

**National Park Service  
U.S. Department of the Interior**



**Apostle Islands National Lakeshore  
Wisconsin**

## **TREATMENTS FOR CULTURAL LANDSCAPES AND HISTORIC STRUCTURES OF THE LIGHT STATIONS OF MICHIGAN, OUTER, DEVILS, LONG, AND SAND ISLANDS FINDING OF NO SIGNIFICANT IMPACT**

### **BACKGROUND**

The National Park Service (NPS) is proposing to implement management actions at Apostle Islands National Lakeshore (park). These proposed actions focus on preserving the historic light stations at Michigan, Outer, Devils, Long, and Sand islands. The light stations include lighthouses, residences, support structures, and adjacent grounds built between 1856 and 1939. Proposed actions include:

- Rehabilitating historic structures to improve visitor access and use;
- Repairing structural elements, moisture mitigation, and improving ventilation;
- Removing or stabilizing hazardous materials.
- Removing encroaching trees and brush from historic grounds;
- Removing nonhistoric features from landscapes and structures;

The proposed actions seek to preserve and partially restore historic structures and cultural landscapes. The proposed actions also address improvements to visitor access and use of the light stations. Implementing the proposed work will protect cultural and natural resources, improve visitor experience and access, improve public health and safety, and provide more effective management of the light stations within the park.

NPS has completed a draft combined Cultural Landscape Report and Historic Structure Report (draft CLR/HSR) to document and evaluate the cultural landscapes and historic structures of the light stations of Michigan, Outer, Devils, Long, and Sand islands (light stations). The documentation served as a framework upon which alternatives were developed for the treatment and use of the historic structures and landscapes of the light stations. The final CLR/HSR will provide park managers with a comprehensive understanding of the physical evolution of the historic structures and landscapes and guidance for management of the resources. An Environmental Assessment (EA) was completed to evaluate potential effects on environmental, socioeconomic, and cultural resources from the draft CLR/HSR's three proposed treatment alternatives, including the selected alternative, and a no action alternative.

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations Michigan, Outer, Devils,  
Long, and Sand Islands - FONSI

This finding of no significant impact (FONSI) and the EA constitute the record of the environmental impact analysis and decision-making process associated with selecting and implementing the selected alternative. The selected treatment alternative includes rehabilitating each island's cultural landscape and historic structures to best portray the continuum of navigational history that characterizes the Apostle Islands as a system of light stations. The selected treatment alternative will restore some missing historic features, and repair or rehabilitate others, to better convey the full historical significance of the system. Examples of elements of the selected treatment alternative include repairing mechanical and electrical systems, repairing and replacing roofs and gutters, painting, clearing vegetation, restoring plantings, investigating improving accessibility to some buildings with ramps and wider door openings, and rehabilitating some buildings for improved visitor use and interpretation. The selected alternative includes measures to protect park resources, improve visitor enjoyment, and provide long-term conditions necessary to sustain natural and cultural resources. The selected alternative was selected after careful review of resource and visitor impacts and public comment.

#### **ALTERNATIVES CONSIDERED**

This section describes alternatives for cultural landscapes and historic structures treatments, including the selected alternative, the no action alternative, and two action alternatives that were evaluated but not selected. The alternatives, and their island-specific recommendations, are described in detail in the alternatives chapter of the EA. Additional detail is provided in the draft CLR/HSR.

#### **Treatment Alternative 2 (Selected Alternative)**

The selected alternative has a general approach of rehabilitation for each light station's cultural landscape and historic structures. This approach will best portray the continuum of navigational history that characterizes the Apostle Islands as a system of light stations and to sustain each light station's existing form, maintain its integrity, and protect its features and materials. Under this alternative, the rehabilitation approach will allow for repairs, alterations, and additions that are necessary to address the degradation of contributing features, and to preserve the characteristics and features that convey the light stations' historical, cultural, and architectural values. Treatment measures allow for noncontributing, compatible features to be retained and preserved, and removing or relocating noncontributing, noncompatible features. In addition to the rehabilitation efforts for cultural resources, actions will be taken to provide for improved visitor access, additional staff housing, improved efficiency of park operational and maintenance activities, and to protect the natural systems of the light stations.

The following are general descriptions of the treatment recommendations for each light station under this alternative.

#### ***Michigan Island Light Station***

Under the selected alternative, the overall treatment approach of rehabilitation at Michigan Island Light Station is primarily focused on 1) rehabilitating historic structures; 2) reestablishing

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations Michigan, Outer, Devils,  
Long, and Sand Islands - FONSI

views from the lake to the light station; 3) reestablishing a portion of the historic cleared area of the light station; 4) repairing circulation features (tramway, tram tracks, concrete walks); 5) restoring missing landscape plantings; and 6) removing noncompatible features. While the overall treatment intent for the cultural landscape is one of rehabilitation, many of the individual treatment measures for the cultural landscape focus on preserving existing site features.

*Outer Island Light Station*

Under the selected alternative, the overall treatment approach of rehabilitation at Outer Island Light Station is primarily focused on 1) rehabilitating or preserving historic structures; 2) reestablishing views from the lake to the light station; 3) reestablishing a portion of the historic cleared area of the light station; 4) maintaining all circulation features (tramway, tram tracks and concrete walks); 5) maintaining landscape plantings; and 6) removing noncompatible features. While the overall treatment intent for the cultural landscape is one of rehabilitation, many of the individual treatment measures for the cultural landscape focus on preserving existing site features.

*Devils Island Light Station*

Under the selected alternative the overall treatment approach of rehabilitation at Devils Island Light Station is primarily focused on 1) rehabilitating and preserving historic structures; 2) reestablishing a portion of the historic cleared area of the light station; 3) maintaining and stabilizing all circulation features (tram tracks and concrete walks); and 4) removing noncontributing features. While the overall treatment intent for the cultural landscape is one of rehabilitation, many of the individual treatment measures for the cultural landscape focus on preserving existing site features and the restoration of the tower.

*Long Island Light Station*

Under the selected alternative, the overall treatment approach of rehabilitation at Long Island Light Station is primarily focused on 1) rehabilitating and preserving historic structures; 2) reestablishing views from the lake to the LaPointe Tower and Triplex; 3) reestablishing a portion of the historic cleared areas near the light towers and Original LaPointe Lighthouse ruin; 4) reestablishing circulation features (connecting corridor); and 5) preserving ruins, structures and site features. While the overall treatment intent for the cultural landscape is one of rehabilitation, many of the individual treatment measures for the cultural landscape focus on preserving existing site features.

*Sand Island Light Station*

Under the selected alternative, the overall treatment approach of rehabilitation Sand Island Light Station is primarily focused on 1) restoring the Sand Island Light Station Quarters and preserving structures; 2) reestablishing views from the lake to the light station; 3) reestablishing a portion of the historic cleared area of the light station; and 4) reestablishing missing landscape features. While the overall treatment intent for the cultural landscape is one of rehabilitation, many of the individual treatment measures for the cultural landscape focus on preserving existing site features and restoring missing features.

## **No Action Alternative**

Under the no action alternative, there would be the fewest changes to the existing landscape, and it generally perpetuates the current conditions at the light stations. This alternative would preserve existing forms and materials through as-needed stabilization, ongoing preservation maintenance, and repairing historic materials and features. Historic small scale features in the landscape, pedestrian circulation, lawn and gardens, and historic clearing would persist through on-going maintenance. The existing views from the light stations to the lake and from the lake to the light stations would be maintained.

## **Treatment Alternative 1**

Treatment Alternative 1 proposes a primary treatment approach of preservation for each light station's cultural landscape and historic structures. This overall approach is intended to sustain each light station's existing form, maintain its integrity, and protect its features and materials. Current levels of staff housing would continue. Under this alternative, specific measures are recommended to stabilize, protect, and maintain existing cultural landscape features and historic structures that convey the light station's historical, cultural, and architectural values. Treatment measures allow for noncontributing, compatible features to be retained and preserved, and the removal or relocation of noncontributing, noncompatible features. In addition to the preservation efforts for cultural resources, actions are proposed to provide for improved visitor access, improved efficiency of park operational and maintenance activities, and to protect the natural systems of the light stations.

The following are general descriptions of the treatment recommendations for each light station under this alternative.

### *Michigan Island Light Station*

Under alternative 1, the overall treatment approach of preservation at Michigan Island Light Station is primarily focused on 1) preserving historic structures; 2) reestablishing views from the lake to the light station; 3) stabilizing and repairing circulation features (tramway, tram tracks, concrete walks); 4) maintaining landscape plantings; 5) removing noncompatible features; and 6) clearing and maintaining a portion of the historic cleared area of the light station.

### *Outer Island Light Station*

Under alternative 1, the overall treatment approach of preservation at Outer Island Light Station is primarily focused on 1) preserving historic structures; 2) reestablishing views from the lake to the light station; 3) stabilizing and repairing circulation and small scale features (tramway, concrete walks); 4) maintaining landscape plantings; 5) removing noncompatible features; and.

### *Devils Island Light Station*

Under alternative 1, the overall treatment approach of preservation at Devils Island Light Station is primarily focused on 1) preserving historic structures; 2) reestablishing a portion of the historic cleared area of the light station; 3) stabilizing and repairing circulation features (tram tracks, concrete walks); 4) maintaining landscape plantings; and 5) removing noncompatible features.

### *Long Island Light Station*

Under alternative 1, the overall treatment approach of preservation at Long Island Light Station is primarily focused on 1) preserving ruins, structures, and site features; 2) restoring views from the lake to the LaPointe Tower and Triplex; and 3) restoring a portion of the historic cleared areas near the light towers and Original LaPointe Lighthouse ruin.

### *Sand Island Light Station*

Under alternative 1, the overall treatment approach of preservation at Sand Island Light Station is primarily focused on 1) preserving Sand Island Light Station Quarters and other historic structures; 2) maintaining the existing cleared area of the light station; 3) clearing forest vegetation in the nonextant garden area; and 4) maintaining landscape features.

### **Treatment Alternative 3**

Alternative 3 proposes a general approach of rehabilitation for each light station's cultural landscape and historic structures with an emphasis on reestablishing cultural landscape features. This approach is intended to best portray the continuum of navigational history that characterizes the Apostle Islands as a system of light stations and to sustain each light station's existing form, maintain its integrity, and protect its features and materials. Under this alternative an approach of rehabilitation would allow for repairs, alterations, and additions that are necessary to address the degradation of contributing features, and to preserve the characteristics and features that convey the light stations' historical, cultural, and architectural values. Treatment measures allow for reestablishing missing features where the significance of the feature or space outweighs the loss of existing features. In addition to the rehabilitation efforts for cultural resources, actions are proposed to provide for improved visitor access and additional staff housing, facilitate operational and maintenance needs, and protect the natural systems of the light stations.

The following are general descriptions of the treatment recommendations for each light station under this alternative.

### *Michigan Island Light Station*

Under alternative 3, the overall treatment approach of rehabilitation at Michigan Island Light Station is primarily focused on 1) rehabilitating and preserving the historic structures of the light station; 2) reestablishing views from the lake to the light station; 3) reestablishing a portion of the historic cleared area of the light station; 4) repairing circulation features (tramway, tram tracks, concrete walks); 5) reestablishing missing landscape plantings; and 6) removing noncompatible features. While the overall treatment intent is one of rehabilitation, many of the individual treatment measures for the cultural landscape and historic structures focus on repairing existing resources and restoring missing features.

### *Outer Island Light Station*

Under alternative 3, the overall treatment approach of rehabilitation at Outer Island Light Station is primarily focused on 1) rehabilitating or preserving historic structures; 2) reestablishing views from the lake to the light station; 3) reestablishing a portion of the historic

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations Michigan, Outer, Devils,  
Long, and Sand Islands - FONSI

cleared area of the light station; 4) maintaining all circulation features (tramway, tram tracks, and concrete walks); 5) maintaining landscape plantings; 6) removing noncompatible features; and 7) relocating compatible and noncontributing features. While the overall treatment intent of the cultural landscape is one of rehabilitation, many of the individual treatment measures for the cultural landscape focus on preserving existing site features.

*Devils Island Light Station*

Under alternative 3, the overall treatment approach of rehabilitation at Devils Island Light Station is primarily focused on 1) rehabilitating historic structures; 2) reestablishing a portion of the historic cleared area of the light station; 3) maintaining concrete walks; 4) repairing the tram tracks to a working condition; and 5) removing noncompatible features. While the overall treatment intent of the cultural landscape is one of rehabilitation, many of the individual treatment measures for the historic landscape focus on preserving existing site features.

*Long Island Light Station*

Under alternative 3, the overall treatment approach of rehabilitation at Long Island Light Station is primarily focused on 1) rehabilitating and preserving historic structures; 2) reestablishing views from the lake to the LaPointe Tower and Triplex; 3) reestablishing a portion of the historic cleared areas near the LaPointe Tower and Original LaPointe Lighthouse ruin; 4) reestablishing circulation features (connecting corridor); and 5) preserving ruins and site features. While the overall treatment intent to the cultural landscape is one of rehabilitation, many of the individual treatment measures for the cultural landscape focus on preserving existing site features.

*Sand Island Light Station*

Under alternative 3, the overall treatment approach of rehabilitation at Sand Island Light Station is primarily focused on 1) rehabilitating the Light Station Tower and Keepers Quarters 2) reestablishing views from the lake to the light station; 3) reestablishing a portion of the historic cleared area of the light station; and 4) restoring missing landscape features. While the overall treatment intent for the cultural landscape of Sand Island Light Station is one of rehabilitation, many of the individual treatment measures for the cultural landscape focus on preserving existing site features and restoring missing features.

**WHY THE SELECTED ALTERNATIVE WOULD NOT HAVE A  
SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT**

The intensity or severity of impacts resulting from implementing the selected alternative is evaluated using the 10 criteria listed in 40 CFR 1508.27. Key areas in which impacts were evaluated include geology and coastal processes, soils, vegetation, wildlife, special status species, wetlands, soundscape, historic structures and cultural landscapes, visitor experience, public health and safety, and park operations. As defined in 40 CFR § 1508.27, significance is determined by examining the following criteria.

***Impacts that May be Both Beneficial and Adverse; a Significant Effect May Exist Even if the Park Service Believes that on Balance the Effect would be Beneficial***

The selected alternative will result in both beneficial and adverse impacts. In general, the project provides long-term beneficial effects to historic structures, cultural landscapes, visitor experience, public health and safety, and park operations.

The benefits to historic structures and cultural landscapes will result from implementing rehabilitation measures and clearing vegetation. Visitor experience will benefit from increased access and use of buildings and the more accurate representation of the cultural landscape. Public health and safety will benefit from the removal of hazardous materials and installation and repair of safety features. Park operations will benefit because the selected alternative will provide guidance on prioritizing and implementing treatments for historic structures and cultural landscapes.

Adverse impacts to geology and coastal processes, soils, vegetation, wildlife, special status species, wetlands, soundscape, and archeological resources will be minor to moderate and will generally be short-term impacts from construction-related disturbances while treatment recommendations are being implemented. There will be long term impacts to geology and coastal processes and vegetation associated with vegetation clearing and shoreline bank vegetation management. Mitigation measures listed in the EA (EA, Table 4), will minimize adverse effects. The EA includes a summary of environmental effects of the selected alternative (EA, Table 5).

***Degree of Effect on Public Health or Safety***

Public health and safety will benefit from removing hazardous materials from structures and repairing or installing hand rails and repairing concrete walks. In addition, a number of safety measures will be implemented during construction to protect visitors, park staff, and construction workers. Occupational Safety and Health Administration-compliant barricade fencing will be used to limit visitor access to construction areas. Staging and access areas will be located to avoid creating conflicts with ongoing park operations and visitor access. Maintaining a safe environment for park staff, contractors, and visitors during and after construction will be a primary objective.

***Unique Characteristics of the Geographic Area such as Proximity to Historic or Cultural Resources, Prime Farmlands, Wetlands, Wild and Scenic Rivers, or Ecologically Critical Areas***

As described in the EA, the selected alternative will not affect prime farmlands, wild and scenic rivers, or ecologically critical areas. Effects on wetlands will be negligible and the size, integrity, or continuity of wetlands will not be changed. There may be minor adverse effects on archeological resources associated with archeological sites, including dump sites, that will be more exposed to deterioration after vegetation is cleared around them. The degree of deterioration will be monitored and will be addressed if necessary. The selected alternative will have beneficial effects on historic structures and cultural landscapes.

***Degree to which Effects on the Quality of the Human Environment are likely to be Highly Controversial***

The selected alternative is not highly controversial. No issues arose during preparation of the EA from park staff and no issue was brought to the park's attention during the public review period that indicated a dispute with the selected alternative or the methods or results of the analysis of topics.

***Degree to which the Possible Effects on the Quality of the Human Environment are Highly Uncertain or Involve Unique or Unknown Risks***

There were no highly uncertain, unique, or unknown risks identified during the preparation of the EA or the public review period.

***Degree to which the Action may Establish a Precedent for Future Actions with Significant Effects or Represents a Decision in Principle about a Future Consideration***

The selected alternative will not have a significant effect and does not establish a precedent for future actions with significant effects. Furthermore, the level of development at this site proposed by the selected alternative is within the guidelines set by the park's draft General Management Plan.

***Whether the Action is Related to Other Actions with Individually Insignificant but Cumulatively Significant Impacts***

The EA concluded that past, present, and future activities, when coupled with the selected alternative, will have local long-term minor to moderate adverse and beneficial cumulative effects. No significant adverse cumulative effects were identified.

***Degree to which the Action may Adversely Affect Districts, Sites, Highways, Structures, or Objects Listed on the National Register of Historic Places; or May Cause Loss or Destruction of Significant Scientific, Cultural, or Historical Resources***

The selected alternative will not have an adverse effect on cultural landscapes or historical buildings or structures listed in or eligible for listing in the national register. Archeological resources in the vicinity of the project area will be identified and delineated for avoidance prior to project work. NPS initiated consultation with the Wisconsin State Historic Preservation Office (SHPO) on September 20, 2010 with a letter describing the project and alternatives and with the Park's determination that the alternatives would have no adverse effect on historic properties. NPS met with SHPO on November 9, 2010 to discuss the project and solicit comments on alternatives, including the selected alternative. SHPO agreed with the Park's finding that the selected alternative would have no adverse effect on historic properties on December 9, 2010.

***Degree to which the Action May Adversely Affect an Endangered or Threatened Species or Its Critical Habitat***

NPS determined that the selected alternative will likely not adversely effect Canada lynx, gray wolf, or piping plover, or result in the adverse modification of critical habitat. Park staff sent a Section 7 coordination letter to the U.S. Fish and Wildlife Service on March 30, 2011 requesting its concurrence with the park's determination that the selected alternative would have no effect on federally listed or special status species or designated critical habitat. The Fish and Wildlife Service provided its concurrence with the park's effect determination on May 12, 2011.

***Whether the Action Threatens a Violation of Federal, State, or Local Environmental Protection Law***

The selected alternative violates no federal, state, or local environmental protection law.

**MITIGATION MEASURES**

To help ensure the protection of natural and cultural resources and the quality of the visitor experience, NPS will implement a number of standard protective measures or best management practices (BMPs) and project-specific mitigation measures as part of the selected alternative (EA, Table 4). As described in Table 4 of the EA, the following project-specific mitigation measures will be implemented to minimize the degree and/or severity of adverse environmental impacts on particular resources:

1. Erosion control/biostabilization plans will be developed for Michigan and Outer Island slopes. The plans will provide guidance on selective tree thinning, as well as protocols for monitoring erosion on the shoreline bluffs following vegetation management.
2. To minimize impacts to sensitive plant species, surveys will be done prior to construction and buffers will be established around identified sensitive plants. Also, an island-specific removal plan will be developed for logs and plant materials generated by clearing activities. The plans will identify areas of sensitive vegetation to avoid and will designate areas for stockpiling, chipping, and burning slash material.
3. On Long Island, the location of the new boardwalk will be approved by the park biologist so that the boardwalk will not be likely to adversely modify piping plover critical habitat.
4. On Long Island, in order to have no effect on nesting piping plover, preconstruction surveys will be done and construction will only proceed with a determination from the park biologist.
5. Archeological sites around which vegetation will be managed will be monitored for deterioration and protective measures will be implemented, if necessary.
6. NPS or contractor equipment will be cleaned and made seed/insect free priority to movement to and from light stations.

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations Michigan, Outer, Devils,  
Long, and Sand Islands - FONSI

7. For reestablishing lawns all seed mixes will be approved by the Resource Management Division.

#### **PUBLIC INVOLVEMENT**

During preparation of the EA, NPS made efforts to involve the public in the planning process, including soliciting information and data from regulatory agencies. Park staff conducted a public open house on April 12, 2011 and the EA was made available on the NPS Planning, Environment and Public Comment (PEPC) website for public review and comment between March 31 and April 29, 2011. The park did not receive any comments from the public that resulted in substantive changes in the EA.

#### **IMPAIRMENT DETERMINATION**

A determination of impairment is made for each of the park resource and values impact topics carried forward and analyzed in the EA for the selected alternative. The description of the park's purpose and significance in the EA was used as a basis for determining if a resource is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
- key to the natural or cultural integrity of the park, or to opportunities for enjoyment of the park, or
- identified in the park's GMP or other relevant NPS planning documents as being of significance.

Impairment determinations are not necessary for some impact topics such as visitor experience, socioeconomics, public health and safety, environmental justice, land use, and park operations because impairment findings relate back to park resources and values. These impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired the same way that an action can impair park resources and values. The impact topics relevant to the impairment determination for the selected alternative are geology and coastal processes, soils, vegetation, wetlands, wildlife, special status species, natural soundscape, historic structures and cultural landscapes, and archeological resources.

NPS determined that the selected alternative would not impair resources relevant to the park's purpose or significance (Appendix A).

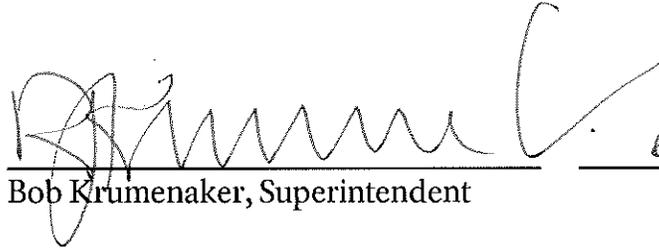
#### **Finding of No Significant Impact**

Based on my review of the facts and analysis contained in this environmental assessment, which is incorporated herein, I conclude that the selected alternative for the EA at Apostle Islands National Lakeshore will not have a significant impact either by itself or in consideration of

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations Michigan, Outer, Devils,  
Long, and Sand Islands - FONSI

cumulative impacts. Accordingly, the requirements of the National Environmental Policy Act, regulations promulgated by the President's Council on Environmental Quality, and provisions of NPS Director's Order-12 and Handbook (Conservation Planning and Environmental Impact Analysis and Decision-Making) have been fulfilled. Furthermore, the selected alternative would not impair park resources or values and would not violate the NPS Organic Act. The selected alternative supports the enabling legislation establishing Apostle Islands National Lakeshore under the NPS Organic Act with the intended purpose of preserving the scientific and public interests for future generations. An environmental impact statement is not required and will not be prepared for implementation of the selected alternative.

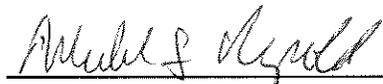
Recommended:

  
\_\_\_\_\_  
Bob Krumenaker, Superintendent

6/23/2011

Date

Approved:

  
\_\_\_\_\_  
Michael T. Reynolds, Regional Director

6-27-11

Date

## **Errata and Response to Comments**

### ***Errata***

This errata sheet documents corrections of factual errors and changes to certain recommendations depicted in the figures of the Environmental Assessment (EA).

On page 242, first paragraph, the EA states that the north-south road on Devils Island was built by the U.S. Coast Guard in 1960. U.S.C.G. records show that the road was built in 1954.

Also on page 242, the EA states, "in 1881, Sand Island light station was constructed on the northern tip of the westernmost island in the Apostle Islands chain." In actuality, Eagle Island is the westernmost island.

#### Michigan Drawing (Figure 27)

- 1) Location of new solar panel has been revised (75' north of location shown on drawing)
- 2) Tramway guardrail – the park will not be adding a guardrail

#### Outer Drawing (Figure 29)

- 1) Tramway guardrail – the park will not be adding a guardrail

#### Sand Drawing (Figure 37)

- 1) New Restroom – location of new NPS restroom has been moved to west near existing vault toilet. Length of new concrete walk leading to the restroom remains similar, area of disturbance remains similar.

### ***Response to Comments on the Environmental Assessment***

The following contains responses to substantive comments received on the EA. No changes in the text of the EA were made as a result of these comments.

**Comment from Mr. Charles G. Irvine, Apostle Islands Historic Preservation Committee:** I would suggest in light of the fact that it is planned to open the light station to the public, you provide copies of the keeper logs, starting from when Outer was first constructed in 1874 until it was automated.

**Response:** Thank you for the suggestion. Approaches to interpretation were not part of the scope of the CLR/HSR or EA, but the suggestion has been passed on to the park's interpretive staff.

**Comment from the Wisconsin Department of Natural Resources:** It isn't clear in the document how this tree clearing [on the shoreline slopes] relates to shoreland zoning standards like maintenance of clear zones and buffer areas.

**Response:** Chapter NR 115, Wis. Admin. Code, requires a 35-foot deep shoreline buffer running parallel to the ordinary high-water mark of navigable lakes, rivers and streams. In this buffer area, no more than 30 feet in any 100 feet may be clear-cut. The selected alternative adheres to the standard because in no case would trees and shrubs be clear cut. Tree removal would be selective and would only effect those trees that extend above the top of the shoreline bank. The majority of the trees within the 35-foot buffer do not extend above the top of the shoreline bank and so would not be removed.

**Comment from the Wisconsin Department of Natural Resources:** What is the goal for the thinning of trees along the [shoreline] banks? Is there a certain height determination or tree density percentage used?

**Response:** The goal of the tree thinning is to improve the views from the water to the light stations. No tree height or density thresholds have been established. Trees will be removed in small increments and bank stability will be monitored for unacceptable levels of erosion.

**Comment from the Wisconsin Department of Natural Resources:** Paragraph three on page 14 of the EA indicates that the erosion from the tree thinning would "be minimized by using best management practices (BMPs) to contain sediment and control erosion." Several of the slopes are quite steep, with existing erosion already a problem. More detail could be provided to explain what type of BMPs would be suitable for these types of slopes. Also, BMPs for these more difficult locations can often be visually intrusive. This is another item that should be explained in more detail. The analysis should weigh the options of a better viewshed from/toward the lighthouse versus viewing of more heavy-duty BMPs to control erosion.

**Response:** Shoreline slope stabilization BMPs that would be used as needed are described on page 166 of the EA and include constructing a subdrain at the top of the Michigan Island slope (one is already in place on Outer Island), placing erosion-control fabric, and revegetating with shrubs or herbaceous ground cover. NPS will rely on biostabilization techniques rather than visually intrusive measures such as cribbing or large riprap or boulders. The draft CLR/HSR contains additional detail on the stabilization approach.

**Comment from the Wisconsin Department of Natural Resources:** It appears that several areas are proposed to be cleared with meadow-like grasses established (ex. Michigan Island, Outer Island). More detail would help the clarity and scope of the analysis, such as what type of grasses would be planted (native vs. non-native), how invasives would be controlled, etc.

**Response:** Native species will be used to the maximum extent possible in the meadow areas, however, in cultural resource clearings, noninvasive nonnative grasses might be necessary. The park has successfully used several grass mixes in the light stations that do not include invasive nonnative species. The park has a stringent policy regarding managing invasive species and will continue to carry out its ongoing invasive species management plans.

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations Michigan, Outer, Devils,  
Long, and Sand Islands - FONSI

**Comment from the Wisconsin Department of Natural Resources:** The areas of proposed clearing around the Long Island sites involve clearing trees and maintaining dune vegetation. More detail on how these areas will be maintained and managed would be helpful, as most dune ecosystems can be very sensitive to changes.

**Response:** About 3.41 acres of forest vegetation would be cleared from around the existing and original LaPointe sites on Long Island. Once cleared, the understory would be managed to support grass and shrub dune vegetation. The park recognizes the difficulty in establishing and maintaining self-sustaining dune vegetation. Clearing will be done in increments so that small areas of vegetation are addressed at a time. Management will include reseeding disturbed areas and planting with shrubs as appropriate.

**Comment from the Wisconsin Department of Natural Resources:** Overall, we found the EA to be well written, comprehensive, and accurate.

**Response:** Thank you very much for the positive feedback on the EA.

**Comment from Bob Mackreth:** "... there is no discussion of the unmanned Gull Island light tower."

**Response:** The scope of the CLR/HSR was to develop treatment alternatives for certain light stations rather than alternatives for a more comprehensive number of structures in the park.

**Comment from Bob Mackreth:** The final treatment documents should include specific guidelines for clear angles of view, maximum vegetation height in each zone, buffer zones around structures, and so on. Cyclic landscape maintenance programs should be laid out (and rigorously followed). Otherwise, experiences of recent years suggest that the encroachment process will very quickly undo any landscape restoration done at this time.

**Response:** NPS agrees with the commenter's statement that encroachment can occur very quickly if not regularly addressed. The CLR portion of the CLR/HSR includes more details on implementing and maintaining the treatments.

**Comment from Bob Mackreth:** Treatment options for historic structures are often presented in general terms: e.g. "rehabilitate the Old Michigan Island Lighthouse and Second Tower," etc. Neither the general goals nor the precise details of the treatments are offered, e.g. p. 56: "Treatment recommendations for the Sand Island Light Station generally include the following measures.... Restore the Light Station Quarters." To what time period?

**Response:** The draft CLR/HSR contains more detailed information on the goals and details of the treatment options, including time periods to which structures will be restored.

**Comment from Bob Mackreth:** It will be important to set priorities carefully to take best advantage of this once-in-a-lifetime [funding source]. Precedence should be given to work directly related to preservation of the resources and promotion of public enjoyment.

**Response:** Identifying priorities is beyond the scope of the EA. As part of finalizing the CLR/HSR, the park is prioritizing funding to maximize its benefits to resources and the public.

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations Michigan, Outer, Devils,  
Long, and Sand Islands - FONSI

**Comment from Bob Mackreth:** Various. Mr. Mackreth provides several well-considered interpretation-oriented thoughts and suggestions.

**Response:** Addressing interpretation is not part of the EA or CLR/HSR. Mr. Mackreth's comments have been provided to the park's interpretive staff.

**Comment from Bob Mackreth:** I would argue against any modifications to provide gallery access at the Old Michigan Tower; the historic heavy steel hatch door would almost certainly have to be removed to provide safe access to the tower

**Response:** The draft CLR/HSR recommends investigating alternatives to discretely upgrade the existing railing to become a code compliant guard rail. The steel hatch door will remain in place. Visitors will access the structure with an NPS guide.

**Comment from Bob Mackreth:** If lantern room and gallery access is to continue at Devils Island, better provision should be made for protection of the unique and fragile Fresnel lens.

**Response:** Access to the Devils Island lantern room will continue. As is current practice, visitors will be accompanied by an NPS guide and will be required to don cotton smocks to reduce the possibility of damage to the lens.

**Comment from Bob Mackreth:** Devils Island has consistently been a popular visitor destination, especially among sailboaters who anchor off the northeast point and dinghy to shore. This has become more difficult in recent years with the removal of the cleats that had long been affixed to the rock landing. The cleats should be returned to facilitate public enjoyment of this important resource.

**Response:** Because of ice and wave-caused changes in the configuration of the rocks where the cleats were located, it is not as safe a landing spot as it was. NPS is not currently proposing to replace the cleats.

**Comment from Bob Mackreth:** It is essential that high priority be assigned to restoring the Sand Island Lighthouse to its historic appearance. The 2009 alteration of the iconic structure's appearance, replacing the century-old paint scheme, was ill-advised, and done without proper study or consultation.

**Response:** The restoration approach will include a paint scheme for the lighthouse that reflects the period of significance, which is 1881 to 1921.

**Comment from the Great Lakes Lighthouse Keepers Association:** I feel strongly that the trees around the hoist house must be cut back at least to the point that none of them serve as a potential threat to the structure in the event they are toppled. In fact, this same logic should be applied in reviewing the survivability of any of the historic structures. . .

**Response:** The selected alternative will clear trees from areas that were cleared during the period of significance for each light station. Removing all trees that could pose a falling hazard to historic structures, including around the hoist house, would accurately represent the period

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations Michigan, Outer, Devils,  
Long, and Sand Islands - FONSI

of significance. Some trees are being cleared around light station structures to protect against fire.

**Comment from the Great Lakes Lighthouse Keepers Association:** The association suggests using volunteer labor from groups such as the Boy Scouts of America and Rotary Club to assist with tree and brush clearing.

**Response:** Thank you for the suggestion. NPS agrees that involving citizens in the stewardship of the park is beneficial to everyone.

## APPENDIX A

# **APOSTLE ISLANDS NATIONAL LAKESHORE**

## **TREATMENTS FOR CULTURAL LANDSCAPES AND HISTORIC STRUCTURES OF THE LIGHT STATIONS OF MICHIGAN, OUTER, DEVILS, LONG, AND SAND ISLANDS**

### **IMPAIRMENT DETERMINATION**

In addition to determining the environmental consequences of alternatives to proposed actions, NPS *Management Policies 2006* and DO-12 require an analysis of potential effects to determine if actions would impair park resources. Impairment is an impact that would, in the professional judgment of the responsible NPS manager, harm the integrity of park resources or values, including opportunities that would otherwise be present for the enjoyment of those resources or values. A determination of impairment is made for particular resource impact topics carried forward and analyzed in the environmental assessment for the preferred alternative. The preferred alternative for meeting the objectives established in Apostle Islands National Lakeshore Treatments for Cultural Landscapes and Historic Structures of the Light Stations of Michigan, Outer, Devils, Long, and Sand Islands Environmental Assessment (EA) is described in chapter 2 of the EA. The EA also includes detailed information on existing conditions of resources (EA Chapter 3) and the effects the preferred alternative would have on those resources (EA Chapter 3). Existing conditions and effects are briefly summarized in this impairment determination.

The description of park significance in chapter 1 of the EA was used as a basis for determining if a resource is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
- key to the natural or cultural integrity of the park, or to opportunities for enjoyment of the park, or
- identified in the park's general management plan or other relevant National Park Service (NPS) planning documents as being of significance.

Impairment determinations are not necessary for some impact topics such as visitor experience, socioeconomics, public health and safety, environmental justice, land use, and park operations because impairment findings relate back to park resources and values. These impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired the same way that an action can impair park resources and values. The impact topics relevant to this impairment determination are geology and coastal processes, soils, vegetation, wetlands, wildlife, special status species, natural soundscape, historic structures and cultural landscapes, and archeological resources.

This impairment determination is based on current NPS guidance on determining impairment of park resources and values. The impairment determination for each resource and value

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations of  
Michigan, Outer, Devils, Long, and Sand Islands  
Impairment Determination

includes:

- a brief description of the condition of the resource;
- whether the resource is necessary to fulfill the purposes for which the park was established;
- whether the resource is key to the natural or cultural integrity of the park or to the opportunity for enjoyment of the park;
- whether the resource is identified as a significant resource in the park's planning documents; and
- a statement as to why the action will or will not result in impairment of the resource, including a discussion of the context, severity, duration, and timing of any impacts, and any mitigation measures, if applicable.

Based on the aforementioned guidelines and basis for determining impairment of park resources and values, a determination of impairment is made for each of the resource impact topics carried forward and analyzed in the environmental assessment for the preferred alternative.

#### GEOLOGY AND COASTAL PROCESSES

Many of the soils of the Apostle Islands were formed from glacial deposits of sands, or till, left during the Pleistocene glaciation. The islands continue to be affected by deposition and erosion and weathering from waves, wind, and weather, especially sandstone cliffs and bluffs. The bluffs formed from glacial till are particularly susceptible to erosion. The park's many sandscapes depend upon wave action and wind to transport and deposit sand. Coastal processes, such as erosion of bluffs and sandscapes, are influenced by Lake Superior water levels. Docks and other developments also may affect coastal processes.

Severe erosion has occurred on the slopes in front of the lighthouses on Michigan and Outer islands. Forest clearing, building construction, and alteration of natural drainage has helped destabilize these banks. The slopes in front of the Michigan Island Lighthouse are currently somewhat stable, but due to severe erosion, NPS staff implemented an erosion-control project from 2004 to 2006 to protect the Outer Island Lighthouse and the shoreline below the lighthouse. Shoreline stabilization measures at Outer Island have included constructing a drain parallel to the top of the slope to redirect surface flows; installing riprap; and using bioengineering measures, including log cribs and revegetating slopes using native plant species.

The park's geologic features and associated coastal processes are necessary to fulfill the purpose of the park, are key to the cultural integrity of the park, and are considered significant park resources.

Under the preferred alternative, the Long Island LaPointe site dock would be repaired and maintained and a new unanchored boardwalk would be constructed in its current alignment. These activities would have only negligible effects on coastal processes because the location and

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations of  
Michigan, Outer, Devils, Long, and Sand Islands  
Impairment Determination

configuration of the dock would not change and because the boardwalk would end above the active shoreline and would not be anchored.

In addition to activities at the shoreline of the LaPointe site, about 3.1 acres of vegetation on the shoreline bluffs of the light stations at Michigan and Outer islands would be managed to open up views to the light stations. The bluff vegetation would be managed by selectively removing trees that extend more than 20 feet above the top of the slope and trimming the tops of shrubs as needed. Periodic maintenance would include evaluating the effectiveness of the biostabilization efforts and thinning trees to lower, but not remove, unstable or overcrowded elements.

Managing the vegetation on the shoreline bluffs would expose soils on the slope to precipitation, and soil would be disturbed by crews removing trees. The clearing would be done incrementally so that only small areas of slope would be potentially destabilized at one time. Disturbed areas would be biostabilized using native species adapted for the specific conditions of the site.

Soil erosion would be minimized by monitoring the slopes and implementing erosion-control measures based on site-specific needs. Erosion-control measures may include constructing a subdrain at the top of the Michigan Island slope (one is already in place on Outer Island), placing erosion-control fabric, and revegetating with shrubs or herbaceous ground cover.

Activities proposed along the shore of Long Island would have negligible effects on geology and coastal processes, and vegetation management on the shoreline bluffs of Michigan and Outer islands would result in local long-term minor adverse effects on geology and coastal processes.

Although areas of shoreline bluffs would be exposed to the potential for higher erosion, the effects would be minimized by following erosion control/biostabilization plans that include erosion control measures, monitoring erosion on the shoreline bluffs, and implementing biostabilization, if necessary. For these reasons, the impacts to geology and coastal processes from the preferred alternative would be local, long-term, minor, and adverse. Although impacts on geology and coastal processes from the preferred alternative would be minor, they would be localized and would not impair the resources.

## SOILS

Shoreline erosion has been a concern in the park. Wave action has eroded steep bluffs on the islands and has been a threat to park attractions, including campgrounds and lighthouses. Soils on Long Island are derived from sandy outwash and lacustrine deposits. The soils on Long Island occur on beach ridges, sand dunes, and beaches, and are highly susceptible to erosion. Severe erosion has occurred at the toe of the slopes in front of the lighthouses on Michigan and Outer islands. NPS staff implemented an erosion-control project from 2004 to 2006 to protect the Outer Island Lighthouse and the shoreline below the lighthouse.

Although soil resources are not specifically mentioned as being necessary to fulfill the purpose

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations of  
Michigan, Outer, Devils, Long, and Sand Islands  
Impairment Determination

of the park, intact soil resources are a key aspect of maintaining the integrity of the park's outstanding collection of scenic, scientific, biological, geological, historical, archeological, cultural, and wilderness features and values. Soils are not identified as a significant park resource.

The preferred alternative would affect about 31 acres of land. The activities would include clearing trees and/or trimming shrubs that have encroached into the historically cleared areas of the light stations. Although understory vegetation would remain, removing the tree canopy and/or trimming the shrub layer would expose soils more directly to precipitation, which may increase erosion. Because most of the light stations are in relatively level areas, increased erosion would likely be minor. Vegetation also would be cleared on Long Island to reestablish the historic walkway between the lights. The sandy soils along the walkway would be vulnerable to erosion.

Erosion-control best management practices (BMPs) for drainage and sediment control, as identified and used by NPS, including those in NPS Procedural Manual #77-1: Wetland Protection, would be implemented to prevent or reduce nonpoint source pollution and minimize soil loss and sedimentation in drainage areas. The walkway on Long Island would be monitored to determine if unacceptable levels of erosion were occurring and if revegetation or visitor management was necessary.

Although areas of soil would be exposed to the potential for higher erosion, the effects on soils would be minimized by the flat topography of the light stations, the remaining ground cover, and implementing erosion-control measures. For these reasons, the impacts to soils from the preferred alternative would be local, short-term, minor, and adverse. Because impacts on soil resources from the preferred alternative would be minor, the preferred alternative would not impair soil resources.

## VEGETATION

More than 750 plant species occur in the park, including 26 rare species of concern. The park is at the northwestern limits of the hemlock-white pine-northern hardwood forest, and also contains elements of boreal forest.

The park's rare plant communities, habitats, and species are necessary to fulfill the purpose of the park, are key to the natural integrity of the park, and are considered a significant park resource.

The preferred alternative would include managing vegetation, including clearing trees and/or trimming shrubs, on about 23 acres of vegetation, including about 18 acres of forest that has encroached into the historically cleared areas of the light stations. The vegetation managed on each island would represent a small fraction of the total vegetation on the island. The alternative would affect about 4% of the vegetation on Devils Island, about 2% on Long Island, and less than one-half of 1% on the remaining islands. In all, managed areas would be less than one-

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations of  
Michigan, Outer, Devils, Long, and Sand Islands  
Impairment Determination

quarter of 1% of the approximate 13,141 acres of vegetation present on the five islands. The infestation and spread of invasive exotic plants, including plants in the cultural landscape, is possible.

To minimize adverse effects on vegetation, several mitigation measures would be implemented. Construction activities would be confined to the smallest area necessary to complete the work, and all areas of disturbed vegetation would be restored with native vegetation following construction. Weed control BMPs would be implemented to minimize the potential for weed establishment and long-term adverse effects. BMPs would include using native species, monitoring for infestations and spread, and using an integrated pest-management approach to controlling invasive exotics. Native species will be used to the maximum extent possible, however, in cultural resource clearings, noninvasive nonnative grasses might be necessary. Revegetation of disturbed areas is expected to take more than one year because of the low soil fertility and water holding capacity of the soils.

Because the preferred alternative would include the permanent modification of about 23 acres of vegetation and the likely introduction and spread of nonnative species, the effects would be local, long-term, minor to moderate, and adverse. Because the adverse effects would be local, long-term, minor, and adverse, and would primarily occur in areas of the park that have been previously disturbed, rather than in rare communities, the preferred alternative would not impair vegetation resources.

## WETLANDS

According to recent park vegetation mapping, wetlands are present on the five light station islands, but Devils and Long islands are the only islands with wetlands present in areas addressed by the preferred alternative. Wetlands on Devils and Long islands are limited by soil type and topography. Fen wetlands are present in Devils Island Light Station along the tram rail from the light station to the tramway engine building, and along the existing trail between Devils Island Light Station and the dock and boathouse on the southern end of the island. Interdunal and herbaceous emergent wetlands are present in the vicinity of the original LaPointe Light Station, and along the alignment of the historic walkway between the three Long Island light stations. There are no wetlands at Michigan, Outer, or Sand island light stations.

Although not specifically mentioned, wetlands are part of the park's rare plant communities, habitats, and species, which are necessary to fulfill the purpose of the park, are key to natural integrity, and are a significant park resource.

Under the preferred alternative, vegetation along the trail corridors between the LaPointe, Original Lighthouse, and Chequamegon Point site and between the LaPointe site and Chequamegon Bay would be managed as needed to maintain the corridors.

In addition to managing vegetation along trails, under the preferred alternative, the Devils Island tram tracks would be stabilized and trees and shrubs would be pruned to maintain a clear

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations of  
Michigan, Outer, Devils, Long, and Sand Islands  
Impairment Determination

corridor along the tramway. The tram track grade crosses about 275 linear feet of fen wetland. Because the top of the grade would be stabilized, wetland areas adjacent to the tracks and the hydrology supporting the wetlands would not be disturbed.

Stabilizing the tram tracks and managing vegetation along the Long Island trails would not change the size, integrity, or continuity of wetlands in the project area, so the preferred alternative would have local short- to long-term negligible adverse effects on wetlands. Because the effects would be local, short- to long-term, and negligible, the preferred alternative would not impair wetland resources.

## WILDLIFE

Island biogeography plays a large role in the distribution and abundance of wildlife populations within the park. The islands are naturally isolated from the mainland, and Lake Superior is a barrier to movement for some animals. The islands are especially important as stopovers for migratory birds. The park also provides nesting habitat for bald eagles.

Although not mentioned specifically, wildlife species are part of the park's outstanding biological features and values, the protection and conservation of which is one of the park's purposes. Wildlife species are also key to natural integrity, and are part of the park's significant rare communities and species.

Short-term and long-term impacts to wildlife habitat would result from vegetation removal and management associated with the preferred alternative. In the short term, human presence and construction noise would temporarily disturb and displace resident wildlife.

There would be additional periodic short-term effects when cleared areas are periodically maintained by mowing or brush removal.

In the long term, about 25 acres of habitat, including vegetation, beaches, and banks, would be permanently modified under the preferred, which would result in habitat loss for some wildlife species, including species that prefer forest habitat, such as red squirrel and nuthatch, and an increase in habitat for other species, including species that prefer shrub and grassland habitat, such as mice and eastern meadowlark.

The additional noise and disturbance during construction would result in local short-term minor adverse effects on wildlife species that prefer forest habitat. The permanent modification of about 25 acres of forest and shrub habitat would result in local long-term minor adverse effects on wildlife species that prefer forests. Because the effects would be local, long-term, and minor, the preferred alternative would not impair wildlife resources.

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations of  
Michigan, Outer, Devils, Long, and Sand Islands  
Impairment Determination

**SPECIAL STATUS SPECIES**

A number of federal and state threatened and endangered species are known to occur, or have the potential to occur, in the park. Although transient, gray wolf does occur in the park and has recently occurred on Sand Island. During the spring of 2009, there were at least two animals on Sand Island (Van Stappen, pers. comm. 2010). A pack on the mainland has primary territory less than a mile from Sand Island. Piping plovers have nested in the park since 1998. All of Long Island, including private and tribal lands, was designated as critical habitat in 2001. Piping plovers do not occur on Devils Island or Sand Island.

In addition to federally listed species, a number of wildlife species listed as threatened or endangered by the state of Wisconsin are at least occasionally present in the park. The park also hosts 18 plant species listed as threatened or endangered by the state of Wisconsin.

Eleven of the state-listed threatened or endangered species have been documented in the park, but have not been found on Michigan, Outer, Devils, Long, and Sand islands.

The other seven species have been documented to occur on one or more of the five islands addressed by the EA.

The park's rare communities, habitats, and species are necessary to fulfill the purpose of the park, are key to the natural integrity of the park, and are considered a significant park resource.

The preferred alternative would have no effect on gray wolf because it is present so rarely in areas that would be affected by the proposed activities.

Piping plover is known to have nested on three of the light stations islands, and because critical habitat has been designated on Michigan and Long islands, so there is potential for the piping plover to be affected by the preferred alternative. The preferred alternative includes removing the existing boardwalk at Long Island LaPointe Light Station and constructing a new boardwalk located at a gentle slope of the shoreline that would be moved as needed to adjust to changing shoreline conditions and to avoid piping plover habitat. The permanent loss of 680 square feet within the Long Island critical habitat unit would be negligible, and would not likely adversely modify critical habitat because it would not appreciably diminish the value of the habitat for either the survival or recovery of the piping plover.

The preferred alternative would also temporarily introduce noise and human disturbance during construction, some of which may be close enough to potential nesting areas that plovers may avoid nesting or may not successfully nest.

Mitigation measures, such as preconstruction surveys and limiting construction to the nonnesting season, would avoid the potential for disturbing nesting piping plovers. Work would only proceed with a determination from the Resource Management Division.

With mitigation measures, the preferred alternative would have no effect on piping plover and

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations of  
Michigan, Outer, Devils, Long, and Sand Islands  
Impairment Determination

would not likely adversely modify piping plover critical habitat.

The preferred alternative would likely have no effect on state-listed wildlife species because listed species potentially present are migrant birds that would easily avoid the small areas of disturbance at the light stations and on a regional scale the habitat modification would be insignificant.

The preferred alternative may affect some state-listed threatened and endangered plant species that are known to, or that may, occur in the areas of the light stations that would be disturbed. The preferred alternative would include modifying habitat on about 25 acres of vegetation that has encroached into the historically cleared areas of the light stations. The infestation and spread of invasive exotic plants also is possible.

The potential effects of the preferred alternative on state-listed plants would be mitigated in several ways. Construction activities would be confined to the smallest area necessary to complete the work, and all areas of disturbed vegetation would be restored with native vegetation following construction. Implementing best management weed control practices would minimize the potential for weed establishment and long-term adverse effects. Finally, surveys for state-listed and other rare plants would be performed prior to vegetation removal, and vegetation treatments would be altered, where practicable, to avoid disturbing populations.

The preferred alternative would have no effect on gray wolf or piping plover and would not likely adversely modify piping plover critical habitat. The effects on state listed species would be local, long-term, negligible, and adverse. Because the preferred alternative would have no effect on gray wolf or piping plover and effects on state-listed species would be local, long-term, and negligible, the preferred alternative would not impair special status species resources.

## NATURAL SOUNDSCAPES

The undisturbed soundscape on the islands consists of natural sounds that include waves on the shoreline, wind blowing through the trees, and bird calls. The overall soundscape in the park is generally quiet with minimal intrusion from human-generated sources except near high use areas. The soundscape in the interior wilderness areas on the islands are the closest to undisturbed conditions. The most common human-caused sounds near the shoreline are from motorized watercraft, which is highest in the summer. Park operations, maintenance, and administration activities also contribute to noise generated in developed areas.

A natural soundscape is necessary to fulfill the park's purpose of protecting and conserving the park's wilderness character and values, is key to the natural integrity of the park, and is part of the significant "island experience" of the Apostle Islands.

Project activities would result in temporarily elevated noise levels during vegetation removal and ongoing management, building repairs and rehabilitation, and occasionally operating generators for various uses. Because of temporary noise generated by various activities, the preferred

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations of  
Michigan, Outer, Devils, Long, and Sand Islands  
Impairment Determination

alternative would result in local short-term minor adverse effects on the soundscape in the vicinity of the light stations, but would have no long-term adverse effects. Because the effects would be local, short-term, and minor, the preferred alternative would not impair the natural soundscape.

#### HISTORIC STRUCTURES AND CULTURAL LANDSCAPES

All of the light stations in the park are listed on the national register. Cultural landscapes with varying degrees of integrity are associated with the light stations. The light stations were constructed between 1856 and 1891 to aid navigation through this portion of Lake Superior.

The light stations are the most visible historic resources in the national lakeshore. In addition to the lighthouses and keepers' dwellings, the light stations retain a substantial number of auxiliary buildings (e.g., oil houses, privies, barns, and shops) and associated cultural landscape features that provide a more complete understanding of the nature of operations and the living conditions of the keepers and their families.

The park's historic structures and cultural landscapes are necessary to fulfill the purpose of the park, are key to the cultural integrity of the park, and are considered significant park resources.

The emphasis of the preferred alternative is rehabilitation of historic structures and cultural landscapes. Existing contributing structures and landscape features would be repaired or altered, and missing historic features would be restored. Some noncompatible features would be removed. Where needed, compatible features would be added to meet building codes and maintain safety. About 28 acres of vegetation would be managed to better represent the extent of clearing in the light stations during the period of significance. Views of the light stations from Lake Superior would be slightly improved on Michigan and Outer islands.

Rehabilitating structures and landscape features under the preferred alternative would have long-term beneficial impacts on historic structures and cultural landscapes. Because the effects would be long-term and beneficial, the preferred alternative would not impair historic structure or cultural landscape resources.

#### ARCHEOLOGICAL RESOURCES

There are 66 known prehistoric and historic archeological sites in the park (NPS 2009a). Approximately 25% of the park has been surveyed, with surveys focusing on areas considered likely to yield archeological resources, or conducted in response to compliance requirements for development of other projects. The park and surrounding areas have a long history of use by American Indians. Several small hunting and fishing camps have been documented in the park from the early historic period (beginning in the mid-17th century).

In addition to formally documented sites, several known dump sites are associated with the light

Apostle Islands National Lakeshore  
Treatments for Cultural Landscapes and Historic Structures of the Light Stations of  
Michigan, Outer, Devils, Long, and Sand Islands  
Impairment Determination

stations. Scattered dump sites on Outer and Sand islands are within currently forested areas. LaPointe Light Station includes a rubble pile just east of the fog signal foundation.

The park's archeological resources are necessary to fulfill the purpose of the park, are key to the cultural integrity of the park, and are considered significant park resources.

Maintenance and repairs to historic structures and landscapes would continue following implementation of the preferred alternative, and the existing trail corridor on Devils Island would be maintained. Most activities do not typically include excavation, but excavation would be required for work at the Long Island Triplex, possibly at the Devils Island Light Tower, and occasional work such as septic system repairs.

Two unrecorded dump sites are within forest vegetation that would be removed under the preferred alternative. The dumps would then be more exposed to the elements and to potential disturbance by visitors. No other known archeological sites would be affected by the alternative, but it is likely that unknown sites are present within the light stations.

To minimize potential adverse impacts, surveys for visible archeological resources would be conducted prior to ground-disturbing activities. Testing and monitoring for subsurface artifacts would be conducted during ground-disturbing activities in areas likely to contain high densities of artifacts, such as around foundations and historic edges of clearings. In the event archeological resources are encountered, work would be stopped immediately and the park cultural resource specialist would be contacted. If necessary, the SHPO would be consulted on potential adverse impacts and additional mitigation measures.

The preferred alternative would have local long-term minor adverse impacts on archeological resources. Because the effects would be local, long-term, and minor, the preferred alternative would not impair archeological resources.

