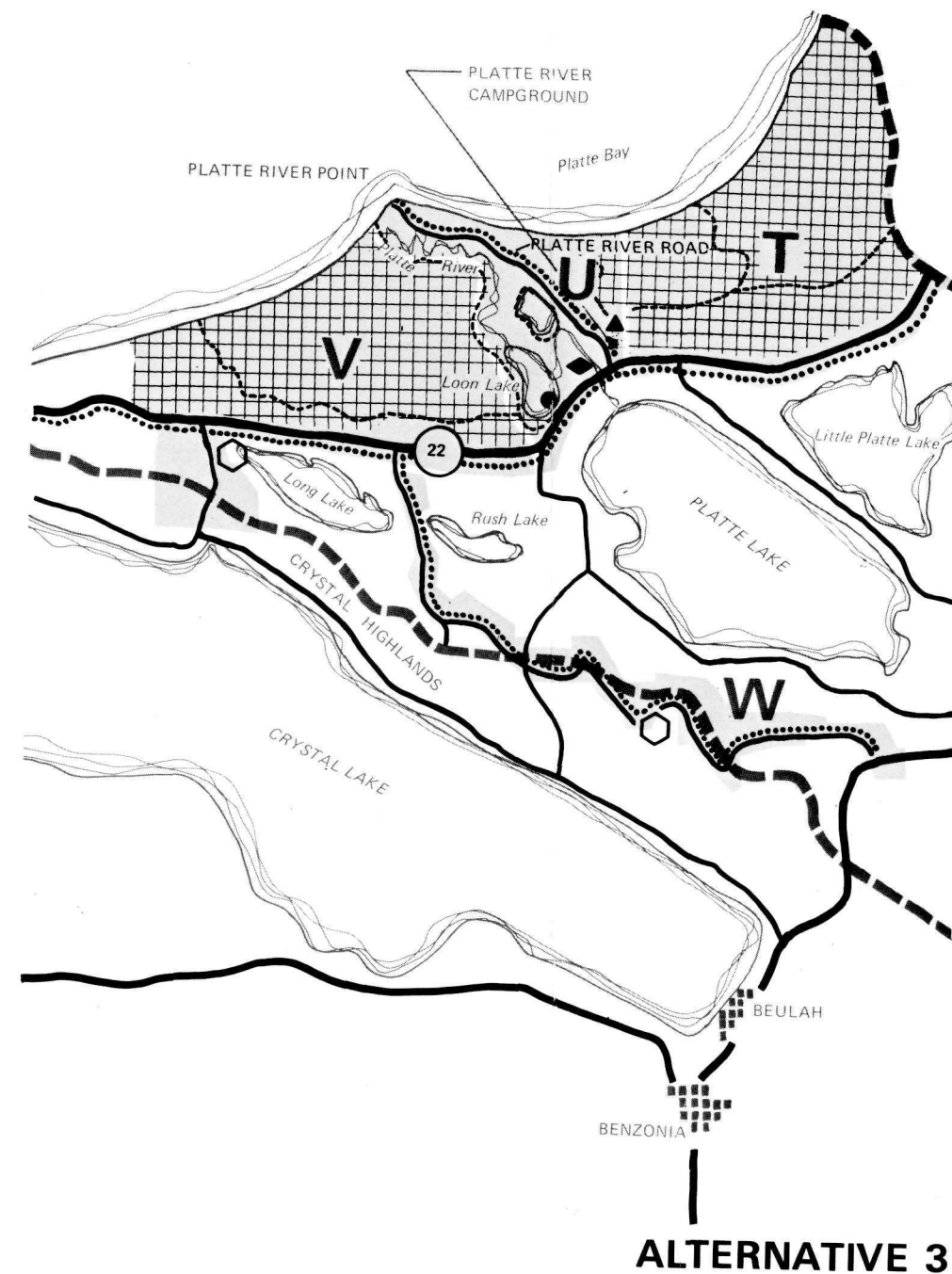
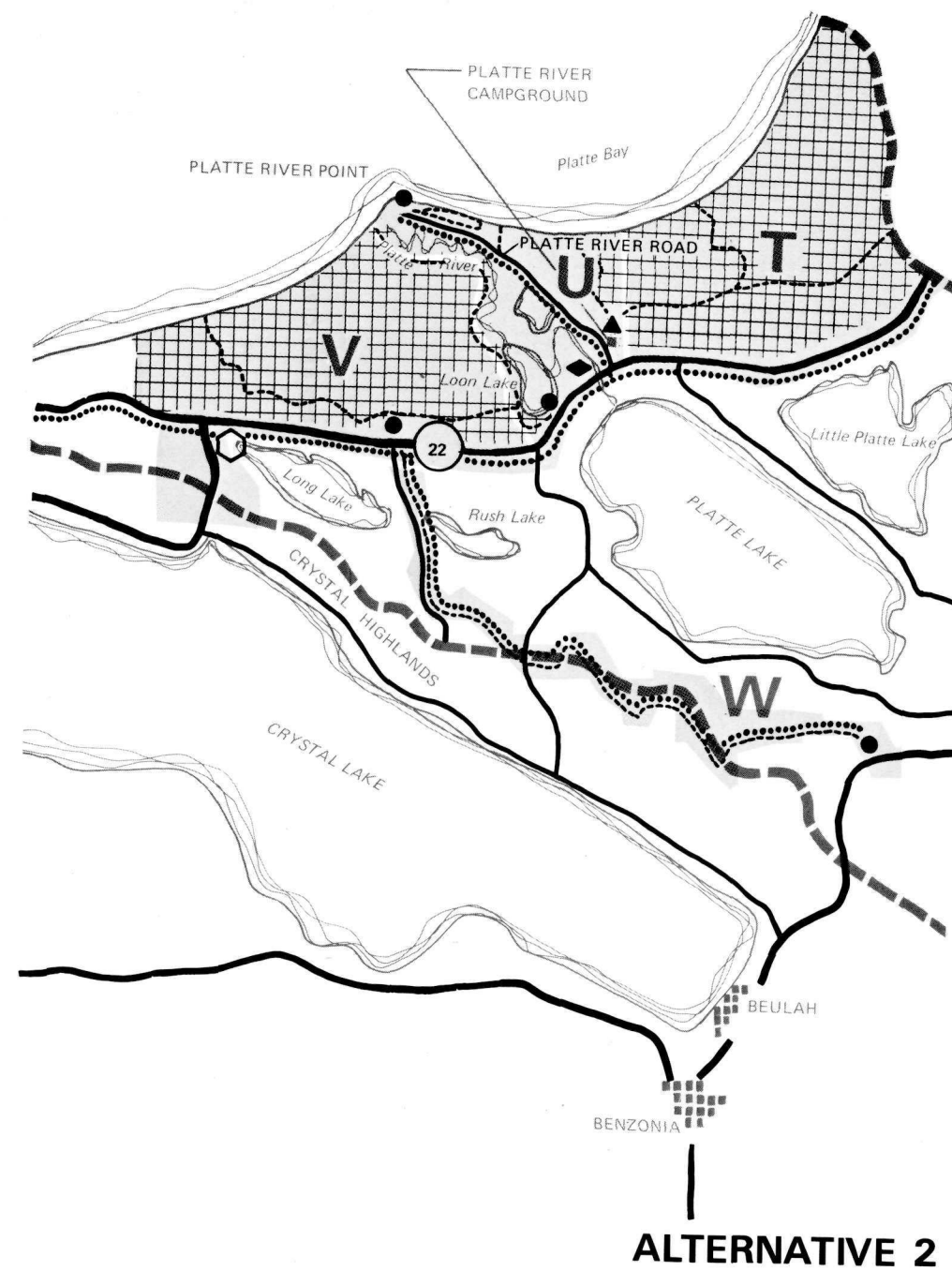
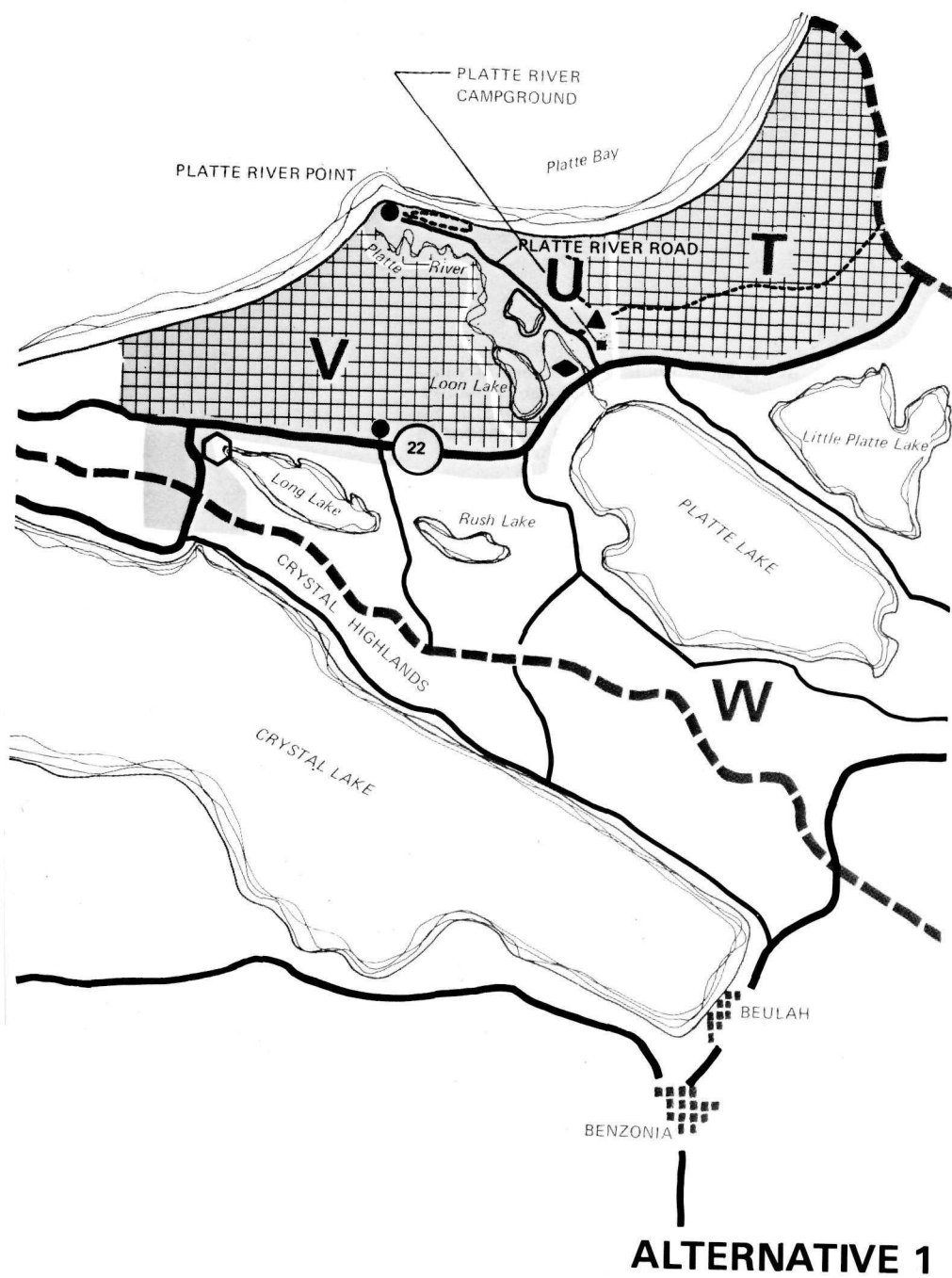
Provide diverse recreational opportunities. Provide for water-oriented recreational activities that continue to focus on the Platte River corridor, with adequate facilities to support both motorized and nonmotorized boating. Provide boat-launching facilities on the Platte River at M-22 and at the mouth of the river. Maintain the Platte River Campground, but improve the entrance from Lake Michigan Road. Develop a trail system in the river corridor and adjacent areas. Acquire a scenic corridor (area W) and construct a road. Provide interpretation in the scenic corridor, along the Platte River, and at the mouth of the Platte. Acquire private lands at a site along the Platte River for constructing a new livery. Manage the majority of areas of T and V, as well as a small portion of U, as wilderness. Work with state and local governmental agencies to provide bicycle trails.

Activities*

- T Bicycling
Horseback Riding
Backpacking (designated camp-sites)
- U Bicycling
Horseback Riding
Interpretation (forests, wetlands, wildlife/fish, and shorelines)
Camping
Picnicking

- U (cont.)
Swimming (protected beach)
Canoeing/Rowing
Motorboating (Platte River)
- V Bicycling
Information/Orientation
Backpacking (designated camp-sites)
- W Bicycling
Information/Orientation
Interpretation (glaciers and shorelines)
Viewing (developed overlooks)

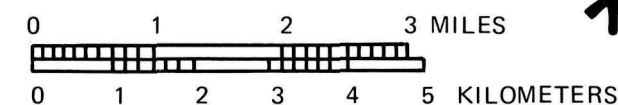
*General activities: hiking, hunting, fishing, photography, sightseeing/scenic driving, swimming, cross-country skiing



- UNIT BOUNDARY
- LAKESHORE
- NORTH PLATTE PLAIN
- PLATTE RIVER CORRIDOR
- SOUTH PLATTE PLAIN
- CRYSTAL HIGHLANDS (scenic corridor)
- POTENTIAL WILDERNESS
- STATE ROAD
- COUNTY OR NPS ROAD
- VILLAGE
- BOAT LIVERY/PICNIC AREA
- INFORMATION / ORIENTATION
- CAMPGROUND
- TRAILHEAD
- BICYCLE TRAIL
- HIKING TRAIL

ALTERNATIVES FOR PLATTE PLANNING UNIT

SLEEPING BEAR DUNES NATIONAL LAKESHORE
United States Department of the Interior / National Park Service



PLATTE PLANNING UNIT

IMPACTS ON RESOURCES

ALTER-NATIVES	ACTIONS	COSTS	IMPACTS ON RESOURCES		
			VEGETATION	WILDLIFE	ARCHEOLOGICAL AND HISTORIC RESOURCES
1, 2, and 3	Realign 1.5 miles of road in area U; close and scarify existing 1.5-mile section of road.	Alts. 1, 2, and 3--\$550,000	5 acres of vegetation would be removed, and 5 acres of former road would revegetate.	5 acres of wildlife habitat for small mammals would be removed in one area and added in another.	
3	Realign 0.25 mile of road at the Platte River Campground; close and scarify the existing road section.	Alt. 3--\$40,000	Realignment would require removal of 0.85 acre of pine/oak/aspen forest, and 0.85 acre of former road would revegetate.	0.85 acre of wildlife habitat would be removed in one area and added in another.	
3	Construct 6.5 miles of two-lane road in area W (scenic corridor).	Alt. 3--\$6,000,000	22 acres of predominantly beech/maple forest on the Crystal Highlands would be removed.	22 acres of habitat would be removed.	

ACCESS AND CIRCULATION

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Road realignment would eliminate the visual intrusion of the road adjacent to the river, enhancing the experience of boaters, campers, and fishermen. Revegetation of the former road section would also improve the natural setting along the river.	Realignment would require 0.1 mile of road cuts. Paving would make the ground surface impervious, and resulting runoff would cause localized erosion. Access to private residences and easement lands would be temporarily disturbed.		Vegetation and wildlife habitat for some species would be removed. Access to category III and easement lands would be temporarily disturbed. Runoff from paved surfaces would cause localized erosion.	Irretrievable
Realignment would make conditions safer for campers because the road would no longer lie between the campground and the river. This action would also make the area between the campground and river more natural in appearance.	Access to private residences and easement lands would be temporarily disturbed.			
Opportunities for viewing and interpreting the region's natural features would increase. Tourist traffic would be separated from local use.	Roadcuts would modify topography in a 15-acre area. Paving 15 acres would make the ground surface impervious, and resulting runoff would cause localized erosion.		Vegetation and wildlife habitat would be removed. Runoff from paved surfaces would cause localized erosion.	Irretrievable

PLATTE PLANNING UNIT

ACCESS AND CIRCULATION

IMPACTS ON RESOURCES

ALTER-NATIVES	ACTIONS	COSTS	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
1, 2, and 3	Maintain existing dirt roads as hiking trails: Alt. 1--6.5 miles in area T Alt. 2--18 miles in areas T,U, V, and W. Alt. 3--19 miles in areas T,U, and V.	Alt. 1--\$97,500 Alt. 2--\$270,000 Alt. 3--\$285,000	The following amounts of vegetation (mostly ground cover and saplings) would be removed: Alt. 1--2.4 acres Alt. 2--6.5 acres Alt. 3--6.9 acres	Habitat for wildlife would be reduced by the same amount that vegetation would be removed.	
2 and 3	Coordinate planning and development of bicycle trails with state and local governments to provide 14 miles of trails in areas T,U,V, and W.	Alts. 2 and 3--\$700,000	13.6 acres of vegetation adjacent to existing roads would be removed.	13.6 acres of wildlife habitat would be removed.	

VISITOR FACILITIES

1	Eliminate launching facilities at the mouth of the Platte River.	Alt. 1--\$5,000			
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VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Under alternative 1, many of the unit's natural features would be accessible by foot. Under alternatives 2 and 3, all significant features in the unit would be accessible by foot.	Under alternative 1, trails would be constructed along the edges of dunes for 1 mile, and off-trail use would locally accelerate dune migration. Where trails crossed former embayments (alternative 1--5.5 miles in area T; alternative 2--12 miles in areas T,U, and V; alternative 3--12 miles in areas T,U, and V), foot travel would locally damage beach ridges. Soil compaction would make the ground surface relatively impervious, and resulting runoff could cause localized erosion.		Vegetation and wildlife habitat would be removed.	
Opportunities for bicycling would be enhanced and safety would be improved along M-22 and other public roads currently not suitable for bike travel.	Paving 14 miles of trail would make the ground surface impervious, and resulting runoff would cause localized erosion.		Vegetation and wildlife habitat would be removed.	Irretrievable
There would be no boat launching areas on Lake Michigan within the lakeshore boundary.	There would be a decrease in toxic substances (hydrocarbons) emitted into the water. Because the existing launching facilities are owned by Lake Township, closure would require approval by the township.		No boat access to Lake Michigan would be provided within the lakeshore.	Irretrievable

PLATTE PLANNING UNIT

IMPACTS ON RESOURCES

VISITOR FACILITIES

ALTER-NATIVES	ACTIONS	COSTS	VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
2 and 3	Improve launching facilities and construct a 75-car parking area at the mouth of the Platte River.	Alts. 2 and 3-- \$150,000			
1	Prohibit motor-boats on the Platte River from M-22 to the mouth.				
2	Provide a launching facility and 15-car parking area on Loon Lake for boats with motors of limited size.	Alt. 2--\$20,000			
1, 2, and 3	Remove three liveries; construct one improved livery at M-22 on the Platte River; provide canoe launching facilities; and construct a 75-car parking area.	Alts. 1, 2, and 3-- \$150,000	1 acre along the river would revegetate, while 1 acre of vegetation at another site would be removed.	Wildlife habitat would be removed at a 1-acre site and restored at another 1-acre site.	

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Boat access to Lake Michigan would be improved. Use of motorboats would be an intrusion in a natural area for some visitors under alternative 3. Conflicts could develop between power and nonpower boaters.	Use of motorboats would continue to result in the emission of toxic substances (hydrocarbons) into the water.		Toxic substances would be emitted into the water. Motorboats would be an intrusion on the natural setting for some visitors; conflicts could develop between power and nonpower boaters.	Irretrievable
Opportunities for using powerboats for fishing would be eliminated. The natural aspects of the river would be enhanced.	Discontinuing motorboat use would decrease the emission of toxic substances (hydrocarbons) into the water.		Opportunities for using powerboats for fishing would be eliminated.	
Conflicts could develop between power and nonpower boat users. Because the facility would be usable during the coho salmon run, fishing opportunities would be enhanced.	Toxic substances (hydrocarbons) emitted into the river by gasoline engines would be increased.	Development would be at a previously disturbed site.	Toxic substances would be emitted into the water. Conflicts could result between power and nonpower boaters.	Irretrievable
Removal of two liveries would improve the visual quality of the river. Livery services would continue to provide visitors with access to the river as well as supplies needed during their stays.		Part of the development would be constructed on a previously disturbed site.	Vegetation and wildlife would be removed.	Irretrievable

PLATTE PLANNING UNIT

				IMPACTS ON RESOURCES		
				VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
ALTER-NATIVES	ACTIONS	COSTS				
VISITOR FACILITIES	1	Cooperate with Benzie County in developing Crystal Highlands overlooks. [This action would take place outside the lake-shore boundary and would require legislation.]	Alt. 1--\$40,000	Approximately 6 acres of vegetation would be removed for parking.	About 6 acres of wildlife habitat would be removed.	
	1 and 2	Modify and improve Platte River campground by decreasing campsite density, and by adding group and walk-in sites.	Project is underway.	Saplings, shrubs, and ground cover in a 10-acre area (pine/oak/aspen forest) would be removed.	Individual species such as small mammals would be disturbed.	
RESOURCES MANAGEMENT	1, 2, and 3	Adaptively use an existing facility for district headquarters.	Alts. 1, 2, and 3--\$50,000			
	1, 2, and 3	Manage 2,925 acres of land as wilderness in areas T,U, and V.				Historic structures not listed on the National Register of Historic Places would be removed or allowed to deteriorate.
LAND ACQUISITION	2 and 3	Acquire 1,060 acres of land in area W.	Cost would be determined at time of acquisition.	More land with vegetation (primarily beech/maple forest) would be added to the lakeshore.	Wildlife habitat would be added to the lakeshore	
	3	Acquire private lands at a site along Platte River for constructing a new livery.	Cost would be determined at time of acquisition.			

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Opportunities to view the Crystal Highlands would be available to visitors without the acquisition of area W.			Vegetation and wildlife habitat would be removed.	Irretrievable
Decreased density would offer campers greater privacy and reduce conflicts between campers. Facilities would be available for group and walk-in campers.		Most of the development would occur within the existing campground.		
The natural setting of major portions of the unit would be enhanced. Visitors unable or unwilling to hike would not experience these portions of the unit.			Visitors unable or unwilling to hike would be prevented from experiencing the wilderness areas.	Irretrievable
Acquisition of the corridor lands would provide visitors with excellent views of the area.	Acquisition of the ridgetop would help to protect watersheds adjacent to the Crystal Highlands.	Any potential tax loss would be mitigated under provisions of Public Law 94-565.		

PLATTE PLANNING UNIT

IMPACTS ON RESOURCES

SUMMARY

ALTER-NATIVES	ACTIONS	COSTS	IMPACTS ON RESOURCES		
			VEGETATION	WILDLIFE	ARCHEOLOGIC AND HISTORIC RESOURCES
1, 2, and 3		Alt. 1--\$892,500 Alt. 2--\$1,890,000 Alt. 3--\$7,925,000	Under alternative 1, 6.9 acres would revegetate and 17.4 acres of vegetation would be removed. Under alternative 2, approximately 6.1 acres would revegetate, and 36.1 acres would be removed. Under alternative 3, approximately 6 acres would revegetate, and 48.3 acres would be removed. Under alternatives 2 and 3, the size of the lakeshore would be increased by 1,060 acres.	Wildlife habitat would be altered by the same amounts that vegetation was altered.	There would be no significant impacts on cultural resources.

VISITOR EXPERIENCE	OTHER	MITIGATIONS	UNAVOIDABLE ADVERSE IMPACTS	IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS
Under alternative 1, the primitive character of the unit would be emphasized, focusing on the river. Under alternative 2, there would be increased hiking and interpretive opportunities, as well as motorboat access to Loon Lake for fishing. Under alternative 3, visitors would be provided with the greatest range of recreational activities, including scenic driving in the Crystal Highlands. The Platte River would be available to all boaters. Under all alternatives, a new boat livery would be constructed at M-22 on the Platte River, and three others would be removed, improving the appearance of this area. Capacities (visitors at one time) would be as follows: Alt. 1--500 Alt. 2--650 Alt. 3--650	There would be cuts and fills as well as localized erosion associated with the major road construction.	Most of the development would occur on previously disturbed sites. Tax losses would be mitigated.	Vegetation and wildlife habitat would be removed. Under alternative 1, powerboaters would be denied access to the river.	Irretrievable

CONSULTATION AND COORDINATION

In November 1977, the planning team conducted public meetings in Beulah and Glen Arbor, Michigan, to identify public concerns and issues related to park management and use. During the same time, a meeting was held with local and state officials to find out their concerns. Representatives were present from the Leelanau County Planning Commission, Benzie County Planning Commission, Michigan State Parks, Michigan Department of State Highways and Transportation, and Northwest Michigan Regional Planning and Development Commission. In addition a meeting was held with the Sleeping Bear Dunes National Lakeshore Advisory Commission.

In November 1978, public workshops were held to gain input on the concepts and alternatives for visitor use of the national lakeshore. The workshops were held in Glen Arbor, Benzonia, Traverse City, and Lansing, Michigan. Also at that time, meetings were held separately with planners for Leelanau and Benzie counties, with the Northwest Michigan Regional Planning and Development Commission, and with the Michigan Department of Natural Resources.

During the course of the planning effort, the park staff contacted representatives of the U.S. Department of Defense about the U.S. Air Force base at Empire and its future use.

Individuals who have been contacted or consulted personally during the general management planning effort for Sleeping Bear Dunes include the following:

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staffs of the Denver Service Center. NPS [45]

As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, and parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

