

*DRAFT REVISED  
DEVELOPMENT CONCEPT PLAN  
and ENVIRONMENTAL ASSESSMENT  
for  
LITTLE SAND BAY*

*APOSTLE ISLANDS NATIONAL LAKESHORE*



United States Department of the Interior  
National Park Service

January 2002

## **TABLE OF CONTENTS**

### **INTRODUCTION/1**

### **PURPOSE OF AND NEED FOR ACTION/1**

### **PLANNING METHODOLOGY/5**

**Public Involvement/5**

**Coordination Requirements/5**

**Compliance Requirements/5**

### **PLANNING AND DESIGN CONSTRAINTS and CONSIDERATIONS/9**

**Planning and Design Constraints/9**

**Planning and Design Considerations/10**

### **PLANNING ALTERNATIVES FOR LITTLE SAND BAY/14**

**No Action Alternative/14**

**Alternative 1 – Use Existing Locations/16**

**Alternative 2 – Restore Cultural Landscape/19**

**Alternative 3 – Restore Cultural Landscape and Maximize Shoreline Protection  
(Park Preferred Alternative)/22**

**Alternatives Considered but Dismissed/26**

**Environmentally Preferable Alternative/26**

### **AFFECTED ENVIRONMENT/IMPACT ANALYSIS/27**

**General Description of the Environment/27**

**Existing Development/27**

### **IMPACT TOPICS SELECTED FOR ANALYSIS/28**

**Air Quality/28**

**Water Quality/29**

**Soils/30**

**Vegetation/31**

**Fish and Wildlife/34**

**Federally Listed Threatened and Endangered Species/36**

**State of Wisconsin Listed Threatened and Endangered Species/37**

**Floodplains/39**

**Wetlands/40**

**Cultural Resources/40**

**Visual Quality/45**

**Natural Quiet/46**

**Visitor Use/46**

### **IMPACT TOPICS SELECTED FOR ANALYSIS (continued)**

Socioeconomic/47  
Cumulative Impacts/48  
Unavoidable Adverse Effects/49

**IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES  
INCLUDING ENERGY RESOURCES/49**

**REFERENCES/52**

**APPENDIX A. Mammals of the Apostle Islands National Lakeshore/53**

**APPENDIX B. Breeding Birds of the Mainland Unit, Apostle Islands National  
Lakeshore/55**

**APPENDIX C. Reptiles and Amphibians of the Apostle Islands National Lakeshore/57**

**APPENDIX D. Fish of the Apostle Islands National Lakeshore/58**

**PLANNING TEAM AND CONSULTANTS/59**

**Tables**

**Table 1. Comparison of 1997 DCP and Current DCP/3**

**Table 2. Comparison of Alternatives/25**

**Table 3. Impact Comparison/50**

**Figures**

**Figure 1 Apostle Islands National Lakeshore and Little Sand Bay/4**

**Figure 2 Little Sand Bay Visitor Center (former Herman Johnson Store)/7**

**Figure 3 Roy and Irene Hokenson House/7**

**Figure 4 Nelson Cabin/8**

**Figure 5 Hokenson Fishery and Dock/8**

**Figure 6 Existing Conditions/15**

**Figure 7 Alternative 1/18**

**Figure 8 Alternative 2/21**

**Figure 9 Alternative 3/24**

## ***INTRODUCTION***

Apostle Islands National Lakeshore includes 21 of 22 islands within the Apostle Islands archipelago and a 13 mile long stretch of shoreline on the northwest side of the Bayfield Peninsula in northern Wisconsin. The lakeshore includes a rich assemblage of natural and cultural resources. Little Sand Bay is located on the northwest corner of the Bayfield Peninsula (Figure 1). A **General Management Plan (GMP)** for Apostle Islands National Lakeshore was completed in 1989. It outlines the National Park Service's (NPS) broad strategies to preserve the natural and cultural values that make the lakeshore significant, while providing for visitor access and recreation opportunities. The reader should refer to that document for a more complete description of the park and its resources.

## ***PURPOSE OF AND NEED FOR ACTION***

The purpose of this plan is to provide a specific Development Concept for implementing the general recommendations for Little Sand Bay as presented in the park's 1989 **General Management Plan**. This *Revised Development Concept Plan/Environmental Assessment for Little Sand Bay (DCP/EA)* updates the 1997 DCP/EA. It provides detailed guidance to the park and to the NPS's Denver Service Center's planning staff for enhancing and/or relocating the park's Little Sand Bay operations and related facilities. In addition, direction regarding the further consolidation of other park functions, such as collection management and curatorial space, visitor orientation and services, maintenance functions and interpretation is presented and incorporated into the *DCP/EA*, as appropriate.

Little Sand Bay is the major mainland activity and operational center for the Apostle Islands National Lakeshore (Figure 1). In 1989, a **General Management Plan** was approved for the Apostle Islands National Lakeshore. This document prescribed certain improvements for the Little Sand Bay area. Creation of a Development Concept Plan to guide implementation of development recommendations for Little Sand Bay, as prescribed in this **GMP**, was developed (1997). Since that time, a number of changes have occurred that necessitate an updated *DCP/EA*. These changes include: operational needs for curatorial storage, emergency operations, and maintenance; employee housing; location of comfort station; location and size of septic field; utility loading related to operational structures and visitor use; and revisions to DO-12 (NEPA compliance). See Table 1 for a comparison of the 1997 DCP/EA with the current DCP/EA.

A portion of the development outlined in the 1997 *DCP/EA* has been completed. Completed projects include: roadway alignment, removal of a non-historic building, and completion of a parking lot. What remains and will be focused on in this *DCP/EA* are the following major issues:

1. The replacement of existing substandard seasonal employee housing. Current housing units are converted summer cabins and are not energy efficient, are costly to repair, and do not meet National Park Service (NPS) or USPHS standards for employee living quarters;
2. The relocation of structures impacting the historic Hokenson Brothers Fishery, a

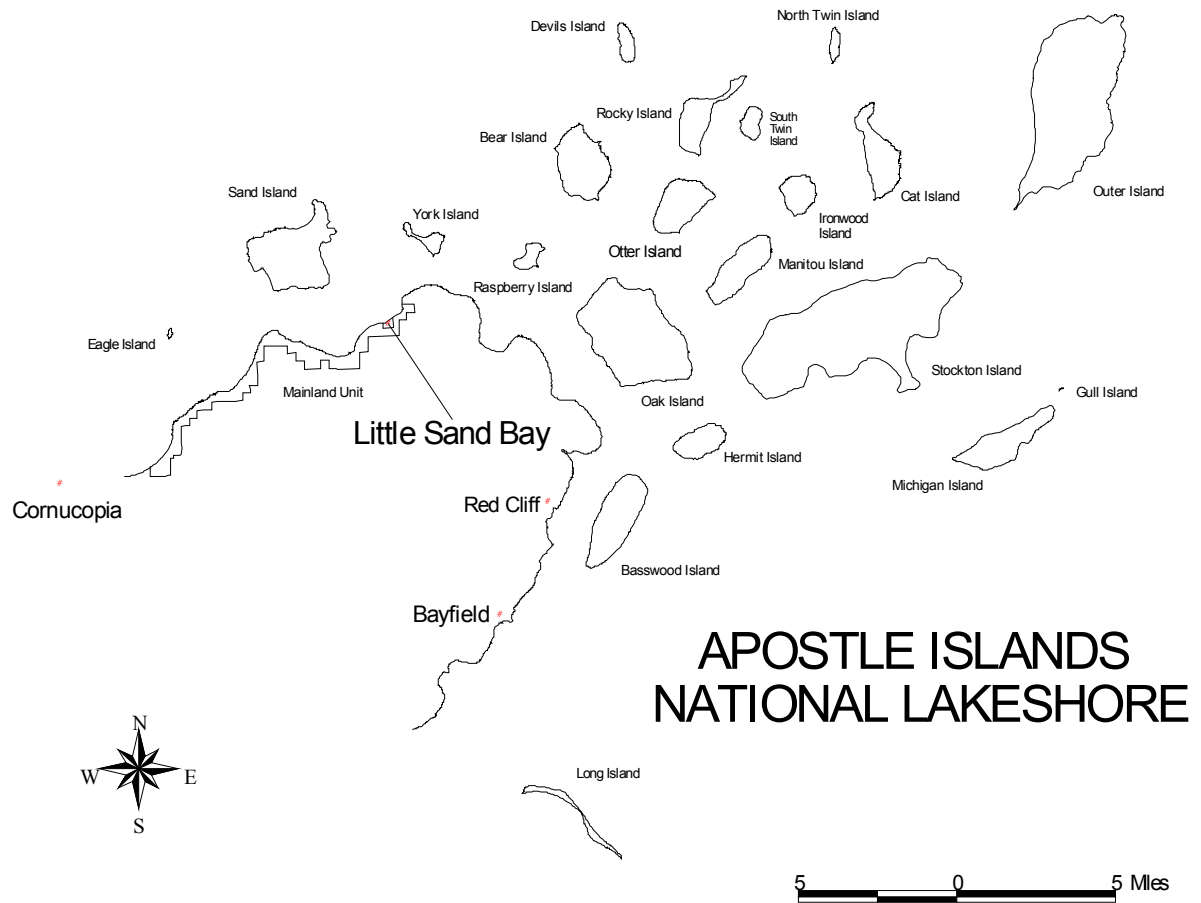
property listed on the National Register of Historic Places;

3. The design for park operations and facilities at Little Sand Bay must accommodate multiple user groups, including motorboaters, kayakers, family campers, and day-users;
4. The Park Development Zone at Little Sand Bay is the only major visitor contact and operational area on the Mainland Unit of the lakeshore and must accommodate the park operation functions of visitor center, office space, employee housing, storage and conservation of museum collections (the existing system does not provide for proper artifact storage or conservation), maintenance, and fire/rescue cache;
5. The utility systems that service the park's Little Sand Bay Development Zone are substandard and overtaxed. Sanitary systems are leaking, power outages and circuit overloads are frequent, fire suppression equipment is stored in a degraded garage, and water systems are shallow and turbid. Through the *DCP/EA* planning process, the National Park Service (NPS) must determine how best to upgrade them.
6. The current facilities are not accessible to people with disabilities.

**Table 1. Comparison of 1997 DCP and Current DCP**

	<i><b>1997 DCP</b></i>	<i><b>2001 DCP</b></i>
Comfort Station	Built on NPS land	Built on NPS w/nearby Township shower facility
Old Fire Cache	Removed	Removed
Emergency Operations Facility (replaces Fire Cache)	Approx. 1000 ft <sup>2</sup>	Approx. 4200 ft <sup>2</sup>
Old Curatorial Storage	Removed	Removed
New Curatorial Storage	Approx. 1200 ft <sup>2</sup>	Approx. 3000 ft <sup>2</sup>
Old Maintenance Bldgs.	Removed	Removed
New Maintenance and Storage Bldg.	Approx. 1500 ft <sup>2</sup>	Approx. 1200 ft <sup>2</sup>
Unheated Storage	Approx. 1000 ft <sup>2</sup>	Approx. 3400 ft <sup>2</sup>
Outside Storage	Approx. 10,000 ft <sup>2</sup>	Approx. 10,000 ft <sup>2</sup>
Small Parking Area	Not specified	10-15 cars
Permanent Housing	2 units	1 unit
Old Seasonal Housing	Removed	Removed
New Seasonal Housing	Two 4-6 apt. units	Two 6 apt. units
Picnic Area	Expanded to 4-6 tables	Expanded to 4-6 tables
Visitor Contact Station (VC)	Renovated	Replaced with 2,500 ft <sup>2</sup> building if current VC is not found historically significant.
Wastewater Treatment	On-site treatment	On-site treatment
Water System	New storage tank	Two wells with small storage tank buildings

**Figure 1 - Apostle Islands N.L. & Little Sand Bay**



## ***PLANNING METHODOLOGY***

During development of the 1997 *DCP/EA* a planning team analyzed current park operations and facilities at Little Sand Bay in light of the recommendations in the 1989 **GMP** for the area. Since that time, park needs have changed, necessitating an update of the *DCP/EA*. A new analysis was conducted and from this analysis, draft planning alternatives for improving the arrangement of park infrastructure and overall operational efficiency at the site were developed in order to achieve the park's operational functions for this area as prescribed in the **GMP**. This *DCP/EA* analyzes three action alternatives, as well as the no action (continuation of current management) alternative.

### **Public Involvement**

The National Park Service will conduct public/agency meetings or workshops, as appropriate, to inform the public of ongoing NPS progress on the *Development Concept Plan/Environmental Assessment* for Little Sand Bay and to receive public comments regarding the plan.

The NPS planning team has continued to maintain communications with all interested and applicable parties regarding the development of the *DCP/EA*, especially the representatives and people from the Town of Russell and the Red Cliff Band of the Lake Superior Chippewa, but also local newspapers, organizations, private interest groups, government agencies, and others, as appropriate.

### **Coordination Requirements**

The planning Team Captain and the Superintendent of the Apostle Islands National Lakeshore have coordinated all efforts with various federal, state, local/regional entities and private interest groups (e.g., representatives of the Town of Russell, the Red Cliff Band of the Lake Superior Chippewa, U.S. Fish and Wildlife Service), as appropriate. The park's Cultural Resource Management Specialist is working with the NPS' MWAC in Lincoln, Nebraska and SHPO to coordinate Section 106 concerns and compliance. Both the Town of Russell and the Red Cliff Band received copies of the Draft *DCP/EA* for early review and input.

### **Compliance Requirements**

The *DCP/EA* analyzed several alternatives for more efficient and effective park operations and related facilities for the Little Sand Bay Development Zone. Since the *Development Concept Plan* proposes actions which may have an impact on the environment, an *Environmental Assessment (EA)* has been prepared to address all compliance issues, analyze alternatives and assess the possible impacts of these proposed actions, and prescribe mitigation measures, if necessary. If, after reviewing the *EA* and comments resulting from the public review process, the Regional Director concludes that implementation of the plan's preferred alternative would result in significant impacts to the environment, an *Environmental Impact Statement (EIS)* would be prepared. If not, a *Finding of No Significant Impact (FONSI)* would be prepared. Upon approval of the final *FONSI* or *EIS*, a final *DCP/EA* for Little Sand Bay would be printed. The following requirements and procedures have guided compliance actions for this project:



1. Since it is always possible that the plan's proposals may affect species listed as endangered or threatened, potential impacts are documented/analyzed in the *EA*. The park has consulted with the U.S. Fish and Wildlife Service and has completed the Section 7 consultation process for endangered or threatened species with the USFWS (DNR 2001). The park is also consulting with the Wisconsin Department of Natural Resources (WDNR) regarding State listed species.
2. Because of the historic nature and significance of certain structures associated with Little Sand Bay (the visitor center in the Herman Johnson store (Figure 2), the Roy and Irene Hokenson residence (Figure 3), the Nelson Cabin (Figure 4) and the listing of the Hokenson Fishery (Figure 5) on the National Register of Historic Places, the park will solicit comments from the SHPO and the Advisory Council on Historic Preservation (ACHP) regarding the development of the *DCP/EA* and its revisions pursuant to the 1995 Programmatic Agreement and the Advisory Council's regulations for Section 106 compliance (36 CFR 800). All formal reviews will be requested by the park. The park will consult with the SHPO and the ACHP as necessary during the preparation of this document in compliance with the 1995 Programmatic Agreement among the National Park Service, National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation. There may be additional and as yet unidentified historic properties, including archeological sites, that may meet the criteria for the National Register of Historic Places.
3. Alternatives will be evaluated for a full range of possible impacts on the natural, cultural, and socioeconomic environments, as appropriate to this particular project's parameters and location. These include (but are not limited to) both federal and state-listed threatened or endangered species, floodplains, wetlands, the coastal zone, vegetation, and soils. Cultural resource analyses include (but are not limited to) aesthetic factors, archeological factors, National Register of Historic Places sites, National Historic Landmarks, economic factors, and social factors. Stipulations will be made that an evaluative archeological investigation will need to be completed prior to any future construction actions. It will also provide for the preliminary identification and assessment of any archeological resources on proposed development areas in concert with the Wisconsin SHPO.

**Figure 2. Little Sand Bay Visitor Center (former Johnson Store)**



**Figure 3. Roy and Irene Hokenson House**



**Figure 4. Nelson Cabin**



**Figure 5. Hokenson Fishery and Dock**



## ***PLANNING AND DESIGN CONSTRAINTS and CONSIDERATIONS***

The NPS's *DCP/EA* planning team analyzed current park operations and facilities at Little Sand Bay in light of the recommendations in the 1989 **GMP** and 1997 *DCP/EA*. From this analysis, draft planning alternatives for accommodating park needs were developed.

### **Planning and Design Constraints**

The NPS planning effort had to operate under several constraints during the Little Sand Bay planning process. These constraints were identified through discussions with the park superintendent and staff, representatives of potentially affected or interested parties, by virtue of compliance requirements at local, state, and federal levels and by direction of the park's **GMP**. These constraints are as follows:

1. Included within the development zone are 11.6 acres owned by the Town of Russell. A campground, ballfield, boat launching ramp, and parking area are located on this tract. Close coordination and consultation with the Town shall be done to insure that their concerns are addressed.
2. Little Sand Bay's Development Zone is 80 acres. To the maximum extent possible, ground disturbances would be localized and restricted to what is necessary to accommodate certain developments.
3. Existing roads and roadbeds in the area are the property of the Town of Russell and cannot be moved without the concurrence of the Township.
4. Sensitive environmental features located within or adjacent to the planning area include a small dune/lagoon/wetland complex east of the dock and Township ball field and ravines to the south of the development area that provide habitat for rare plants, including the State threatened broad-lipped twayblade (*Listera convallarioides*) and some of the only old-growth hemlocks and hardwoods remaining in the area.
5. Development along the shoreline of Lake Superior needs to be minimized to reduce visual intrusion and sedimentation into the lake.
6. There are certain site features that cannot be moved from their present locations, including the Hokenson Fishery and its associated structures, the marina, piers and docks, and the nearby Nelson cabin. As a result of the public reviews of the Draft DCP (1997), and based on comments received from the SHPO, this DCP stipulates that prior to any major NPS development or future construction actions that require ground disturbance at Little Sand Bay, an evaluative archeological investigation and survey would need to be completed by the NPS. This investigation and survey, which would be conducted in those areas scheduled for development as early in the design process as possible, would also provide for the preliminary identification and

assessment of any archeological resources on proposed development areas in concert with the Wisconsin SHPO. In addition, the NPS has agreed to submit Determinations of Eligibility (DOEs) for the Roy and Irene Hokenson house, the Nelson log cabin, and the Little Sand Bay Visitor Contact Station (former Herman Johnson store). Preliminary discussions with representatives of the SHPO have indicated that the first three of these will likely be held significant, while the Contact Station appears ineligible.

7. Physical constraints on development, such as soil or slope limitations and various lake-related factors, must be identified and incorporated into all DCP-related development designs.
8. Archeological and cultural resource constraints must be identified and incorporated into future development proposals. Ground disturbances would be localized and restricted to what is necessary to accommodate certain developments. In addition to these controls, this *DCP/EA* stipulates that prior to any major NPS development or future construction actions that require ground disturbance at Little Sand Bay, an evaluative archeological investigation and survey would need to be completed by the NPS.
9. Design and construction guidelines must consider weather constraints, seasonal visitor and park use variations, and a phased schedule for practical and efficient implementation.
10. Water and sewage facilities must meet or exceed State of Wisconsin's requirements.

### **Planning and Design Considerations**

Park and visitor functions and needs were assessed and design considerations were established based upon the identified planning and design constraints above and recommendations of the park's **GMP** and staff. These parameters comply with the recommendations and spirit of the park's current **GMP**. They should also promote more efficient and effective park operations for Little Sand Bay and ensure local, state and national codes are met.

#### **Comfort Station:**

Currently the only bathrooms available to park visitors in the Little Sand Bay area are located within the NPS Visitor Center. Many times during high visitor use, the bathrooms at Little Sand Bay cannot accommodate need. Also, they are only available during Visitor Center hours. In evenings and mornings, the NPS Visitor Center is locked. The present NPS Visitor Center wastewater system drainfield is old, is not designed to meet present loading, and needs replacement. The new facility will be tied into a newly designed wastewater system that will also serve other facilities.

Outhouses available for camper's use at the Russell Township Campground do not meet the Americans with Disabilities Act and are not fully accessible to ADA campers. These outhouses are



some distance from the NPS Visitor Center and parking lot and there is no ADA walkway access to reach them.

The comfort station is needed to reduce overcrowding of current facilities and to accommodate visitors during hours when the Visitor Center is closed. The facility would provide men's and women's restrooms with sinks and flush toilets and be designed to meet ADA requirements. The Town of Russell is planning to build a shower facility for users of their campground, as well as the general public, on their adjacent property. The Town also plans to build a Recreational Vehicle (RV) dump station. The shower facility and dump station would hook into the NPS utility system (e.g., *waste* water treatment).

### **Emergency Operations Facility:**

The existing facilities at Little Sand Bay consist of seasonal and temporary buildings that were acquired through land acquisition processes in the 1970s. The structures are of marginal quality and construction and have been highly modified or adapted over the years as the park has moved from initial stages of development into long term management practices.

The ability of the park to maintain adequate emergency response capabilities involving Fire, Search and Rescue, Law Enforcement and Emergency Medical services are seriously compromised due to the use of inadequate and outdated facilities. Problems are compounded by poor location, outside lighting, lack of office and work space, storage areas, parking, vehicle access and physical security. Due to space limitations, facilities must be shared among several park operations.

The lack of a central facility means critical tools, equipment and supplies must be stored at several locations, where they are vulnerable to misuse, damage and theft. Emergency response vehicles, boats and snowmobiles often must be parked outdoors, exposed to acts of tampering, vandalism and harsh environmental conditions. Fire pumps often must be drained and winterized during parts of the fire season. Employee safety and security are negatively impacted due to inadequate workspace, services and utilities.

It is critical for the park to consolidate emergency response operations into a strategically located facility. This would be accomplished with a 4,200 square foot building where vehicles, supplies and equipment would be kept in a constant state of readiness. It would be equipped with radio communications, computer access and alarm (security) system. Adequate storage, office and workspace will increase security and protection. It will also provide immediate access and reduce response time for the protection of park visitors, facilities and resources.

### **Curatorial Storage:**

The current curatorial storage building is not suitable for collection storage due to its construction, location, and utilities. The Museum Checklist for Preservation and Protection (MCPPE) notes numerous deficiencies. The building has only one exit; it is insufficiently insulated; the basement is damp and mildewed and has been known to flood; squirrels access the building through the roof, snakes through the walls, and flies through the window cracks. There is no HVAC (heating,

ventilation, and air conditioning) system; climate control is incompletely maintained by use of a residential dehumidifier, a floor heater on one side, and a residential window air-conditioner. There is inadequate workspace to catalog objects, perform record management and preservation tasks, and to store equipment. There is no fire suppression system. A museum professional has examined the collection and the site and is currently working on a Collection Storage Plan that will include specifications for a new building. An enlarged building with an appropriately controlled climate would meet the park's curatorial needs (approx. 3,000 ft<sup>2</sup>).

### **Maintenance & Storage:**

The present space available to perform maintenance is a small section in the current fire cache. This maintenance area is not adequate to house tools, equipment and materials, including chemicals, paints and fuels that are used at the Little Sand Bay complex and Meyer's Beach. The present work area's electrical system is inadequate to meet work needs, is unsafe and does not meet NEC (National Electric Code). New maintenance facility would provide needed storage space, as well as a safe usable work space (approx. 1,500 ft<sup>2</sup>) for maintenance employees assigned to work at the Little Sand Bay area.

### **Unheated Storage:**

There is currently a small unheated storage building to the south of Shaft Street with a sand floor. This building would be replaced with a larger facility (approx. 3,400 ft<sup>2</sup>) to house off season equipment, boats, vehicles, tractors, mowers and a variety of maintenance items, which must be protected from the elements and secured. With approximately a five foot average snowfall per year, it is imperative that powered and trailered equipment be stored inside. This inside storage also provides additional workspace for the park's marine mechanic if several large boats or equipment need repair. The new building needs to be approximately 40 feet deep to properly store boats on trailers. The present structure has a sugar sand floor and causes extra work on employees to move equipment and materials. The current building's electrical system is inadequate and does not meet the National Electrical Code (NEC).

### **Outside Storage:**

There is currently outside storage to the south of Shaft Street on a multi sloped sand hillside. This area is used to store equipment and materials used in the operations at the LSB complex. The present area is not properly sloped or drained and cannot be secured from theft or possible injury to children that may walk and play in the area. The new storage area would allow for proper layout of stored items, providing more efficient access. The outside storage area would be enlarged to approximately 10,000 ft<sup>2</sup> and fenced to meet park needs.

**Parking:**

Parking would be needed for 10-15 vehicles for employees/visitors using the emergency operations facility and curatorial storage areas. Parking would also be needed at the maintenance facility and new housing area.

**Permanent Housing:**

One 3-bedroom house with a two-stall garage may be built for the permanent employee and family required to live at the site for the protection of facilities and park visitors. This employee is currently living in the historic Hokenson house.

**Picnic Area:**

A small picnic facility that can accommodate approximately 4-6 tables should be developed.

**Seasonal Housing:**

The present housing units are single family dwellings that have been adapted for use as seasonal dorms. They are too small for the amount of employees housed. The electrical systems are old and do not meet the National Electrical Code (NEC), plumbing systems are aged and do not meet the plumbing code, and building ventilation does not meet building codes. The housing units are not adequately built or insulated and are energy inefficient. The current housing was originally built for use as summer cabins, however, they are being used from 9-12 months per year, depending on staff needs. Due to severe heat loss, especially in the garage area that was converted to two bedrooms, severe ice damming and water leaks form in the winter months. Many of the windows do not meet good energy efficient standards and some do not open properly, preventing adequate ventilation during the summer months. The present paved driveways to both housing units have heaved and do not provide a safe walking surface for employees. The garage to one unit has a heaved floor. To accommodate current needs, two small apartment buildings would be built. This housing would also provide short-term housing needs for researchers and cooperators. Each building would have 6 two-bedroom apartment units (approx. 500 ft<sup>2</sup> each). Shared laundry facilities would be provided at each building.

**Visitor Contact Station:**

The existing Visitor Contact Station was formerly a commercial building that was adapted for reuse. Some modifications and refurbishing have been made, however, there continues to be insufficient office, storage and exhibit space. The structure has deteriorated due to water damage and age. Although the roof was replaced within the last three years, it still leaks in low/no pitch areas during the winter months due to the design of the structure. In addition, the current sewage system does not adequately meet park and visitor needs. The Visitor Contact Station is poorly ventilated and is hot in the summer. There is a pest management problem with mice and cluster flies throughout the building. A Determination of Eligibility has been prepared for this structure; if it is not found to be historically significant, the building will be replaced with a slightly expanded new visitors center



(approx. 2500 ft<sup>2</sup>) in the same location. If the structure is determined eligible for the National Register of Historic Places, it would be adapted to serve visitor contact functions more effectively.

### **Wastewater Treatment:**

This plan proposes an on-site treatment approach using septic systems (mound type systems) rather than a treatment plant. Further study is needed in order to make certain that such an approach is the most appropriate and feasible for this development. If soils are found to be adequate, the portion of the road bed that was abandoned when the road was realigned in 2000 would be utilized for a septic system. If soils are not found to be adequate, an alternate site would be needed. This alternative site may be towards the west end of Shaft Street on the south side.

### **Water System:**

A central gravity or pressure system would be constructed which would provide sufficient pressure for fire hydrants and suppression systems. The main lines would follow the existing and proposed roads to the extent possible. Lateral lines would be placed as needed (NOTE: Existing wells and septic systems that are abandoned due to the development of new facilities would be capped or removed in accordance with all state and federal requirements). Two wells and associated well houses would be needed, one for domestic water, and the other for fire suppression. Although present water systems in all housing units at Little Sand Bay and the NPS Visitor Center meet regular safe water tests, none of these water systems meet local, state, or federal safe water code. The Public Health Service (PHS) has informed the NPS of the need to upgrade our water systems to insure safe drinking water for the visiting public and our employees.

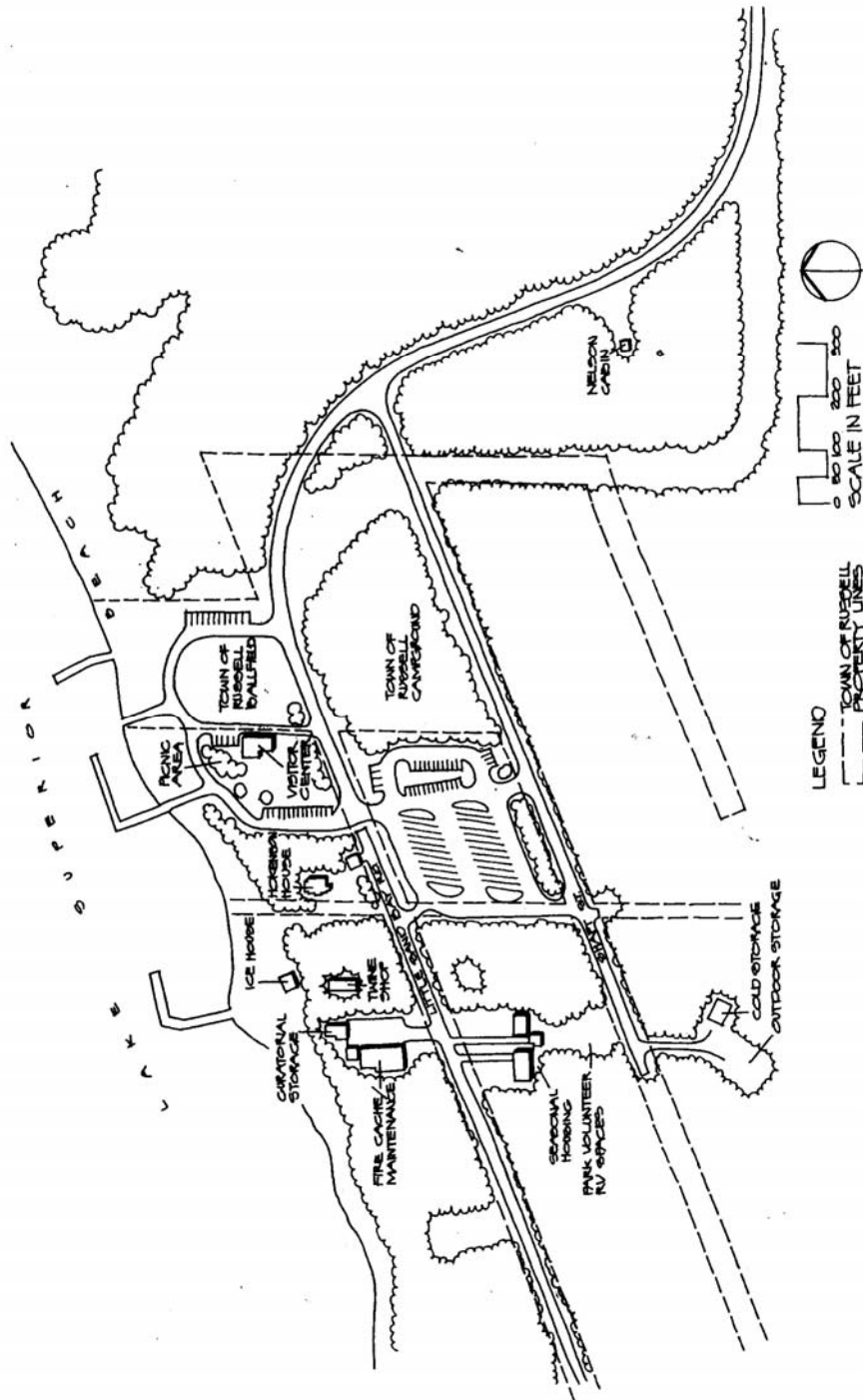
## ***PLANNING ALTERNATIVES FOR LITTLE SAND BAY***

Four alternatives will be analyzed in this *DCP/EA* - No Action (or continuation of current management); Alternative 1 – Use Existing Locations; Alternative 2 – Restore Cultural Landscape; Alternative 3 – Restore Cultural Landscape and Maximize Shoreline Protection. Each alternative represents a different level of treatment for the area, ranging from no additional development to more comprehensive redevelopment. The alternatives, in turn, also represent a range in amounts of new disturbance, expansion of disturbance in impacted areas, and protection of the cultural landscape. Details of these alternatives are discussed below.

### **No Action Alternative**

This planning alternative would continue the present operation and management of the Little Sand Bay area (Figure 6). The existing unchanged facilities would continue to serve both park visitors and people associated with the Town of Russell to the greatest extent possible. Minor routine maintenance on these facilities would be necessary over time in order to continue the existing level of service.

Figure 6. Existing Conditions.



DRAFT  
 EXISTING CONDITIONS  
 LITTLE SAND BAY DCP/EA  
 APOSTLE ISLANDS NATIONAL LAKESHORE  
 DEC AUGUST 2001

### **Alternative 1 - Use Existing Locations**

This planning alternative (Figure 7) maximizes, to the extent possible, replacing similar facilities in the same location where they currently exist. Although the area of disturbance within already impacted areas is increased, this alternative minimizes new natural resource related disturbance. It fails, however, to remove non-historic buildings that currently intrude on the Hokenson Fishery cultural landscape and allows construction of structures along the shoreline, impacting the lake viewshed.

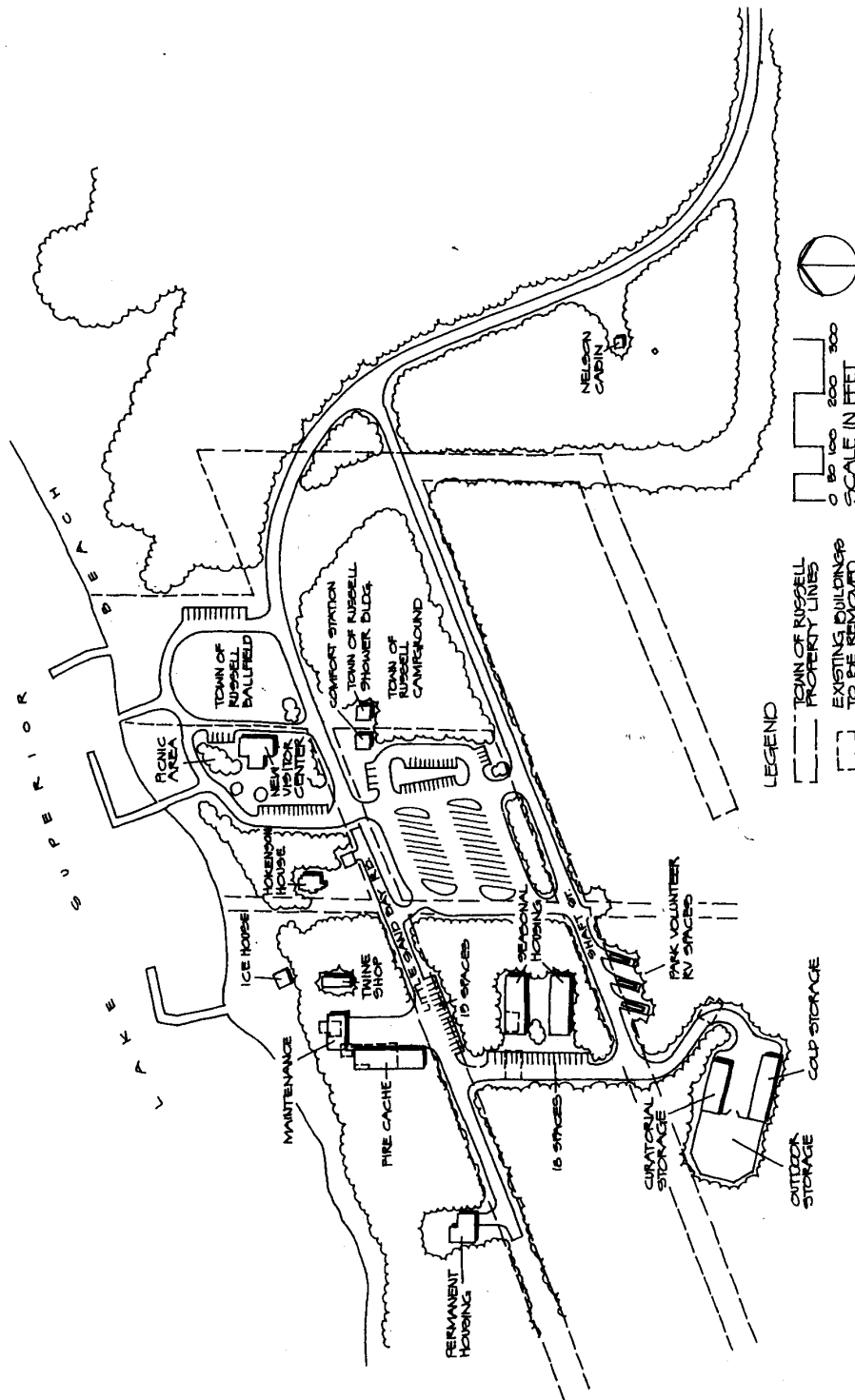
This planning alternative includes the following:

- A **COMFORT STATION** would be built on park property between the proposed parking area and the Town of Russell campground.
- A **SHOWER FACILITY** would be built by the Town of Russell on their adjacent property near the Comfort Station and would be hooked into the NPS utilities system.
- The current **FIRE CACHE** would be replaced in the same location with an **EMERGENCY OPERATIONS FACILITY**.
- A **MAINTENANCE BUILDING** (currently within the Fire Cache) would be built in the area of the current Fire Cache.
- The **MAINTENANCE COLD STORAGE AREA** would be replaced in the same general location **but** the area would be reconfigured.
- The **CURATORIAL STORAGE BUILDING** would be expanded and relocated in the area of the current maintenance cold storage shed.
- The **VISITOR CENTER** would be replaced with a larger building that would better fit park needs if the current Visitors Center is not found to be historically significant.
- The **EXISTING RV SITES** would be moved to the south of their current location.
- The **EXISTING PICNIC AREA** between the visitor contact station and the NPS dock would be further developed.
- The **EXISTING SEASONAL HOUSING** would be removed due to its poor condition and inadequate size. **NEW MULTI-UNIT HOUSES** would be built in the same area as the current seasonal housing.
- One **PERMANENT HOUSING UNIT** would be built in an already disturbed area

(current fire cache) west of the current fire cache.

- A ***NEW WATER STORAGE TANK*** would be located in the area of the existing maintenance pole shed.
- A ***SEPTIC SYSTEM*** would be placed in the old roadbed (the portion of the road that was abandoned due to road realignment) if soils are suitable or between Shaft Street and the maintenance cold storage building.
- An ***OUTDOOR STORAGE AREA*** would be somewhat enlarged (approx. 10,000 ft<sup>2</sup>) and remain in its current location.

**Figure 7. Alternative 1**



DRAFT  
**ALTERNATIVE 1 - USE EXISTING LOCATIONS**  
**LITTLE SAND BAY DCP/EA**  
 APOSTLE ISLANDS NATIONAL LAKE SHORE  
 DEC AUGUST 2001

Alternative 2 - Restore Cultural Landscape

This planning alternative removes the non-historic buildings from the cultural landscape, but retains a permanent residence on the lakeside of Little Sand Bay Road. New disturbance is needed to accommodate seasonal housing and the Volunteer RV sites. See Figure 8.

**The following is shared between Alternatives 1 and 2:**

- A **COMFORT STATION** would be built on park property between the parking area and the Town of Russell campground.
- A **SHOWER FACILITY** would be built by the Town of Russell on their adjacent property near the comfort station and would be hooked into the NPS utilities system.
- The **MAINTENANCE COLD STORAGE AREA** would be replaced in the same general location **but** the area would be reconfigured.
- The **VISITOR CENTER** would be replaced with a larger building that would better fit park needs if the current Visitors Center is found not to be historically significant.
- The **EXISTING PICNIC AREA** between the visitor contact station and the NPS dock would be further developed.
- One **PERMANENT HOUSING UNIT** would be built in a cleared area adjacent to the shoreline (old fire cache) west of the current fire cache.
- A **NEW WATER STORAGE TANK** would be located in the area of the existing maintenance pole shed.
- A **SEPTIC SYSTEM** would be placed in the old road bed (the portion of the road that was abandoned due to road realignment) if soils are suitable or between Shaft Street and the maintenance cold storage building.
- An **OUTDOOR STORAGE AREA** would be somewhat enlarged and remain in its current location.

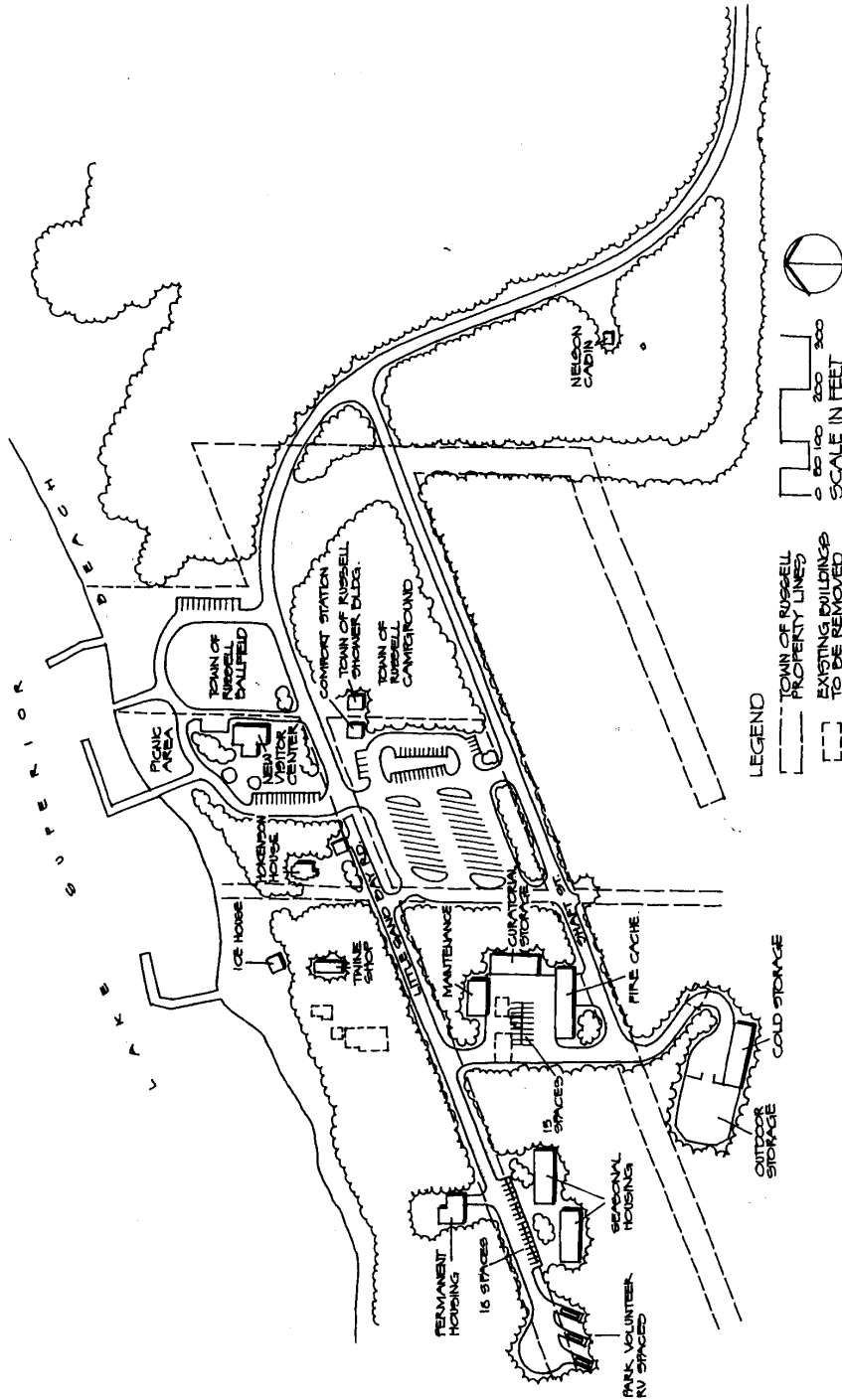
**Alternative 2 differs from Alternative 1 in the following ways:**

- The current **FIRE CACHE** would be expanded and rebuilt as an **EMERGENCY OPERATIONS FACILITY** in the area of the current seasonal quarters.
- A **MAINTENANCE BUILDING** (currently within the Fire Cache) would be built in the area of the current seasonal quarters.

- The ***CURATORIAL STORAGE BUILDING*** would be replaced and relocated in the area of the current seasonal quarters.
- The ***EXISTING RV SITES*** would be moved to the west of the current seasonal quarters in a currently forested area.
- The ***EXISTING SEASONAL HOUSING*** would be removed due to its poor condition and inadequate size. ***NEW MULTI-UNIT HOUSES*** would be built west of the current seasonal quarters in a currently forested area. Parking for 18 vehicles would be built to accommodate seasonal employee parking needs.



Figure 8. Alternative 2



DRAFT  
 ALTERNATIVE 2 - RESTORE CULTURAL LANDSCAPE  
 LITTLE SAND BAY DCP/EA  
 APACHE ISLANDS NATIONAL LAKESHORE  
 DSC AUGUST 2001

### **Alternative 3 - Restore Cultural Landscape and Maximize Shoreline Protection**

This planning alternative provides the maximum protection to the lakeshore and cultural landscape. It removes non-historic buildings from the cultural landscape and keeps all development, except for the Visitors Center, on the landward side of Little Sand Bay Road. New natural resource related disturbance is needed to accommodate seasonal and permanent housing and the Volunteer RV sites. This is the park's Preferred Alternative. See Figure 9.

#### **The following is shared between Alternatives 1, 2, and 3:**

- A **COMFORT STATION** would be built on park property between the parking area and the Town of Russell campground;
- A **SHOWER FACILITY** would be built by the Town of Russell on their adjacent property near the comfort station and would be hooked into the NPS utilities system;
- The **MAINTENANCE COLD STORAGE AREA** would be replaced in the same general location **but** the area would be reconfigured.
- The **VISITOR CENTER** would be replaced with a larger building that would better fit park needs if the current Visitors Center is found not to be historically significant.
- The **EXISTING PICNIC AREA** between the visitor contact station and the NPS dock would be further developed.
- A **NEW WATER STORAGE TANK** would be located in the area of the existing maintenance pole shed.
- A **SEPTIC SYSTEM** would be placed in the old road bed (the portion of the road that was abandoned due to road realignment) if soils are suitable, or between Shaft Street and the maintenance cold storage building.
- An **OUTDOOR STORAGE AREA** would be somewhat enlarged (approx. 10,000 ft<sup>2</sup>) and remain in its current location.

#### **The Following is Shared Between Alternative 3 and Alternative 2:**

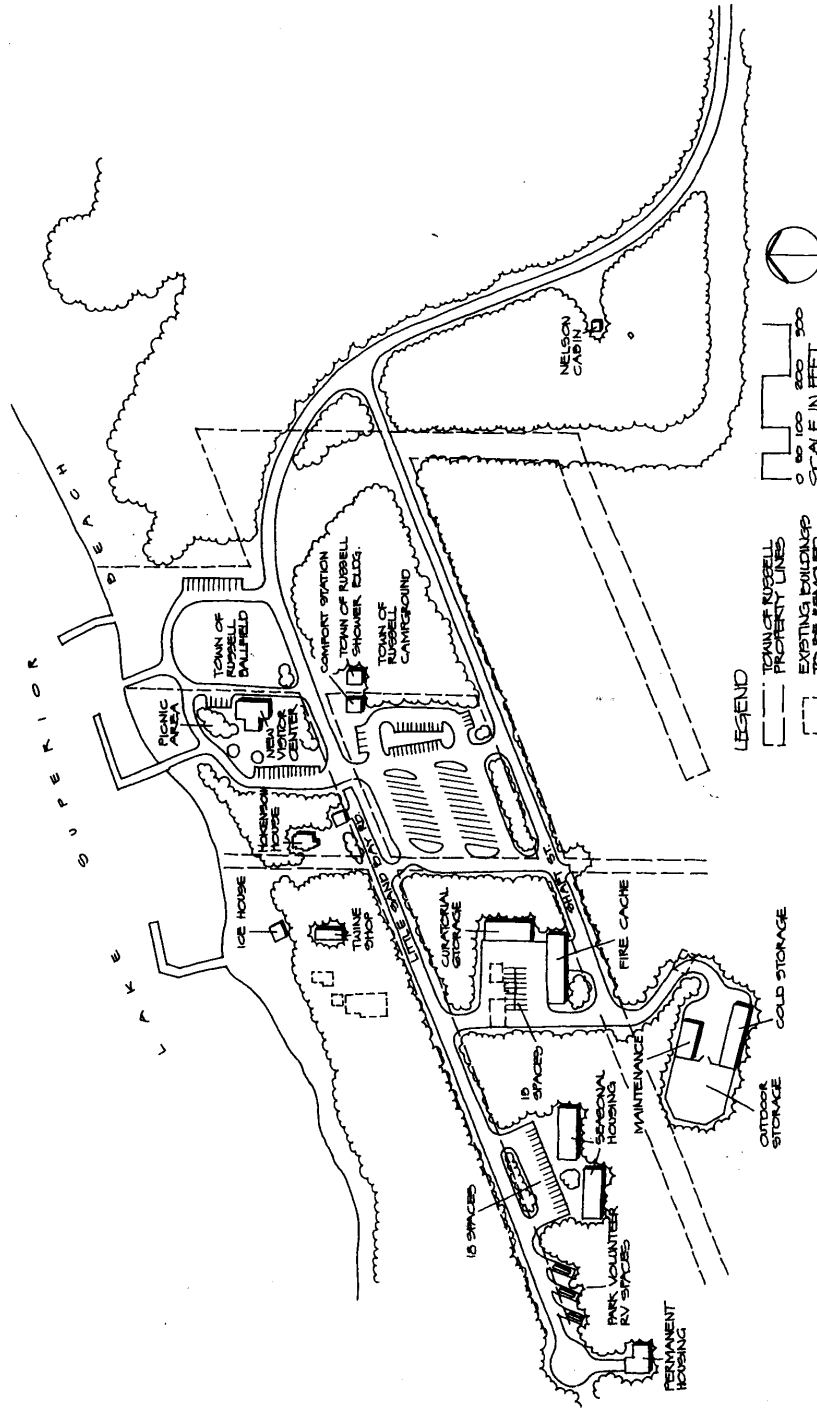
- The current **FIRE CACHE** would be expanded and rebuilt as an **EMERGENCY OPERATIONS FACILITY** in the area of the current the seasonal quarters.
- The **CURATORIAL STORAGE BUILDING** would be replaced and relocated in the area of the current seasonal quarters.
- The **EXISTING RV SITES** would be moved to the west of the current seasonal quarters

in a currently forested area.

**The Following is How Alternatives 3 and 2 Differ:**

- A ***MAINTENANCE BUILDING*** (currently within the Fire Cache) would be built in the area of the current cold storage building.
- The ***EXISTING SEASONAL HOUSING*** would be removed due to its poor condition and inadequate size. ***NEW MULTI-UNIT HOUSES*** would be built west of the current seasonal quarters in a currently forested area. Parking for 18 vehicles would be built to accommodate seasonal employee parking needs. This differs from Alternative 2 in that the actual parking area would be separated from the roadway by an “island”, improving ease of maintenance, but creating more new disturbance.
- One ***PERMANENT HOUSING UNIT*** would be built to the west of the proposed seasonal housing and RV sites.
- The existing clearing at the site of the old fire cache would be restored.

Figure 9 - Alternative 3



DRAFT  
 ALTERNATIVE 3 - RESTORE CULTURAL LANDSCAPE  
 & MAXIMIZE SHORELINE PROTECTION  
 LITTLE SAND BAY DCP/EA  
 APOSTLE ISLANDS NATIONAL LAKESHORE  
 DEC AUGUST 2001

**Table 2. Comparison of Alternatives**

	<i>No Action</i>	<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>
Comfort Station	Not built	Built on NPS land w/adjacent Township shower facility	Built on NPS land w/adjacent Township shower facility	Built on NPS land w/adjacent Township shower facility
Current Fire Cache	No change	Replaced	Removed	Removed
Emergency Operations Facility	Not built	Built in same location.	Built in location of existing seasonal housing	Built in location of existing seasonal housing
Old Museum Storage	No change	Removed	Removed	Removed
Curatorial Storage	Not built	Built near existing cold storage bldg.	Build in location of existing seasonal housing	Build in location of existing seasonal housing
Old Maintenance Bldg.	No change	Removed	Removed	Removed
New Maintenance Bldg.	Not built	Built in same location as existing curatorial storage	Built in location of existing seasonal housing	Built near existing cold storage bldg.
Small Parking Area	No new parking	No new parking.	10-15 cars in location of existing seasonal housing	10-15 cars in location of existing seasonal housing
Permanent Housing 1 house	Not built	Built at the end of LSB Rd. in location of current fire cache, close to shore	Built at the end of LSB Rd. in location of current fire cache, close to shore	Built at the end of LSB Rd. on the south side
Old Seasonal Housing	No change	Removed	Removed	Removed
New Seasonal Housing 12 - 2 bedroom units	Not built	Built in location of existing seasonal housing	Built near the end of LSB Rd. on the south side	Built near the end of LSB Rd. on the south side
Picnic Area	No change	Same location – in front of Visitors Center	Same location – in front of Visitors Center	Same location – in front of Visitors Center
Visitor Contact Station	No change	Replaced if not found historically significant. Modified if found historically significant.	Replaced if not found historically significant. Modified if found historically significant.	Replaced if not found historically significant. Modified if found historically significant.

**Table 2. Comparison of Alternatives (continued)**

	<i>No Action</i>	<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>
Water System	No change	Two wells and well houses – w/n disturbed area	Two wells and well houses – w/n disturbed area	Two wells and well houses – w/n disturbed area
Wastewater Treatment (e.g., mound system)	No change.	On-site centralized system	On-site centralized system	On-site centralized system

**Alternatives Considered but Dismissed**

Three alternatives were analyzed in the 1997 Little Sand Bay DCP/EA. Although certain aspects of these alternatives have been retained in the current alternatives, these alternatives were eliminated because they no longer meet park operational needs.

Moving developments off-site was also considered. This would require either building new or finding existing buildings to rent that would meet our needs. The area around Little Sand Bay is very rural and undeveloped. Even in Bayfield, thirteen miles from Little Sand Bay, it would be very difficult to find rentable space. In addition, it is not operationally efficient to have the developments located elsewhere. For example, locating the emergency operations facility away from Little Sand Bay would drastically increase the emergency response time to large portions of the park. Locating the curatorial storage area and maintenance buildings elsewhere would also reduce operational efficiency since the Little Sand Bay Visitor Center supervisor is also the museum curator and the maintenance buildings are used primarily for maintenance which occurs on the mainland unit.

**Environmentally Preferable Alternative**

The no action alternative would result in the minimum amount of natural resource disturbance, however, it would not correct faulty septic systems that may be impacting water quality. It would also not remove the visual and auditory intrusions that currently result from non-historic buildings and their associated activities impinging on the historic scene at the Hokenson Fishery.

All of the action alternatives represent a balance between minimizing impacts to natural resources and restoring the Hokenson Fishery cultural landscape and coastal views. Alternative 1 minimizes new disturbance within second growth forest, however, it does not accomplish the important goal of restoring the cultural landscape of the Hokenson Fishery. Alternatives 2 and 3 both accomplish the goal of restoring the Hokenson Fishery cultural landscape. Alternative 3 also eliminates any new construction on the lakeside of Little Sand Bay Road. It does, however, require a slightly larger amount of disturbance in second growth hardwood forest. Although Alternative 2 may be slightly preferable environmentally to Alternative 3, the differences

between the two alternatives from an environmental perspective are negligible. The No Action Alternative would result in the minimum amount of land disturbance, however, it would not correct existing problems with outdated and faulty septic systems nor would it remove non-historic structures and activities that currently intrude on the historic scene of the Hokenson Fishery. From an operational perspective and to achieve the park's goal of minimizing disturbance along the shoreline, Alternative 3 is preferable.

## ***AFFECTED ENVIRONMENT/IMPACT ANALYSIS***

### **General Description of the Environment**

The Apostle Islands National Lakeshore consists of a mainland strip of shoreline along the northwestern side of the Bayfield Peninsula and 21 of 22 islands that extend beyond the Bayfield Peninsula. The mainland area of the lakeshore ranges from 1/4 to 1/2 mile wide, is 13 miles long and contains about 2,500 acres of land. The 21 islands included in the national lakeshore contain approximately 39,500 acres of land. An additional 27,000 acres of water and submerged lands are also included in the national lakeshore.

### **Existing Development**

The western portion of Little Sand Bay contains the historic Hokenson Brothers Fishery complex, which interprets the Lake Superior commercial fishing industry. The restored complex includes a residence, the barn-like "twine shed," an icehouse, herring shed, dock, and a variety of landscape features. A hired man's cabin is set apart about one quarter mile from the main complex.

To the northeast of the fishery lies a dock/harbor complete with a breakwater at the point of its greatest extension into the lake. To the east of this dock the National Park Service has a dock and a breakwater. To the east of this facility the Town of Russell has a dock. A boat-launching ramp enters the water between the National Park Service dock and the township dock. See figure 6.

In 2000, the road was realigned to eliminate a 90-degree turn, a house was removed, and a parking lot built across from the visitor center. The township also has a parking area that provides about 15 spaces.

The paved road into Little Sand Bay serves the previously platted 103-unit South Shore recreational subdivision, where the developments presently consist of two seasonal residences, the historic Hokenson house (used for permanent housing) and several outbuildings used for storage and maintenance by the NPS. A former store and gas station are now used by the NPS for offices and a Visitor Center. The Town of Russell has a campground and a ballfield adjacent to the NPS property.

Utility lines follow the old entrance road corridor to Shaft Street, then follow existing roadways. The utility lines provide telephone and electrical service in the Little Sand Bay area. Residences being used by the NPS have septic tanks and leach fields. These existing utilities and buildings are inadequate to meet present needs of the lakeshore administration, staff, and visitors.

Except for the roads and small areas around structures the developed area of Little Sand Bay is lightly wooded with little understory vegetation. The terrain rises rather steeply from a 625-foot elevation at the headquarters to a 780-foot elevation at the park boundary 1/3-mile south. The area south and west of the entrance road is covered by dense second-growth forest.

None of the properties at Little Sand Bay have timberlands of significant commercial value. The principal value of any of these tracts is the value for recreational use.

## ***IMPACT TOPICS SELECTED FOR ANALYSIS***

### **Air Quality**

#### **Background:**

The Clean Air Act requires Federal agencies to meet all Federal, state, and local air pollution control requirements. Current air quality conditions in the mainland are very good.

#### **Impact Analysis:**

##### ***No Action Alternative***

Air quality conditions associated with the Little Sand Bay Development Area would remain essentially unchanged for the foreseeable future.

##### ***Alternatives 1, 2, and 3***

All build alternatives may result in small, temporary increases in levels of fugitive dust, particulates, and diesel exhaust from construction activities and equipment. Air quality impacts associated with these increases would be limited to the immediate area and be temporary in duration (limited to the construction period). Timing of construction would be done to minimize air quality related impacts on park and Town of Russell campground visitors. If improved facilities result in an increase in visitation, a slight increase in air pollution may occur during peak visitation periods, due to vehicle exhaust. However, while the proposed designs would improve facilities they do not significantly increase the capacity of the area. No air quality standards would be exceeded by the implementation of any of the alternatives.



Air quality impacts would be small and short in duration. Air quality would not be impaired by any of the alternatives.

**Statement on Impairment:**

Air quality would not be impaired by any of the alternatives. Air quality related impacts from any of the action alternatives would be minor and of short duration.

**Water Quality**

**Background:**

Three small, unnamed streams flow into and through the Little Sand Bay development area. The western-most stream enters directly into Lake Superior at the western extremity of the beach area. The central stream discharges into a small lagoon, while the eastern-most stream flows into the southeast portion of the same lagoon. The eastern-most stream is outside of the project area.

The streams in the study area drain basically fine to medium and sand-sized quartziferous soil. The streams are only affected by natural nutrients, dissolved solids, and microorganisms, and therefore are minimally affected by human activity.

**Impact Analysis:**

***No Action Alternative***

There is a current water quality threat from the septic systems that serve both housing and the Visitor Center. There are five separate sanitary septic systems in the project area. These are old systems that do not meet current standards, are leaking, and may be impacting ground water, as well as Lake Superior.

***Alternatives 1, 2, and 3***

All build alternatives would correct the problems associated with the current septic systems. The current systems would be replaced with a septic system that meets current standards. The construction phase of the project could result in temporary negative impacts to water quality by creating ground disturbance that could result in soil erosion and sedimentation of the lake. These negative impacts would be avoided or minimized by using techniques to prevent soil erosion. These techniques would include an appropriate combination of the use of sediment traps, silt fences, mulching, and revegetation. Impacts resulting from the construction phase would be limited to the construction area and be short in duration.

The area that would be disturbed differs between alternatives (see Table 2), however, the differences are small (3.3 acres vs. 4.3 acres). In addition, Alternatives 2 and 3 that result in a higher amount of area disturbed also result in the least amount of disturbance on the lakeside of Little Sand Bay Road. The use of erosion control methods should result in an insignificant difference between alternatives. None of the construction would involve the placement of dredge or fill material into waters of the United States. Therefore, a section 404 (Clean Water Act) permit from the U.S. Army Corps of Engineers would not be needed prior to construction.

Water quality impacts due to faulty sewage systems would improve under the action alternatives. Water quality impacts during construction would be minor and short in duration.

### **Statement on Impairment:**

Water quality would not be impaired by any of the alternatives. Groundwater quality would improve through correction of faulty septic systems. Water quality impacts during construction would be minor and of short duration.

### **Soils**

#### **Background:**

The primary soil type in the developed zone is mapped as 505B-Cublake Sand with 0-6% slopes. The soils are sandy and moderately well drained. Cublake Sand soils were derived from sandy outwash underlain by stratified silty, loamy, and sandy glaciofluvial deposits. Outwash is material deposited by meltwater streams beyond active glacier ice. Glaciofluvial deposits are materials deposited by streams flowing from glaciers.

To the west of the Cublake Sand is 713B-Kellogg-Allendale-Ashwabay Complex with 0-6% slopes. This area includes the portion of the Little Sand Bay Road that was abandoned when the road was realigned. These soils are moderately well drained and were deposited in a glacial lake plain. The soils were derived from sandy lacustrine or outwash sediments and underlying clayey lacustrine deposits. Lacustrine deposits are those that formed in a lake.

### **Impact Analysis:**

#### ***No Action Alternative***

The quality and condition of soils within the Little Sand Bay Development Area would remain essentially unchanged for the foreseeable future.

### ***Alternatives 1, 2, and 3***

Alternative 1 minimizes the amount of new disturbance in the Little Sand Bay area, however, the total area of disturbance is very similar between all three alternatives (See Table 2). Under Alternative 1, seasonal housing, the fire cache (emergency operations facility) and the maintenance facility would be rebuilt in the same general location. The area of disturbance would be slightly larger due to the increased building size. The area that currently has a maintenance cold storage building and outdoor storage would be enlarged, increasing soil disturbance in that area. The park volunteer RV (recreational vehicle) spaces would be in an area of new disturbance and would result in long-term soil compaction.

Alternative 2 would result in a slightly smaller (0.6 acres) amount of soil disturbance than Alternative 3. Under both Alternative 2 and 3, the area currently occupied by the current fire cache and museum storage area would be restored.

Under all three alternatives, there would be long-term soil disturbance resulting from the construction and maintenance of a septic system and in the immediate vicinity of buildings. There would be short-term impacts to soils in the areas surrounding construction until revegetation stabilizes the soils. Soil erosion would be kept to a minimum during construction by using appropriate erosion control techniques such as sediment traps, silt fences, mulching, and revegetation.

#### **Statement on Impairment:**

Soil resources within the Little Sand Bay area would not be impaired. The maximum area of disturbance is approximately 4.3 acres, the majority of which would be impacted for a short period of time. The only soils that would be impacted over a longer period of time are those that are directly beneath developments. Most of the construction would be done in previously disturbed and compacted areas. During construction, soil erosion techniques would minimize impacts.

### **Vegetation**

#### **Background:**

The pre-settlement vegetation of the Mainland Unit was dominated by hemlock, yellow birch, and white cedar with lesser amounts of balsam-fir, white pine, and some white birch groves, especially near Little Sand Bay. The area has been extensively logged. Currently, the forest is dominated by pole-sized quaking aspen, white birch, sugar maple, balsam-fir, and some white spruce.

## **Little Sand Bay Area**

There is a small beach/dune area and wetland east of the Little Sand Bay dock. The dunes and wetlands are quite fragile and easily impacted by human disturbance. Inland from the beach, the forest is primarily northern hardwoods. There is a rich diversity of vascular plants within the nearby forest, especially within small but rugged ravines just south of Little Sand Bay. The project area does not include the dunes, wetlands or ravines.

For purposes of discussion, the Little Sand Bay area has been divided into a number of sites, based on natural community types. The following descriptions would serve as a general guide to the vegetation of the specific sites.

### **a. Beach**

A sandy beach face extends from the rock cliffs at the southwestern end of Little Sand Bay to beyond the wetland. The plant communities growing on the beach sands are dominated by beach grass (*Ammophila breviligulata*), beach pea (*Lathyrus maritimus*), sweet gale (*Myrica gale*), and red-osier dogwood (*Cornus stolonifera*). The beach then almost fades and the northern hardwood forest grows practically to the waters edge, with a small beach between. This condition prevails from the wetland to the northeast end of Little Sand Bay.

Aquatic plant communities do not appear in the proposed construction zones of Little Sand Bay.

### **b. Wetland Vegetation**

There is a small impoundment formed by wave action and associated beach sand movement that periodically closes off a small stream from entering into the lake. In the marshy bog is found sweet gale, sweet flag, cranberries, leatherleaf, pitcher-plant, common cattail, blue flag, yellow loosestrife, swamp cinquefoil, burreed, yellow pond-lily, dragonmouth, buckbean, and numerous sedges. Along the course of the stream is a bog community dominated by sedges, leatherleaf, and sphagnum. The margin of the bog supports stands of alder and some ash. This marsh-bog ecosystem is one of the most unique areas biologically at Little Sand Bay.

### **c. Forests**

The northern hardwood forest surrounding Little Sand Bay is dominated by pole-sized quaking aspen, white birch, sugar maple, balsam-fir, and some white spruce. Dominant herbaceous species include Clintonia, Canadian mayflower, and twin flower. Various species of violet occur in moist areas. The ravines contain some of the last remaining old growth hemlocks and hardwoods on the Mainland Unit. The State threatened broad-lipped twayblade (*Listera convallarioides*), as well as the uncommon sedge *Carex scabrata*, round-leaved orchid, and long-bracted orchid occur in these ravines. The ravines and low spots

also support large growths of marsh marigold and numerous species of sedge. Later in the growing season one finds the broad-leaved orchid, twisted stalk, and club moss, which are locally very abundant. Several types of ferns, especially in lower, more mesic areas, are abundant. The forest floor frequently supports a dense stand of maple seedlings. Wild sarsaparilla is conspicuous and the broad-leaved aster is common.

Lowland forest, dominated by conifers such as white cedar, fir, and hemlock is found on the poorly drained soils near the bog. Most of the species listed above are present in this stand. There is a significant increase in the amount of bare soil exposed, and the moss cover is more extensive here than on the higher and drier areas.

#### **d. Cleared and Disturbed Areas**

Cleared and disturbed areas are those areas where roads, buildings, and utilities have been or are currently located. A portion of the site is currently occupied by NPS buildings, including the historic Hokenson Fishery, storage areas, roads, and the Town of Russell campground and ballfield. Road margins, parking lots, campsites, house sites, and lawns have a vegetative cover that is characterized by weedy native and exotic species. Various knotweeds, grasses and composites are present. Several types of northern deciduous trees and evergreens also can be found in these areas (see *Appendix A*).

### **Impact Analysis:**

#### ***No Action Alternative***

The quality and condition of vegetation within the Little Sand Bay Development Area would remain essentially unchanged for the foreseeable future.

#### ***Alternatives 1, 2, and 3***

All build alternatives would result in negative impacts to northern hardwood forest and existing cleared areas. Wetland, beach, and lake areas would not be impacted by any of the alternatives. The "wetlands" refers to the wetland just near the lakeshore.

Alternative 1 minimizes the amount of new disturbance in the Little Sand Bay area, however, the total area of disturbance is very similar between all three alternatives (Alt. 1 – 3.3 acres; Alt. 2 – 3.7 acres; Alt. 3 – 4.3 acres; See Table 1). Under Alternative 1, seasonal housing, the fire cache (emergency operations facility) and the maintenance facility would be rebuilt in the same general location. The area of disturbance would be slightly larger due to the increased building size. The area that currently has a maintenance cold storage building and outdoor storage would be enlarged, increasing soil disturbance in that area. The park volunteer RV (recreational vehicle) spaces would be in an area of new disturbance and would result in long-term soil compaction.

Alternative 2 would result in a slightly smaller (3.7 vs. 4.3 acres) amount of disturbance than Alternative 3. Under both Alternative 2 and 3, the area currently occupied by the fire cache and

museum storage area would be restored. Under Alternative 3, the clearing at the site of the old fire cache would be restored.

Under all three alternatives, construction and maintenance of a septic system would result in vegetative clearing and long-term clearing maintenance in an area approximately ½ acre in size (included within total disturbed area). If soils permit, the septic system would be placed in a portion of the roadbed that was realigned. This area is already cleared and grass covered. If soils do not permit placement of the septic system within the old roadbed, the system would need to be placed within existing northern hardwood forest resulting in an addition ½ acre of disturbance. Construction of new or replaced buildings would result in long-term impacts to vegetation in the immediate vicinity of the buildings. Vegetation in areas surrounding buildings would be impacted over the short-term, until the areas are revegetated.

Vegetation impacts would be avoided by leaving as much existing native vegetation as possible undisturbed at construction sites. Unavoidable impacts would be mitigated by revegetating disturbed areas with native species to the extent possible.

#### **Statement on Impairment:**

Vegetation resources within the Little Sand Bay area would not be impaired. A maximum area of disturbance is approximately 4.3 acres, the majority of which would be impacted for a short period of time. Most of the construction would be done in previously disturbed areas and the entire Little Sand Bay project area had been previously logged.

#### **Fish and Wildlife**

##### **Background:**

The mammals present are those typical of the northern forest and the transition zone, representing about 25 species. Whitetail deer and black bear are the largest species and of the greatest interest to visitors. There is a deer yard at Sand Point, west of Little Sand Bay. In this area, vegetation, especially cedar, has been impacted from overbrowsing. Deer are absent or in low abundance in the rest of the lakeshore, although some of the islands had historically high deer populations. Moose are rare in the area, but an eastward movement of these animals across northern Wisconsin from Minnesota is reported by Wisconsin Department of Natural Resources personnel and in 1995 remains of a moose were found on Stockton Island. The eastern timber wolf, which occurs in Bayfield County, is on the list of endangered species. There has been recent wolf sign documented near Sand Point, to the west of Little Sand Bay.

In the Little Sand Bay fish community round whitefish, and white and longnose suckers represent the greatest numbers and biomass. Most trout and salmon are juvenile fish foraging in the area. Lake trout are common in the deeper, colder water but brown and brook trout frequent inshore areas.

The bird life of Apostle Islands National Lakeshore is rich and varied, with a species list of more than 230 (see Appendix A). Many of these occur only as migrants, but the nesting and summer resident population includes more than 150 species. Seventy-nine species have been recorded during breeding bird surveys on the Mainland Unit. During spring and fall migration, Outer Island concentrates migratory birds where 140,000 were recorded during a survey conducted in September of 1990. Outer Island is regionally important for migrating falcons in the fall. Long Island, a barrier spit, is also important for bird migration, most notably shorebirds and waterfowl. Bald eagles (Federally threatened) nest in the lakeshore.

Reptile species are relatively rare in this northern habitat. Records indicate at least seven species of frogs and toads, five species of salamanders, and three species of snakes and turtles are present in the lakeshore (see Appendix A). The greatest concentrations of most of the amphibians and reptiles around Little Sand Bay are found in and around the wetland areas.

### **Impact Analysis:**

#### ***No Action Alternative***

The quality and condition of fish and wildlife resources within the Little Sand Bay Development Area would remain essentially unchanged for the foreseeable future.

#### ***Alternatives 1, 2, and 3***

Alternative 1 minimizes the area of new disturbance, however, total acreage's disturbed is similar between the three alternatives (Table 1). Alternatives 2 and 3 would result in restoring shoreline habitat (0.5 acres) in the location of the current fire cache and curatorial storage. The majority of development would occur in areas previously disturbed. New disturbance in second growth hardwood forest would be approximately 0.25 acres under Alternative 1; 1.25 acres under Alternative 2; and 1.8 acres under Alternative 3.

The waters of Little Sand Bay would not be impacted significantly by the proposed development in any of the alternatives provided that soil erosion during construction is closely controlled to prevent significant pollution of streams or the lake, and thus, the fish and wildlife of the water bodies would not be impacted.

While there may be an increase in visitation to the area if facilities are improved, this should not be substantial since the alternatives are designed to properly accommodate existing needs rather than to significantly increase the visitor capacity of the area. Noise resulting from construction activities

may result in the temporary displacement of resident wildlife. However, wildlife would be expected to move back into the area after construction is complete.

### **Statement on Impairment:**

None of the alternatives would impair park fish or wildlife. A very minor (less than 4 acres) amount of habitat would be impacted and the majority of the impacts would be of short duration, limited to the construction period.

### **Federally Listed Threatened and Endangered Species**

#### **Background:**

Section 7(a) of the Endangered Species Act of 1973 (16 U.S.C. 1521 *et seq.*) requires federal agencies to insure that any action authorized, funded or carried out by such agencies not jeopardize the continued existence of any federally-listed threatened or endangered species. The following federally and Wisconsin-listed species occur in Bayfield County (United States Department of the Interior Fish and Wildlife Service Memorandum dated June 22, 2001):

<b><u>Common Name</u></b>	<b><u>Scientific Name</u></b>	<b><u>Status</u></b>
bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened
gray wolf	<i>Canis lupus</i>	Endangered
Canada lynx	<i>Lynx canadensis</i>	Threatened
Fassett's locoweed	<i>Oxytropis campestris</i> <i>var. chartacea</i>	Threatened

Not mentioned in the U.S. Fish and Wildlife Service's Section 7 consultation, but occurring within Apostle Islands:

pipin plover	<i>Charadrius melodus</i>	Endangered
--------------	---------------------------	------------

#### **Impact Analysis:**

##### ***No Action Alternative***

Threats to Federally and Wisconsin-listed threatened and endangered species within the Little Sand Bay Development Area would remain essentially unchanged for the foreseeable future.

##### ***Alternatives 1, 2, and 3***



National Park Service records indicate that there are no known Federally-listed species in the immediate project area. The following discussion examines the potential for Federally listed species to occur in the project area.

Bald eagles have nested at several locations in Apostle Islands National Lakeshore. However, bald eagles have not been known to nest in the immediate project area, therefore, none of the alternatives should result in disturbance to bald eagles.

The gray wolf is known to inhabit northern Wisconsin, however, its occurrence in Bayfield County is sporadic and does not include the specific project area. Therefore, none of the alternatives are expected to impact the gray wolf.

The Canada lynx does not occur within the Lakeshore nor does Fassett's locoweed.

There is no suitable habitat for piping plover nesting in the project area. Piping plover nesting is limited to Long Island, with some potential nesting habitat on Outer and Michigan Island sandscapes.

A Section 7 consultation letter from the U.S. Fish and Wildlife Service dated June 22, 2001 concluded that the above listed species or critical habitat would not be affected by the proposed project.

#### **Statement on Impairment:**

The Little Sand Bay project area does not provide habitat to any Federally listed species, therefore, impairment would not occur.

#### **State of Wisconsin Listed Threatened and Endangered Species**

##### **Background:**

There are many state-listed species that occur within Apostle Islands National Lakeshore in the State of Wisconsin. *Listera convallarioides* is the only known listed species to occur near the project area.

The following plants and animals are known to inhabit Apostle Islands National Lakeshore and are currently on the *Wisconsin State Threatened and Endangered Species List* (2001).

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
<b><u>Plants</u></b>		
Lake cress	<i>Armoracia lacustris</i>	Endangered
Moonwort grape-fern	<i>Botrychium lunaria</i>	Endangered
Common Butterwort	<i>Pinguicula vulgaris</i>	Endangered
Mountain-cranberry	<i>Vaccinium vitis-idaea</i>	Endangered
Beautiful sedge	<i>Carex concinna</i>	Threatened
Coast sedge	<i>Carex exilis</i>	Threatened
Lenticular sedge	<i>Carex lenticularis</i>	Threatened
Michaux's sedge	<i>Carex michauxiana</i>	Threatened
Drooping sedge	<i>Carex prasina</i>	Threatened
Broad-leafed twayblade	<i>Listera convallarioides</i>	Threatened
Marsh grass-of-parnassus	<i>Parnassia palustris</i>	Threatened
Plains ragwort	<i>Senecio indecorus</i>	Threatened
Spike trisetum	<i>Trisetum spicatum</i>	Threatened

### **Animals**

Piping plover	<i>Charadrius melodus</i>	Endangered
Common tern	<i>Sterna hirundo</i>	Endangered
Peregrine falcon*	<i>Falco peregrinus</i>	Endangered
Forster's tern*	<i>Sterna forsteri</i>	Endangered
Red-shouldered hawk*	<i>Buteo lineatus</i>	Threatened
Osprey*	<i>Pandion haliaetus</i>	Threatened

\*Recorded during migration.

### **Impact Analysis:**

#### ***No Action Alternative***

Threats to Non-Federally listed Wisconsin threatened and endangered species within the Little Sand Bay Development Area would remain essentially unchanged for the foreseeable future.

#### ***Alternatives 1, 2, and 3***

Alternatives 1, 2, and 3 do not propose any new development near *Listera convallarioides* habitat. *Listera convallarioides* occurs to the south of any proposed development, therefore, no impacts would be expected.

**Statement on Impairment:**

None of the alternatives would impact State listed Threatened and Endangered species, therefore, impairment would not occur.

**Floodplains****Background:**

Executive Order (EO) 11988 "Floodplain Management" requires the NPS to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values of floodplains.

According to NPS guidelines for complying with EO 11988, the applicable regulatory floodplain (either 100-year, 500-year, or Extreme) depends on the "action class" of the proposed action. The actions proposed by this project are "Class I Actions". No critical actions that would create an added disastrous dimension to the flood event are proposed. Therefore, the regulatory floodplain for the proposed action is the 100-year floodplain. The 100-year floodplain in the project area is at approximately 610 feet above sea level.

**Impact Analysis:*****No Action Alternative***

Threats to floodplains in the Little Sand Bay Development Area would remain essentially unchanged for the foreseeable future.

***Alternatives 1, 2, and 3***

All the alternative sites for the proposed buildings and parking lot are above the 100-year floodplain. Further, EO 11988 does not apply to actions which are functionally dependent upon locations in proximity to water, such as the existing dock and landing.

Because all alternative visitor center and housing sites are above the 100-year floodplain and all other proposals are excepted actions, the project is consistent with EO 11988.

**Statement on Impairment:**

The project is consistent with EO 11988, Floodplain Management, therefore, impairment would not occur.

## **Wetlands**

### **Background:**

Executive Order (EO) 11990 "Protection of Wetlands" requires federal agencies to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands. EO 11990 further requires federal agencies to avoid undertaking or providing assistance to new construction in wetlands unless the head of the agency finds that there is no practicable alternative.

### **Impact Analysis:**

#### ***No Action Alternative***

Threats to wetlands in the Little Sand Bay Development Area would remain essentially unchanged for the foreseeable future.

#### ***Alternatives 1, 2, and 3***

There are some wetlands near, but not in the project area. None of the alternatives would require construction in wetlands. Therefore, the project is consistent with EO 11990.

### **Statement on Impairment:**

None of the alternatives would impact wetlands, therefore, no impairment would occur.

## **Cultural Resources**

### **Background:**

The National Historic Preservation Act and Executive Order 11593 require Federal agencies to survey, document and where feasible, preserve historic properties (i.e. those on or eligible for listing on the National Register of Historic Places). Section 106 of the National Historic Preservation Act requires (1) Federal agencies to survey and assess properties against National Register criteria and, if eligible, (2) assess the effect of the proposed undertaking, and (3) if necessary, mitigate adverse effect.

The area now known as Little Sand Bay was incorporated into the boundaries of the Red Cliff Reservation of the Lake Superior Chippewa in 1856. Little information is available about its use and occupation in the years immediately following establishment of the reservation, but in 1897, 68.24 acres of shoreline property were allotted to tribal member Angelique Soulier. The western portion of this land included the eventual site of the Hokenson Fishery. In 1905, when survivors from the wrecked steamer *Sevona* washed ashore at Little Sand Bay, the area was essentially unsettled. Newspaper accounts relate how they eventually encountered a farmer out searching for

lost cattle. With his aid and that of a logger who had a nearby cabin, it took the survivors nearly a day to travel to the village of Bayfield.

Mention of a logger's presence is significant; the years at the beginning of the twentieth century represent the peak of lumbering activities in the region. Logging of the area is noted as early as 1894, and continued at varying levels of intensity into the 1930s.

Agricultural development took place in the surrounding area as the forest was cleared, but failed to penetrate remote Little Sand Bay. In 1914, Soulier sold the portion of her allotment containing the future Hokenson Fishery site to a relative. Several years later, after a series of transfers, the property came into the possession of the South Shore Club, an association comprised of local residents. The club made plans to subdivide the area and sell land for recreational use, but these proposals met with minimal success.

In the mid-1920s, the Swedish-American brothers Eskel, Leo, and Roy Hokenson, farmers living three miles inland, began shifting their focus of activity from agriculture to fishing. Entering into an agreement with the South Shore Club, the Hokenson brothers began construction of the dock and ancillary buildings in 1927, while the property was still held collectively by the Club. In 1933, tax records finally listed the Hokensons as owners of the property. The family continued acquiring adjacent parcels as they became available, and though they owned the majority of the site by the end of the 1930s, they bought one portion as late as 1962.

Commercial fishing had been an important component of the regional economy since the 1870s, with area production peaking in 1915. By the time the Hokenson brothers entered the business, there were already indications of the decline that would devastate the industry in years to come. In 1928, the *Bayfield County Press* warned, "Commercial fishing is passing on lakes," claiming that "Fish are now less abundant then they were 50 years ago," and asserting that more nets were needed to catch same number of fish as in previous times.

Unfavorable auguries notwithstanding, the Hokensons proceeded to develop an elaborate fishery complex which enabled them to support their families in relative comfort for an extended period. The most active period of construction at the fishery occurred from 1927 to 1931. During this period, the Hokensons constructed the dock and herring shed, the icehouse, and the twine shed.

In 1940, the Hokensons made a substantial addition to the complex with the construction of the house. Until this time, the brothers had continued to occupy the family farmstead three miles away. When severe weather threatened, the brothers took turns sleeping in the fishery buildings to watch over their boats. Once the house was constructed, youngest brother Roy and his wife took up residence, providing a permanent presence on site.

With this addition, the major fishery structures were complete, and the site's core landscape assumed the form, which remains today. Today, the Hokenson Fishery complex represents the most complete remaining site representative of a family-operated fishing and packing operation on Lake Superior, and perhaps the Great Lakes. Historian Margaret Beattie Bogue stated, "I have not encountered any

location which so clearly reveals the work of small-scale commercial fisherman as does this Sand Bay site.”

The major elements of the fishery complex include fifteen extant buildings, structures, and objects: herring shed and dock; fishing tug (the *Twilite*); ice house; privy; twine shed; house; garage; stairway; fish box chute; pump; artesian well; pound net boat; tar tub; pile driver; and winch. The façades of all the buildings, except for the garage, face northward and overlook Lake Superior. Other important landscape features at the site include the paths and roadways between structures, as well as the views that are provided among and between the buildings and to the lake.

The fishery’s immediate shoreline has a sandy beach where the icehouse, the dock and herring shed, and the privy are located. The icehouse, built into a steep slope, has a stairway and fish box chute running along its western side. The twine shed is located on higher ground, south of the icehouse

and stairway. The residence, located east of the twine shed, is on the same level, although it is separated from the remainder of the fishery.

A second, and far more modest, residence stands about one-quarter mile northeast of the Hokenson house. This is the one-room cabin that housed John Nelson, the Hokensons' hired man. A former logger, displaced by the decline of the regional lumbering industry, Nelson came to work for the Hokensons in the early 1930s. He lived for several years in a temporary, tar-papered shack not far from the slough, which empties into Lake Superior just east of the present Town of Russell parking lot. He stayed there several years while he cleared a nearby patch of land and set aside logs to build a bigger, sturdier cabin. Some time around 1938, he completed the structure, which stands today.

This seemingly nondescript cabin possesses substantial historical interest. Though built on the eve of World War II, its construction harks back to traditional Scandinavian methods. Nelson used no power tools in his work; each log was cut and shaped with axe and plane. Elaborate dovetail joints at the corners testify to Nelson's mastery of his craft.

In the late 1930s, additional development began when Sand Island fisherman Herman Johnson, Jr. erected a small log structure, which was to be the first of several that he built immediately east of the Hokenson property. This log building is long gone, but the general store and tavern that he built in 1942 stands today, albeit in highly altered form. In the years from 1942 to 1973, Johnson developed a small-scale resort on the site, running a charter fishing business and building several

rental cabins. The adjacent beach and field became a popular recreational asset for local residents, the scene of family picnics and community holiday festivities.

The National Park Service bought the Johnson store in 1973 and remodeled the structure into a visitor contact station, including an auditorium and offices. This remodeling entailed substantial modifications to the interior floor plan. All the auxiliary resort buildings, which included tourist cabins, fishing-related structures, and gasoline pumps, were removed at this time. Over the course of years, the exterior appearance was substantially altered from original, with white horizontal board

siding replaced by vertically accented siding that was first left natural in color, then painted gray.

A number of cabins and vacation homes were built at Little Sand Bay in the years following the Second World War. Several of these were removed following NPS acquisition, but others were adapted, and in many cases expanded, for administrative use by the agency. The latter group includes the current maintenance building/fire cache, two suburban-style ranch houses used as seasonal dormitories, the museum storage building, as well as several associated garages and sheds. Most of these structures have been repeatedly modified by the NPS. The maintenance building, with features such as large equipment bays, overhead doors, and obtrusive exhaust fans, projects a modern, industrial appearance, out of keeping with the traditional flavor of the twine shed approximately 150 feet away.

The Hokenson Fishery was listed in the National Register of Historic Places on June 18, 1976. At that time, the site boundaries were limited to the area immediately surrounding the dock, icehouse, and twine shed. In 2001, revised National Register documentation was prepared expanding the borders of the property to encompass the Hokenson house, as well as a small discontinuous parcel containing the John Nelson cabin. This revised documentation is in the review process at the time of this writing. A Determination of Eligibility has been prepared for the visitor contact station; it has not yet been reviewed, but initial discussions with SHPO personnel indicate that the high degree of alteration, combined with the removal of virtually its auxiliary structures, compromises its integrity beyond the point of eligibility. None of the other buildings used for administrative purposes meet basic requirements for NRHP eligibility.

The mainland unit of the Lakeshore was subject to archeological inventory by a small crew from Beloit College in 1974. However, the large amount of acreage surveyed, the dense vegetative cover, and the nature of the project's field methods combine to suggest that all portions of the mainland unit could not have been afforded equal, intensive inventory coverage by the four-person team. Further, 1974 season project field notes that might document the intensity of inventory coverage at Little Sand Bay are not among the project archives filed at the Midwest Archeological Center. Consequently, coverage of the mainland unit, including Little Sand Bay, should be as considered to be at the reconnaissance, rather than intensive, level.

Four archeological sites (47BA 14, 15, 16, and 17) were recorded by the Beloit College team a short distance east of the Little Sand Bay developed area. Each was recorded on the basis of surface exposures of small numbers of lithic artifacts. All four sites are oriented along the slough and small stream that empties into it. Three of the sites are small and ephemeral, consisting only of very small amounts of quartz debitage. One of the sites, 47BA17, may be a more substantial deposit, perhaps extending along the slough about 90 meters. It is thought to be about 30 meters wide. None of these sites have been revisited or further evaluated since they were initially recorded in 1974. The 1974 investigation included brief visits with limited shovel testing at these locales. Accordingly, little is known about their content, context, or significance.

There is no information to suggest that any of these sites extend into the current project area. In fact, all but site 47BA14 appear to straddle the NPS boundary and may lie primarily on lands owned by

the Red Cliff Chippewa. Site 47BA14 is positioned closest to the proposed development actions and it appears to be about 200 meters east of the project area. The area bordering the slough where the sites were recorded would not be impacted by any component of the proposed development. No other archeological sites have been recorded near the project area. (Adapted from Richner, 1999)

Additional archeological investigation was performed by personnel from the NPS Midwest Archeological Center in 1999 and 2001. These investigations were limited to specific project locations, including the entrance road realignment and projected utility improvements. No archeological resources were identified in the process. No historic or prehistoric artifacts were found in any shovel test at Little Sand Bay during this survey. A small dump was discovered near the Nelson Cabin. It was recommended that this dump be avoided and preserved.

Preliminary consultation indicates that the Little Sand Bay area may possess a variety of ethnographic resources with significance to the Ojibwe (Chippewa) people. Tribal members harvest maple sugar from trees on Town of Russell property, and the sweet grass plant, with medicinal/ceremonial significance, has been identified at the site. Further consultation is necessary to determine the nature and extent of ethnographic resources potentially subject to impact.

### **Impact Analysis:**

#### ***No Action Alternative***

Under the *No Action* alternative, unrelated non-historic structures would continue to negatively impact the cultural landscape of the Hokenson Fishery.

The status of archeological sites within the Little Sand Bay Development Area should remain essentially unchanged for the foreseeable future.

#### ***Alternatives 1, 2, and 3***

Under Alternative 1, the current fire cache (emergency operations facility) and curatorial storage would be replaced in their current location. These are unrelated non-historic structures and would negatively impact the cultural landscape.

Alternatives 2 and 3 would remove unrelated structures, including the current fire cache, a storage building and curatorial storage. Removal of these structures would have a positive impact on the cultural landscape. Following building removal, the area would be restored.

MWAC will review final design plans for development at Little Sand Bay. However, based on current design options, no archeological sites would be impacted by the proposed development under Alternatives 1, 2, or 3. (Richner 2001).



**Statement on Impairment:**

Visual intrusions upon the National Register-listed Hokenson Fishery would continue under the No Action Alternative and Alternative 1. Alternatives 2 and 3 would have a positive impact on the Hokenson Fishery cultural landscape.

Based on current design options, no impacts, and therefore no impairment would occur to archeological sites.

**Visual Quality****Background:**

The visual quality of an area is an intangible resource, therefore, impacts to it can be difficult to assess. To determine whether a proposed action would impact the visual quality of an area, NPS guidelines state that we should consider whether the proposed action could be seen from visitor use areas of the park, such as developed overlooks, roads or trails. In park areas with canoeing or boating use, we should also consider whether the proposed action could be seen from the water. If the proposed action is visible from such areas, we should consider whether it would change the nature or quality of the visitor experience.

**Impact Analysis:*****No Action Alternative***

The Hokenson Fishery is one of the primary visitor attractions in the park's Mainland Unit. The presence of unrelated structures and NPS activities in the maintenance/fire cache area has a negative visual impact on the visitor experience. The unrelated structures are visible from the lake during leaf off-season (late fall through spring) and slightly visible from the lake when leaves are on.

***Alternatives 1, 2, and 3***

Under Alternative 1, the presence of unrelated structures would continue to have a negative visual impact on the visitor experience. Alternatives 2 and 3 would remove these structures, restoring the cultural landscape. Removal of these buildings would also improve the shoreline view from the lake, especially during the leaf-off season (late fall through spring). The visual impact resulting from construction under all alternatives would be mitigated by preserving existing trees and/or planting new trees to screen or soften facilities, as appropriate.

**Statement on Impairment:**

No impairment to visual quality would occur. Under the No Action Alternative and Alternative 1, some intrusion to the coastal view from the lake would continue. Under Alternatives 2 and 3,

intrusion to the coastal view from non-historic building would be removed.

### **Natural Quiet**

#### **Background:**

NPS policies direct us to preserve the natural quiet and the natural sounds associated with the physical and biological resources of the parks.

#### **Impact Analysis:**

##### ***No Action Alternative***

The quality of natural quiet that exists within the Little Sand Bay Development Area would remain essentially unchanged for the foreseeable future.

##### ***Alternatives 1, 2, and 3***

All build alternatives would result in a temporary increase in noise levels during construction. Once construction is completed the noise level would be similar to the current activity and noise level during peak summer months. Alternatives 2 and 3 would result in lower noise levels in the historic Hokenson Fishery Area by relocating NPS activities away from this high visitor use area.

#### **Statement on Impairment:**

No impairment to natural quiet would occur. Impacts from the project to natural quiet would be short-term in duration, limited to the construction period.

### **Visitor Use**

#### **Background:**

Apostle Islands National Lakeshore's Mainland Unit includes 2,592 acres and 13 miles of shoreline along the Bayfield peninsula from Saxine Creek to Little Sand Bay. This is the only portion of the national lakeshore that is readily available to visitors who do not have the time, money, equipment, skill, and/or desire to travel to the islands by boat. The Mainland Unit provides opportunities for these visitors to experience many of the features and resources that make the national lakeshore a special place. A hiking trail is being built that will have Little Sand Bay as its eastern end. Approximately six miles of trail has been completed, from Meyers Beach to the end of North Branch Road. The completed trail will be more than 13 miles long. There is currently one backcountry campsite on the Mainland Unit to the east of North Branch Road.

Paved roads lead to two areas at the extreme ends of the Mainland Unit. Little Sand Bay at the east end of the Mainland Unit is the major mainland activity and operational center for the Apostle

Islands National Lakeshore. The visitor center there provides one of the best opportunities for visitors to receive information and interpretation about the national lakeshore.

The National Park Service's Organic Act of 1916 (16 USC 1) established the agency and directed it to "conserve the scenery and the natural and historic objects and the wild life (in the parks) and to provide for the enjoyment of the same in such manner and by such means as would leave them unimpaired for the enjoyment of future generations". The NPS "*Management Policies*" state that "to the extent practicable, the NPS would encourage people to come to parks, and to pursue inspirational, educational, and recreational activities related to the resources found in these special environments."

### **Impact Analysis:**

#### ***No Action Alternative***

Visitor use would remain the same under this alternative.

#### ***Alternatives 1, 2, and 3***

All other alternatives have a positive impact on visitor use by providing a comfort station that is open 24 hours/day.

Other impacts of the alternatives to visitor use of the area are discussed under the "*Visual Quality*" and "*Natural Quiet*" sections of this document.

### **Statement on Impairment:**

No adverse impacts to visitor use are expected under any of the alternatives, therefore, impairment would not occur.

### **Socioeconomic**

#### **Background:**

The communities on the Bayfield Peninsula include Cornucopia to the west of the mainland portion of the national lakeshore, Red Cliff, and Bayfield on the eastern side of the peninsula, and Washburn (approximately 13 miles south of Bayfield)(Figure 1). The town of Red Cliff is within the Red Cliff Indian Reservation of Lake Superior Chippewa. Tourism is very important to the local economy.

More than half of the Mainland Unit of Apostle Islands National Lakeshore, including the Little Sand Bay development zone, lies within the original reservation boundary of the Red Cliff Indian Reservation.

### **Impact Analysis:**

### ***No Action Alternative***

Under the no action alternative, there would be no change to socioeconomic factors.

### ***Alternatives 1, 2, or 3***

None of the alternatives would result in a substantial increase in visitation. Therefore, no impact to socioeconomic factors are expected.

### **Statement on Impairment:**

Impacts to socioeconomic factors are not expected. Therefore, socioeconomic factors would not be impaired.

### **Cumulative Impacts**

#### **Background:**

"Cumulative impacts" are the impacts on the environment which result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

### ***No Action Alternative***

Under the no action alternative, the proposed actions would occur, resulting in no additional cumulative impacts.

### ***Action Alternatives***

Past actions include realignment of the Little Sand Bay Road and construction of a fairly large (45-55 cars plus 10 vehicles with trailers) parking lot which collectively disturbed approximately 2.5 acres. Current proposed actions would impact an additional 3 to 4.5 acres (includes area to be restored), depending on which alternative is implemented. No additional development in the project area is planned for the foreseeable future. Therefore, cumulative impacts include disturbance of 5.5 to 7 acres within the 80-acre Little Sand Bay development zone. The majority of the area to be disturbed is already highly disturbed. New disturbance in second growth northern hardwood forest would be less than two acres under Alternative 3. The other action alternatives would result in slightly less disturbance within second growth forest.

### **Statement on Impairment:**

Although any of the action alternatives would result in some disturbance, none of the impact topics would be individually or collectively impaired.

### **Unavoidable Adverse Effects**

#### ***Alternative 1***

- 3.3 acres of soil disturbance and vegetative clearing and disturbance.

#### ***Alternative 2***

- 3.7 acres of soil disturbance and vegetative clearing and disturbance.

#### ***Alternative 3***

- 4.3 acres of soil disturbance and vegetative clearing and disturbance.

Impacts from most of the disturbance would be short in duration. Under Alternatives 2 and 3, 0.5 acres would be restored.

The greatest potential unavoidable effect from the No-Action Alternative would be impacts to ground and potentially surface water from failed septic systems.

### ***IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES INCLUDING ENERGY RESOURCES***

Implementation of any of the action alternatives would result in the irreversible (permanently non-recoverable) commitments of resources, such as fuels and non-recyclable construction materials.

During construction, fossil fuels would be consumed by vehicles used to transport both materials and workers to the site. There would also be energy expended to manufacture materials required during construction.

**Table 3. Impact Comparison**

<b>Impact Topics</b>	<b>No Action</b>	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
Air Quality	No change.	Short-term impacts during construction.	Short-term impacts during construction.	Short-term impacts during construction.
Water Quality	No change. Continued potential impacts from faulty sewage systems.	Short-term impacts during construction.	Short-term impacts during construction.	Short-term impacts during construction.
Soils	No change.	3.3 acres of soil disturbance. Short-term erosion during construction.	3.7 acres of soil disturbance. Short-term erosion during construction.	4.3 acres of soil disturbance. Short-term erosion during construction.
Vegetation	No change.	Vegetation clearing and disturbance on 3.3 acres.	Vegetation clearing and disturbance on 3.7 acres. 0.5 acres to be restored.	Vegetation clearing and disturbance on 4.3 acres. 0.5 acres to be restored.
Fish and Wildlife	No change.	3.3 total acres of disturbance. 0.3 acres of new disturbance. 3.0 acres of disturbance in previously developed area.	3.7 total acres of disturbance. 1.2 acres of new disturbance. 2.5 acres of disturbance in previously developed area. 0.5 acres to be restored.	4.3 total acres of disturbance. 1.8 acres of new disturbance. 2.5 acres of disturbance in previously developed area. 0.5 acres to be restored.
Federal T&E species	No change.	No expected impacts.	No expected impacts.	No expected impacts.
State T&E species	No change.	No expected impacts.	No expected impacts.	No expected impacts.
Floodplains	No change.	No expected impacts.	No expected impacts.	No expected impacts.

**Table 3. Impact Comparison (continued)**

<b>Impact Topics</b>	<b>No Action</b>	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
----------------------	------------------	----------------------	----------------------	----------------------

Wetlands	No change.	No expected impacts.	No expected impacts.	No expected impacts.
Cultural Resources	No change: continued intrusion on Historic Landscape.	Continued intrusion on Historic Landscape. No expected impacts to archeological or ethnographic resources.	Restoration of Historic Landscape. No expected impacts to archeological or ethnographic resources.	Restoration of Historic Landscape. No expected impacts to archeological or ethnographic resources.
Visual Quality	No change.	Seasonal intrusion of non-historic buildings from the lake.	Removes visual intrusions on the Historic Landscape and closest intrusion to view from lake.	Removes visual intrusions on the Historic Landscape and views from the lake north of Little Sand Bay Road and west of Visitor's Center.
Natural Quiet	No change.	Short-term impacts during construction.	Short-term impacts during construction.	Short-term impacts during construction.
Visitor Use	No change.	No substantial increase would be expected.	No substantial increase would be expected.	No substantial increase would be expected.
Socioeconomic	No change.	No change would be expected.	No change would be expected.	No change would be expected.
Cumulative Impact	Approx. 2.5 acres of recent disturbance.	Total disturbance of approx. 6 acres.	Total disturbance of approx. 6.5 acres.	Total disturbance of approx. 7 acres.

## REFERENCES

- Cook, John G. et al. 1987. Literature Reviews of Rare Species Known to Occur on National Park Service Lands; Midwest Region, National Park Service.
- Dickas, Albert B. *et al.* 1974. Environmental Survey, Little Sand Bay Headquarters; Center for Lake Superior Environmental Studies, University of Wisconsin, Superior.
- Judziewicz, Emmet 1996. Monitoring of rare vascular plants, Apostle Islands National Lakeshore. Bayfield, WI.
- Judziewicz, Emmet and R. Koch 1993. Flora of the Apostle Islands. Michigan Botanist: Vol. 32, No. 2.
- National Park Service 1999. Resource Management Plan: Apostle Islands National Lakeshore.
- National Park Service. 1997. Development Concept Plan for Little Sand Bay, Apostle Islands National Lakeshore.
- National Park Service 1994. Development Concept Plan and Environmental Assessment for the Trego Visitor Center, Saint Croix National Scenic Riverway.
- National Park Service 1978. Environmental Assessment for Proposed Mainland Development.
- National Park Service 1984. Historic Structure Report, Historical Data Section, Package No. 150.
- National Park Service, 1988. General Management Plan, Apostle Island National Lakeshore.
- National Park Service 1991. Land Protection Plan, Apostle Island National Lakeshore.
- National Park Service 1991. Statement for Management, Apostle Islands National Lakeshore.
- Richner, J. 2001. Memorandum – Trip to Apostle Islands National Lakeshore, September 4-14, 2001.
- U.S. Fish and Wildlife Service. 2001. Section 7 Consultation letter dated June 22, 2001.
- Voss, E. 1972. Michigan Flora, Cranbrook Institute of Science and University of Michigan Herbarium.



## ***APPENDIX A***

### ***Mammals of the Apostle Islands National Lakeshore***

#### **Common Name**

#### **Scientific Name**

Red Fox	<i>Vulpes fulva</i>
Coyote	<i>Canis latrans</i>
Eastern Timber Wolf	<i>Canis lupus</i>
Black Bear	<i>Ursus americanus</i>
Mink	<i>Mustela vison</i>
River Otter	<i>Lutra canadensis</i>
Longtail Weasel	<i>Mustela frenata</i>
Shorttail Weasel	<i>Mustela erminea</i>
Fisher	<i>Martes pennanti</i>
Striped Skunk (only Long Island and Mainland)	<i>Mephitis mephitis</i>
Raccoon (only Long Island and Mainland)	<i>Procyon lotor</i>
Porcupine (only Mainland)	<i>Erethizon dorsatum</i>
Woodchuck (only Mainland)	<i>Marmota monax</i>
Beaver	<i>Castor canadensis</i>
Muskrat	<i>Ondatra zibethica</i>
Red Squirrel	<i>Tamiasciurus hudsonicus</i>
Gray Squirrel (only Mainland)	<i>Sciurus carolinensis</i>
Flying Squirrel (only Mainland)	<i>Glaucomys sabrinus</i>
Eastern Chipmunk (only Long Island and Mainland)	<i>Tamias striatus</i>
Least Chipmunk (only Long Island and Mainland)	<i>Eutamias millimus</i>
Snowshoe Hare	<i>Lepus americanus</i>
Cottontail Rabbit	<i>Sylvilagus floridanus</i>
Whitetail Deer	<i>Odocoileus virginianus</i>
Moose (very rare)	<i>Alces alces</i>
Masked Shrew	<i>Sorex cinereus</i>
Shorttail Shrew	<i>Blarina brevicauda</i>

## ***APPENDIX A***

### ***Mammals of the Apostle Islands National Lakeshore (Continued)***

#### **Common Name**

#### **Scientific Name**

Deer Mouse

*Peromyscus maniculatus*

Meadow Jumping Mouse

*Zapus hudsonicus*

Woodland Jumping Mouse

*Napaeozapus insignis*

Redback Vole

*Clethrionomys gapperi*

Meadow Vole

*Microtus pennsylvanicus*

Little Brown Bat

*Myotis lucifugus*

Big Brown Bat

*Eptesicus fuscus*

Red Bat

*Lasiurus borealis*

Hoary Bat

*Lasiurus cinereus*

Silver-haired Bat

*Lasionycteris noctivagans*

Keen Bat

*Myotis keeni*

## ***APPENDIX B***

### ***Breeding Birds of the Mainland Unit, Apostle Islands National Lakeshore***

Alder Flycatcher	Golden-crowned Kinglet
American Bittern	Gray Catbird
American Crow	Great Blue Heron
American Goldfinch	Great Crested Flycatcher
American Redstart	Great Gray Owl
American Robin	Hairy Woodpecker
Bald Eagle	Hermit Thrush
Bank Swallow	Herring Gull
Barn Swallow	Indigo Bunting
Bay-breasted Warbler	Killdeer
Belted Kingfisher	Least Flycatcher
Black-and-white Warbler	Magnolia Warbler
Black-capped Chickadee	Mallard
Black-throated Blue Warbler	Marsh Wren
Black-throated Green Warbler	Mourning Warbler
Blackburnian Warbler	Nashville Warbler
Blackpoll Warbler	Northern Flicker
Blue Jay	Northern Oriole
Broad-winged Hawk	Northern Parula
Brown Creeper	Northern Waterthrush
Brown-headed Cowbird	Ovenbird
Canada Warbler	Palm Warbler
Cape May Warbler	Philadelphia Vireo
Cedar Waxwing	Pileated Woodpecker
Chestnut-sided Warbler	Pine Siskin
Chimney Swift	Pine Warbler
Chipping Sparrow	Purple Finch
Common Grackle	Red-breasted Merganser
Common Loon	Red-breasted Nuthatch
Common Merganser	Red-eyed Vireo
Common Raven	Red-winged Blackbird
Common Yellowthroat	Rose-breasted Grosbeak
Double-crested Cormorant	Ruby-crowned Kinglet
Downy Woodpecker	Ruffed Grouse
Eastern Kingbird	Scarlet Tanager
Eastern Pewee	Sedge Wren
Eastern Phoebe	Solitary Vireo
Evening Grosbeak	

## ***APPENDIX B***

### ***Breeding Birds of the Mainland Unit, Apostle Islands National Lakeshore (Continued)***

Song Sparrow  
Spotted Sandpiper  
Swainson's Thrush  
Swamp Sparrow  
Tennessee Warbler  
Tree Swallow  
Veery  
Whip-poor-will  
White-breasted Nuthatch  
White-throated Sparrow  
Wilson's Warbler  
Winter Wren  
Wood Duck  
Wood Thrush  
Yellow Warbler  
Yellow-bellied Flycatcher  
Yellow-bellied Sapsucker  
Yellow-rumped Warbler

## ***APPENDIX C***

*Reptiles and Amphibians of the Apostle Islands National Lakeshore*

**Common Name**

**Scientific Name**

Common Garter Snake	<i>Thamnopsis sirtalis</i>
Red-Bellied Snake	<i>Storeria occipitomaculata</i>
Painted Turtle	<i>Chrysemys picta picta</i>
Mudpuppy	<i>Necturus maculosus</i>
Tiger Salamander	<i>Ambystoma tigrinum</i>
Blue-Spotted Salamander	<i>Ambystoma laterale</i>
Spotted Salamander	<i>Ambystoma maculatum</i>
Red-Backed Salamander	<i>Plethodon cinereus</i>
Four-Toed Salamander	<i>Hemidactylium scutatum</i>
American Toad	<i>Bufo americanus</i>
Common Tree Frog	<i>Hyla cinerea</i>
Spring Peeper	<i>Hyla crucifer</i>
Leopard Frog	<i>Rana pipiens</i>
Wood Frog	<i>Rana sylvatica</i>
Green Frog	<i>Rana clamitans</i>

## APPENDIX D

### *Fish of the Apostle Islands National Lakeshore Region*

<u>Common Name</u>	<u>Scientific Name</u>
Rainbow Trout	<i>Salmo gairdneri</i>
Brown Trout	<i>Salmo trutta</i>
Brook Trout	<i>Salvelinus fontinalis</i>
Lake Trout	<i>Salvelinus namaycush</i>
Walleye	<i>Stizostedion vitreum v.</i>
Northern Pike	<i>Esox lucius</i>
Yellow Perch	<i>Perca flavescens</i>
Small Mouth Bass	<i>Micropterus dolomieu</i>
Rock Bass	<i>Ambloplites rupestris</i>
Smelt	<i>Osmerus mordax</i>
Lake Whitefish	<i>Coregonus clupeaformis</i>
Lake Herring	<i>Coregonus artedii</i>
Round Whitefish	<i>Prosopium cylindraceum</i>
Longnose Sucker	<i>Catostomus catostomus</i>
White Sucker	<i>Catostomus commersoni</i>
Burbot	<i>Lota lota</i>
Coho Salmon	<i>Oncorhynchus kisutch</i>
Bloater	<i>Coregonus hoyi</i>
Kiyi	<i>Coregonus kiyi</i>
Shortjaw Cisco	<i>Coregonus zenithicus</i>
Pygmy Whitefish	<i>Prosopium coulteri</i>
Ninepine stickleback	<i>Pungitius pungitius</i>
Trout-perch	<i>Percopsis omiscomaycus</i>
Johnny Darter	<i>Etheostoma nigrum</i>
Slimy Sculpin	<i>Cottus cognatus</i>
Mottled Sculpin	<i>Cottus bairdi</i>
Spoonhead Sculpin	<i>Cottus ricei</i>
Emerald Shiner	<i>Notropis atherinoides</i>
Spottail Shiner	<i>Notropis hudsonius</i>
Lake Chub	<i>Couesius plumbeus</i>
Lake Sturgeon	<i>Acipenser fulvescens</i>
Sea Lamprey	<i>Petromyzon marinus</i>
Alewife	<i>Alosa pseudoharengus</i>
Brook Stickleback	<i>Culea inconstans</i>
Longnose Dace	<i>Rhinichthys cataractae</i>
Deepwater Sculpin	<i>Myoxocephalus thompsoni</i>
Eurasian Ruffe	<i>Gymnocheilus cernuus</i>
Logperch	<i>Percina caprodes</i>
Black Bullhead	<i>Ictalurus melas</i>
Carp	<i>Cyprinus carpio</i>

## ***PLANNING TEAM & CONSULTANTS***

### **PLANNING TEAM**

#### **Apostle Islands National Lakeshore**

John Neal, Superintendent

Julie Van Stappen, Supervisory Resource Management Specialist

Robert Mackreth, Cultural Resource Specialist

#### **Denver Service Center**

Nancy Baker, Project Manager

Ed Moery, Landscape Architect

William Brose, Civil Engineer

### **Consultants**

Representative, Town of Russell, Wisconsin

Representative, Red Cliff Band of the Lake Superior Chippewa

Jeff Richner, Supervisory Archeologist, NPS Midwest Archeology Center

Myra Dec, Chief, Resource Education

Jim Nepstad, Management Assistant

Doug Pratt, Acting Chief, Maintenance

State Historic Preservation Officer -- Wisconsin

Advisory Council on Historic Preservation -- Washington, D.C.