ENVIRONMENTAL ASSESSMENT
Improvement of Recreation Opportunities for Concessions Employees at Rock Harbor

ISLE ROYALE

NATIONAL PARK • MICHIGAN

Department of Interior
National Park Service
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SUMMARY

Isle Royale National Park proposes to improve the recreational opportunities and quality of life for Forever Resorts concessions employees stationed at Isle Royale by building a new 2160 sq. ft. recreation hall in Rock Harbor. There currently is not a designated area or building for concession employees who have very limited recreational opportunities on Isle Royale and few opportunities to leave the island during the summer. The Isle Royale General Management Plan supports the continuation of the Rock Harbor Lodge concession operation on Isle Royale. This project will contribute to the quality of visitor services and the sustainability of the concession operation by improving employee morale and reducing staff turnover.

This Environmental Assessment (EA) describes a no action alternative and three action alternatives and analyzes the environmental impacts of each. The National Park Service prefers Alternative D.

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INTRODUCTION

Isle Royale National Park is located in Lake Superior 50 miles north of Michigan's Keweenaw Peninsula, 13 miles south of Ontario, Canada, and 18 miles east of the Minnesota shore. It is an archipelago of one large island, 45 miles long and 9 miles wide, and more than 200 small islands comprising a total land area of 133,782 acres. The park's boundary extends 4.5 miles into Lake Superior, encompassing 438,008 acres of water, bringing the park's total area to 571,790 acres.

An Act of Congress established Isle Royale National Park on March 3, 1931 (46 Stat. 1514). In 1976, legislation (Public Law 94-567) was passed designating Isle Royale National Park as a Wilderness area. To date, 99% of the land area of the park has been established as Wilderness. The Park's General Management Plan (1998) identifies the following purpose statements for Isle Royale, which reaffirm the reasons it was set aside as a National Park. They are based on park legislation and legislative history, special designations, and NPS policies.

- Preserve and protect the park's wilderness character for use and enjoyment by present and future generations;
- Preserve and protect the park's cultural and natural resources and ecological processes;
- Provide opportunities for recreational uses and experiences that are compatible with the preservation of the park's wilderness character and park resources;
- Provide park-related educational and interpretive opportunities for the public;
- Provide opportunities for scientific study of ecosystem components and processes, including human influences and use, and share the findings with the public.

The summer park headquarters is at Mott Island, where there are employee offices, housing, and maintenance facilities. There is one overnight lodging facility located at Rock Harbor and visitor marinas selling fuel and supplies are located at Rock Harbor and Windigo. Isle Royale is primarily a wilderness and maritime park. There are no roads at Isle Royale and cars, motorcycles, bicycles and horses are not allowed on the island. Travel at Isle Royale is by boat or on foot.

The main concessions operation, operated by Forever Resorts, is located in Rock Harbor. The Rock Harbor Lodge provides the only overnight lodging on the island. In addition, the concessionaire also offers a café, camping store, gift shop, water taxi service, guided excursions, a full-service marina, and motorboat and canoe/ kayak rentals. The concessions staff in Rock Harbor numbers approximately seventy employees. The concessionaire also operates a small store and marina operation located in Windigo.

The visitor services offered by the concessionaire are important to every category of Isle Royale visitor. Rock Harbor Lodge guests rely on the concessionaire for lodging and meals as well as for water taxi services, boat rentals, and excursions aboard the *MV Sandy*. Backpackers and canoeists/ kayakers often visit the camp store for last minute items, buy a meal in the café, and use coin-operated showers. Boaters depend on the marina for fuel and utility hook-ups. The services provided by the concessionaire are vital to visitor satisfaction at Isle Royale.

PURPOSE AND NEED FOR ACTION

Purpose for Improving the Quality of Life for Concessions Employees at Rock Harbor

The purposes of improving the quality of life for concessions employees at Rock Harbor:

- **i.** Enhance the social and recreational situation for concessions employees working in Rock Harbor
- **ii.** Improve concessions employee morale

The majority of concessions employees are in their twenties or thirties and single. They have few recreational opportunities to pursue during their free time. Television and internet service are not conveniently available to employees. Current recreational facilities for concessions staff include a dirt volleyball court, one 15' by 12' room, and a fire pit, which is located near the noisy generator building and parallel to the main visitor's hiking trail. The only other recreational opportunities available to the concessions staff are hiking and boating (the majority of concessions employees do not own boats). Isle Royale is an isolated island and access to the recreational offerings found on the mainland requires a lengthy five-hour voyage on the ferry boat or a 3.5-hour ferry trip and a one-hour taxi ride. Concessions employee work schedules do not permit the blocks of free time needed for visits to the mainland. The option of providing more flexible work schedules that would provide time off to visit the mainland is not feasible on the island due to the travel time associated with return visits to the mainland. Also, many concessions employees are from abroad so they cannot leave the island to visit friends and families. They rely on phone and internet communications. Basically, approximately seventy concessions employees spend months in cramped, dormitory housing, with minimal recreational outlets, and little chance of visiting the mainland.

Another purpose of this proposal is to improve concessions employee morale, which could also help reduce turnover among concessions staff. The poor living conditions combined with severe isolation often cause concessions employees to have low morale and experience difficulties remaining in their positions for the full season. Many of those employees who do remain for the full season do not return the next season. A high turnover rate can result in increased hiring and training costs, deprive the concessionaire of experienced workers, and can result in inadequate staffing levels during the peak visitor season. The workers who do remain in their jobs when other employees quit are then forced to take on additional duties. This increased workload can further damage morale, which affects the attitude of the staff towards visitors.

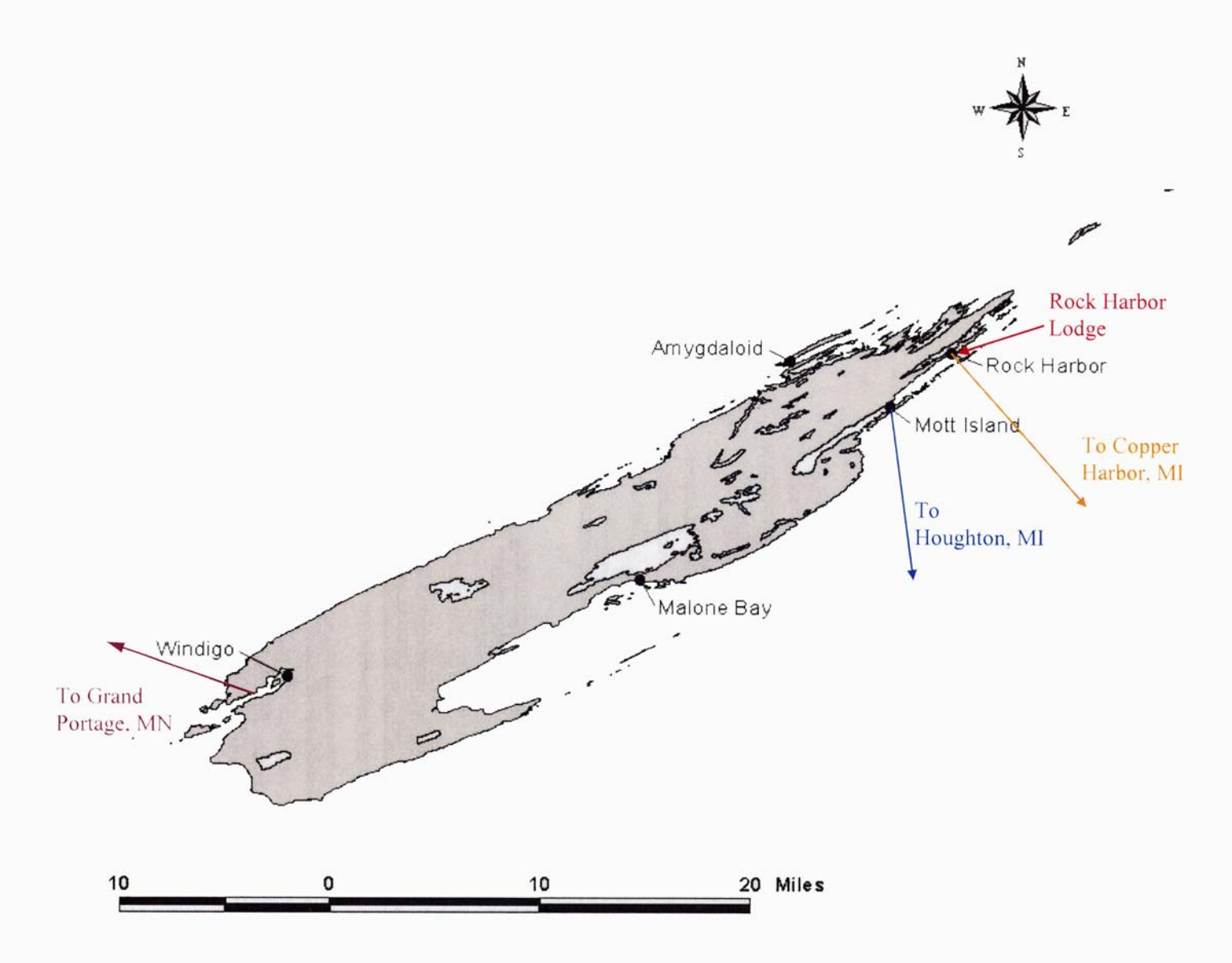
Need for Improving the Recreational Opportunities for Concessions Employees at Rock Harbor

Recreational facilities for concessions staff are virtually non-existent. Isle Royale National Park needs to improve the living and social situation for concessions employees at Rock Harbor. The current facilities for social activities such as internet access, phone access, reading and television viewing are substandard and do not allow employees to relax and maintain contact with friends, relatives or loved ones who are on the mainland and increasingly are in foreign countries. All of

these factors combine to create problems with low employee morale which leads to poor customer service and can lead to a high rate of employee turnover.

Concession services at Rock Harbor are an important component of the overall visitor services offered at Isle Royale. In order to help ensure the continuation of the concession operation, the NPS needs to improve the recreation facilities used by concessions employees at Rock Harbor. Construction of the Recreation Hall will help to raise employee morale and promote better customer service. It will also help combat a high rate of turnover among staff, resulting in retaining experienced staff and less training costs.

Figure 1: Isle Royale National Park



ISSUES AND IMPACT TOPICS

Issues and Impact Topics Included In This EA

The following issues were identified through the Environmental Screening Form reviewed by the park compliance committee. These issues will be addressed in this document.

Important archeological and other cultural resources, including historic properties listed or eligible for the National Register of Historic Places: The Rock Harbor area contains several structures eligible for National Register listing. In addition, several other buildings, including the existing concessions dorm are from the *Mission '66* period of NPS construction. There are no known archeological sites near the project areas. Impacts to cultural resources will be examined.

State- listed endangered or threatened species and their habitats: There are many plants and animals listed by the State of Michigan as Endangered, Threatened or "Species of Special Concern" found at Isle Royale. While construction under all alternatives will be in developed areas, impacts to state-listed species and their habitats will be discussed.

Visitor experience/Scenic views: Concessions employees provide many important services to Isle Royale visitors. Improvement of employee morale and reduction in turnover rates could have positive effects on visitor experience. Construction of the recreation hall will need to take place during the visitor season creating both visual and noise impacts. The impacts to visitor experience/scenic views will be addressed.

Park operations: National parks have limited financial resources to construct and maintain facilities. The impact of this project on the park operations will be discussed.

Concessions operation: The Isle Royale GMP calls for the continuation of the concessions operation at Rock Harbor. The impact of this project on the financial viability of the concessions operation and the satisfaction of concessions employees will be examined.

Issues and Impact Topics Dropped From Further Analysis

Other issues were considered for this project and then dropped from further analysis because they either did not apply to Isle Royale or were not expected to be impacted by the proposed action. A discussion of those topics follows.

Public Health and Safety: Safety standards will be followed to protect employees and visitors during construction. The new facility would have no impact on public health and safety.

Federally listed endangered or threatened plants and animals and their habitats: The Endangered Species Act of 1973 requires disclosure of impacts on federally protected threatened or endangered species. Two federally listed threatened species, the Bald Eagle *(Haliaetus leucocephalus)* and the Gray Wolf *(Canis lupus)*, occur at Isle Royale. Neither species will be impacted by the construction project under any of the alternatives.

Conflicts between the proposal and land use policy - Wilderness: The construction of a new recreation hall for the use of concessions employees does not conflict with wilderness land use

policy because the projects occur in a non-wilderness area. The impacts of the alternatives on natural resources are discussed in impact topics that are examined in detail.

***Conflicts between the proposal and land use plans, policies, or controls for the area concerned*:** The proposal meets the guidelines for park management identified in the Final General Management Plan (GMP) Environmental Impact Statement for Isle Royale National Park (1998). The Park's GMP called for the continuation of the concessions operation at Rock Harbor as part of the overall visitor services at Isle Royale. Facilities will be built in Rock Harbor, which is in a developed zone where visitor and administrative facilities are appropriate (GMP, 1998). No conflicts with land use plans or policies are anticipated with this project.

***Socioeconomic environment*:** There are gateway communities in Minnesota and Michigan providing ferry service and other amenities to Isle Royale visitors. This project may provide a minor, short-term positive socioeconomic impact from hiring of members of the local communities for construction and purchasing of materials locally. However, this project will have no substantial long-term impact on those communities.

Environmental justice: Executive Order 12898 requires Federal agencies to incorporate environmental justice into their missions by addressing high human health or environmental effects on minorities or low-income populations or communities. The project will not affect these populations or communities.

Wetlands and coastal zones: Executive Order 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. Executive Order 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. None of the sites in the proposed action will be built in or near wetlands.

The Coastal Zone Management Act of 1972 (Public Law 92-583) was passed to protect, preserve, develop, and restore or enhance, where possible, the nation's coastal zone resources. The "coastal zone" is defined as coastal waters and adjacent shoreline areas that are strongly influenced by each other. The zone includes harbors, beaches, and transitional estuary-type areas such as bays, shallows, and marshes. The coastal zone extends inland from the shoreline only to the extent necessary to control shorelines, the uses of which have a direct and significant impact on coastal waters. This project will have no impact on the "coastal zone" as defined in the Coastal Zone Management Act.

***Floodplains*:** There has never formally been a determination of floodplains on Isle Royale. Generally, only small streams have the potential for flooding and only developments close to those streams are vulnerable to flood impacts. The proposed action is not within the flood zone of any of these streams.

Prime and unique agricultural lands: There are no agricultural lands at Isle Royale.

Sacred sites and Indian Trust Resources: No sacred sites have been identified at Isle Royale, nor do we manage Indian trust resources.

ALTERNATIVES

This project is primarily designed to improve the recreational opportunities available to concessions staff located in Rock Harbor. As part of the planning process, four reasonable alternatives have been considered: three action alternatives and the no action alternative. The action alternatives each meet all of the goals for the project, while the no action alternative fails to meet any of these goals.

Alternative A - No Action Alternative

Under this alternative the recreational facilities available to concessions employees would not be improved. The concessionaire would continue to make due with current facilities which are a 15' X 20' room located in the existing concessions dormitory. This does not separate employees who work on different schedules from their living quarters eliminating the opportunity to watch television, have private phone and internet access and socialize. Concessions employees would continue to suffer from a lack of recreational facilities.

It is not possible to use minor repairs or upgrades to facilities to improve the social and recreation activities of concessions employees. There are no buildings available to convert to appropriate recreational facilities. Therefore, under the No Action Alternative the social situation available to concessions employees would continue to fall short and employee morale would continue to suffer.

Action Alternatives

Actions common to all Action Alternatives

The NPS has received funding from the National Park Concessions, Inc. (NPCI) Fund to construct new recreational facilities for concessions employees at Rock Harbor. Each of the action alternatives features a new recreation facility approximately 2160 sq. feet in size. In each of the action alternatives the recreation facility will be constructed by NPS employees during the 2008 and 2009 season. Construction materialls will be purchased from local suppliers whenever possible.

During the construction, work will occur throughout the entire visitor season, starting as early as late April and ending in August. Work will begin as early as 8AM and will end by 5PM each day. Sounds from the project will be heard throughout the Rock Harbor developed area. Construction equipment will include hand tools, power tools, chainsaws, and heavier equipment such as a backhoe and a small crane.

Each of the alternatives being considered includes the construction of a building in an area that is currently vegetated. The project will require the removal of trees and other vegetation from the site. The building will feature a cinderblock foundation. Any fill that is necessary to level the foundation will come from onsite or from spoils left over from dredging projects. If additional fill is needed it will be clean fill free or weed seed and other contaminants.

The action alternatives do not propose any changes to other buildings that were constructed as part of the Mission '66 program. The new recreation hall will be constructed in a way that compliments, but does not mimic, the Mission 66 style. This will preserve the historic integrity

of the existing facilities without creating any confusion regarding the potential historic status of the current buildings.

Alternative B

This alternative proposes construction of the recreational hall to the northeast of the existing dormitory (See Figure 2B: Alternative B). This alternative is characterized by the tightest grouping of the concessions housing/recreational facilities. The new recreation hall would be built further away from the visitor areas of Rock Harbor than in the other alternatives. This proposed site is rocky and higher in elevation than the other 2 proposed construction sites.

Alternative C

This alternative proposes construction of the recreational hall to the north of the existing dormitory (See Figure 2C: Alternative C). This alternative spaces the concessions buildings more than in Alternative B, but still groups the building within the same area between paved access trails. The recreation hall would be further from the utility complex than in Alternative B.

As opposed to Alternative B, the recreation hall would be further from the existing dormitory. Under this alternative the area between the two buildings (currently occupied by the volleyball court) would be contoured and turned into a common space for employee use. The volleyball court would be removed and would need to be relocated, which will cause impacts to a presently undisturbed site. This alternative provides more separation than Alternative B, however the existing dorm and recreation hall would still have less than 100 feet between each of the buildings.

Alternative D

This alternative proposes construction of the recreation hall to the northwest of the existing dormitory. (See Figure 2D: Alternative D). In this alternative, the volleyball court will still be used. This alternative preserves some screening for the building from the road and utilizes existing utility corridors. This alternative lessens construction disturbances associated with installing new utility corridors and relocation of the volleyball court to a new undisturbed area. This site is level and adjacent to an existing paved trail, making this alternative the best option for ADA accessibility.

Figure 2A: Alternative A – No Action

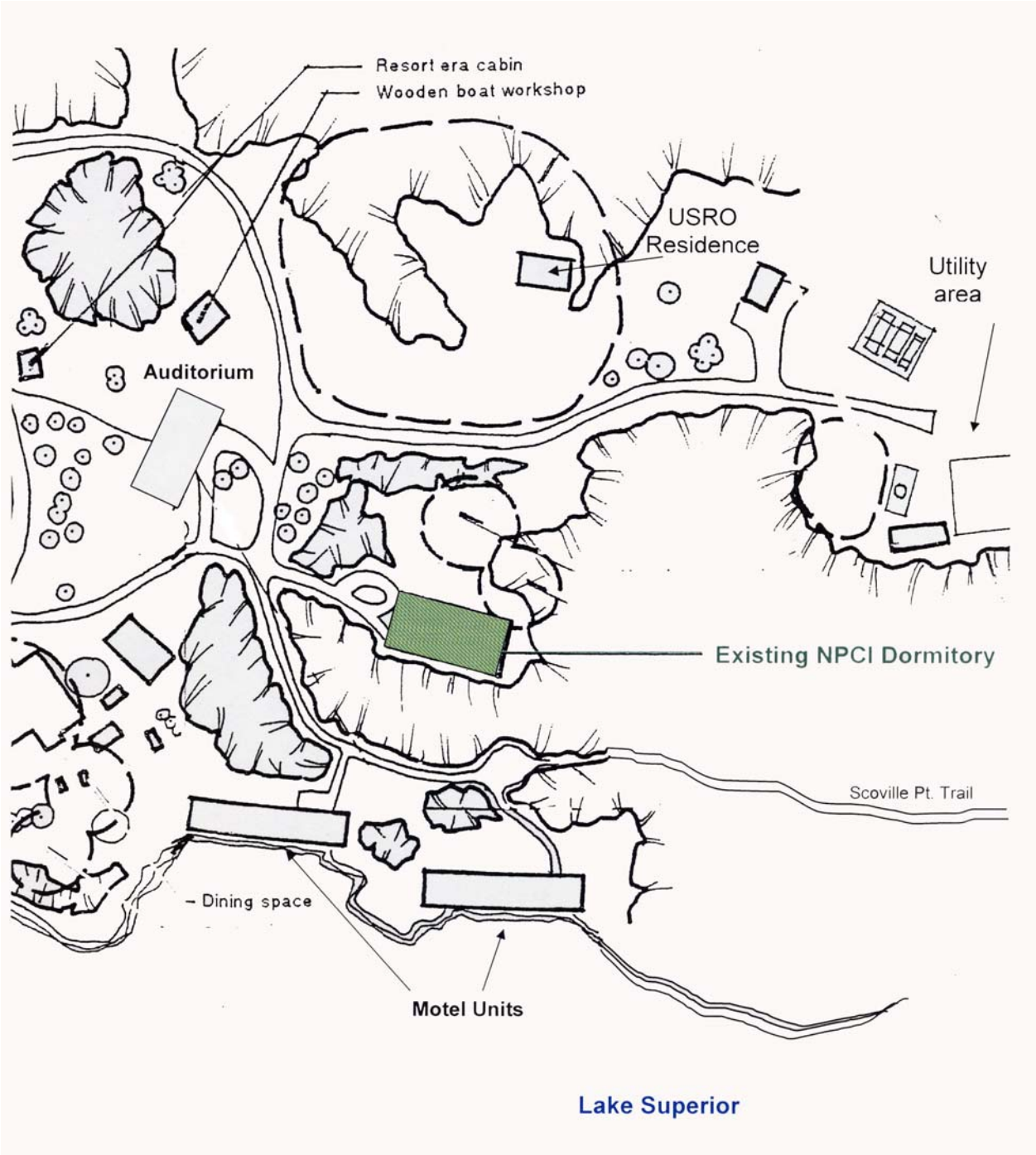


Figure 2B: Alternative B

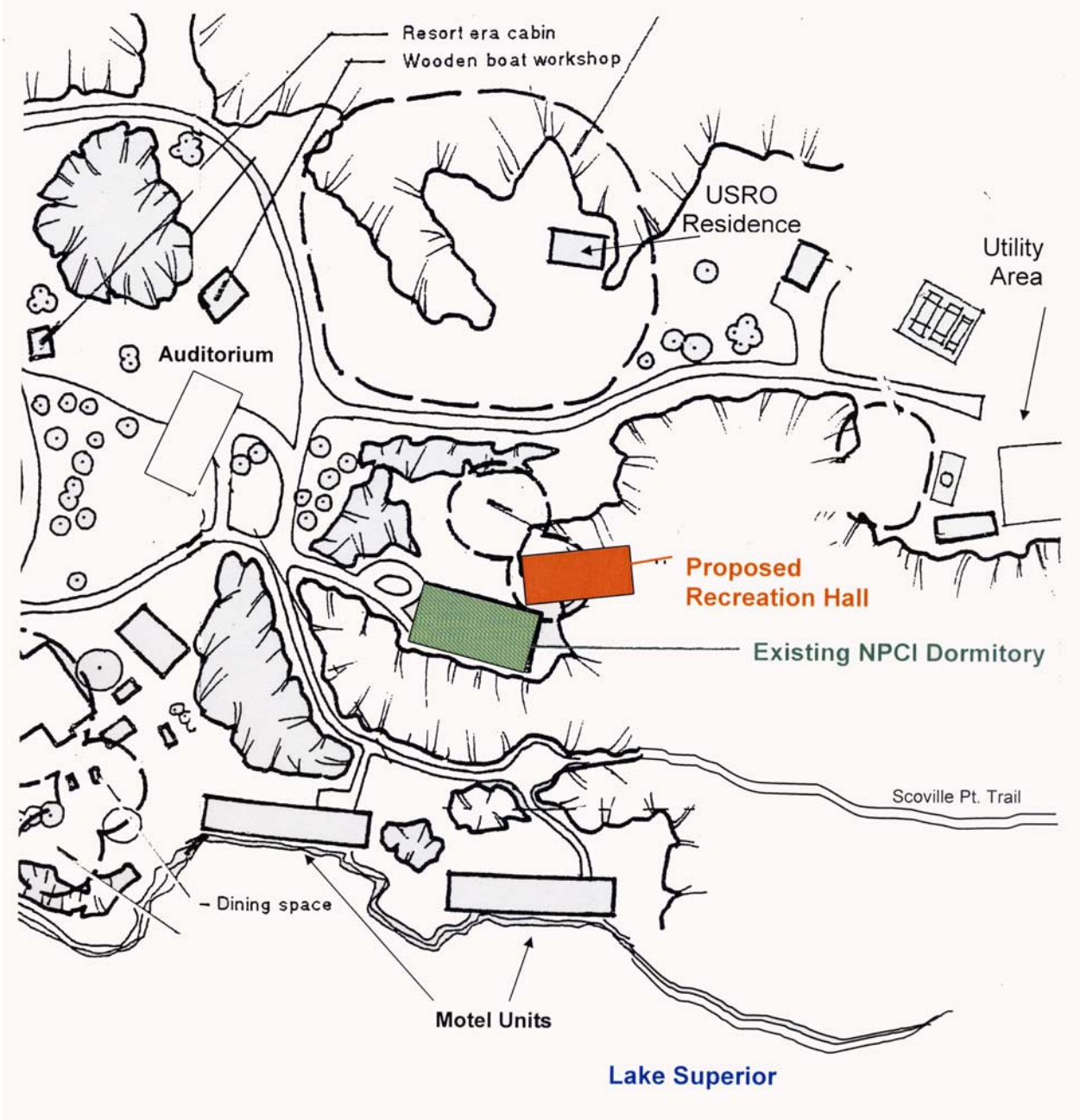


Figure 2C: Alternative C

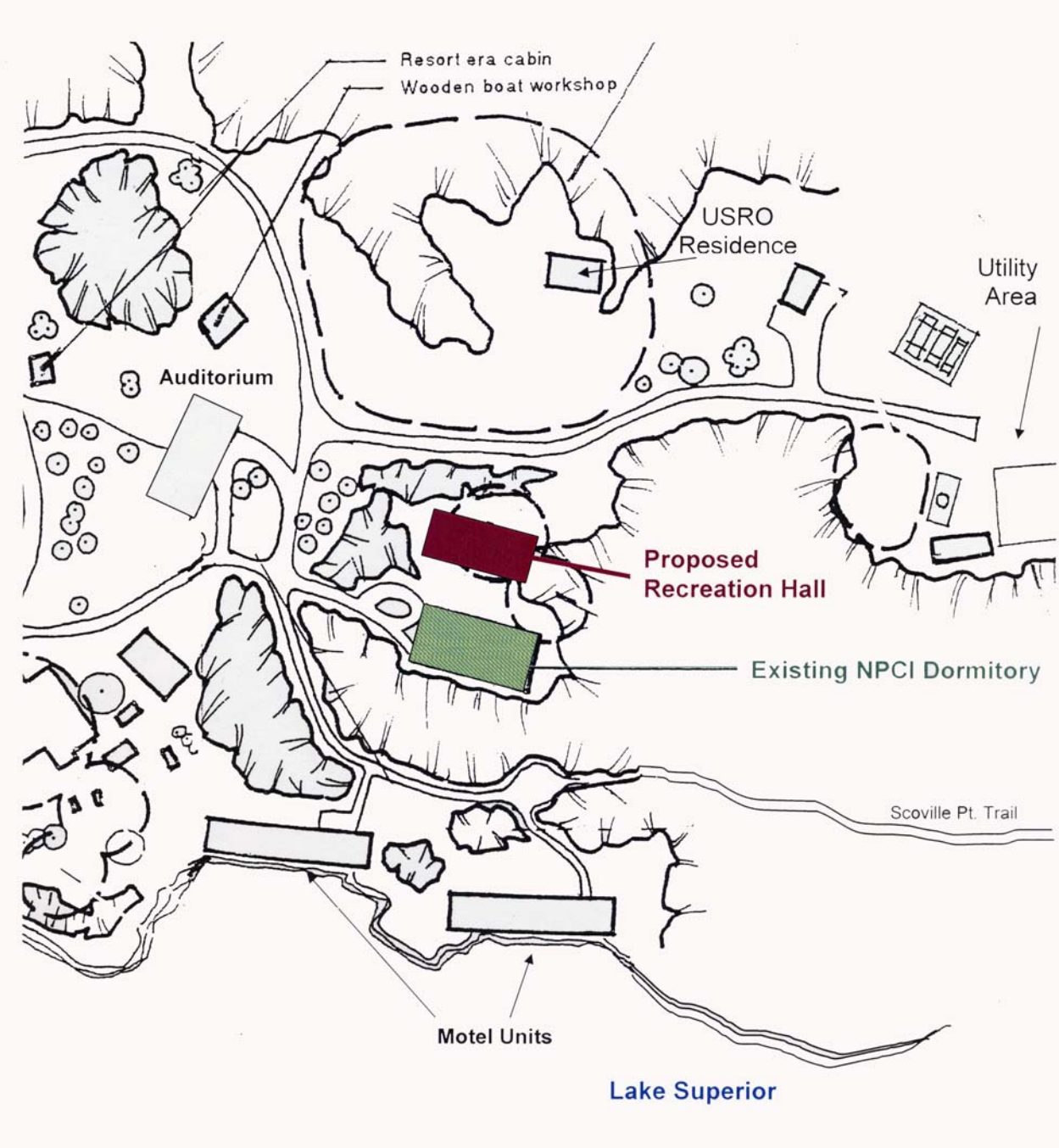
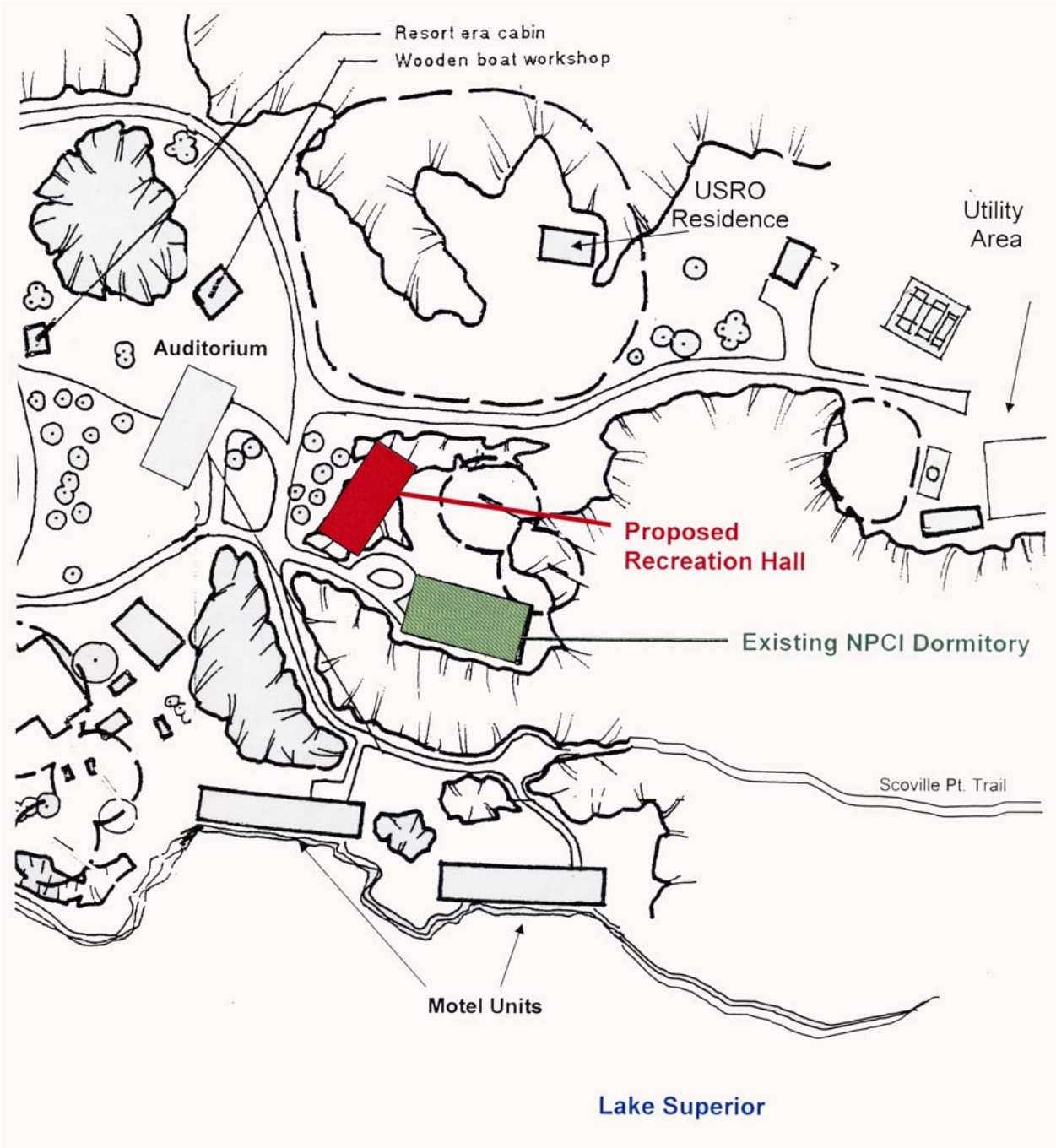


Figure 2D: Alternative D



ENVIRONMENTALLY PREFERABLE ALTERNATIVE

Criteria

NPS Director's Order 12 (2001) defines the environmentally preferable alternative as the alternative that best meets the criteria or objectives set out in Section 101 of the National Environmental Policy Act (NEPA). "Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources." The environmentally preferable alternative best meets the following requirements:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Preserve important historical, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.

Two additional requirements of the environmentally preferable alternative that are beyond the scope of the current discussion are:

- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Environmentally Preferable Alternative

Alternative A is the Environmentally Preferable Alternative. As described in the Environmental Consequences section of this document, Alternative A best protects the natural and cultural resources of the Rock Harbor area and Isle Royale National Park. Alternative D, the preferred alternative, does call for new construction, but the construction will take place in a developed zone where visitor and administrative facilities are appropriate (GMP, 1998).

In order to protect the integrity of the cultural resources at Rock Harbor the new building will be built in a style compatible with, but not exactly mimicking the existing Mission '66 facilities.

In the short term, the construction will have a moderate negative impact on visitor satisfaction. Mechanical noise will be clearly audible throughout the Rock Harbor developed area during working hours for one summer season. When completed, the new facility will provide for a better concessions operation in Rock Harbor and a better overall visitor experience at Isle Royale. The new facility will reduce staff turnover and improve morale, resulting in better service for lodge guests and other concessions customers. The new recreational facility will also allow concessions staff a separate, appropriate place to recreate away from park visitors.

Alternative D best satisfies the criteria of providing for a wide range of beneficial uses without degradation of the environment or cultural resources, but Alternative A is the Environmentally Preferable Alternative.

Impact Topic	Figure 3: Impact Threshold Definitions				
	Negligible	**Minor**	**Moderate**	**Major**	**Duration**
Impact Topic 1: **Important archeological and other cultural resources, including historic properties listed or eligible for the National Register of Historic Places**	Impact is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for § 106 would be *no effect.*	**Adverse:** Impact to the resource is measurable and perceptible, but is slight and localized. The impact does not affect the character defining features of a National Register of Historic Places eligible or listed site and would not have any long-term effects on cultural resources. The determination of effect for § 106 would be *no adverse effect.* **Beneficial:** Maintenance and preservation of a site, relatively simple stabilization/ preservation of features in accordance with *the Secretary of the Interior's Standards for the Treatment of Historic Properties.* The determination of effect for § 106 would be *no adverse effect.*	**Adverse:** The impact is measurable and perceptible. The impact changes one or more character defining feature(s) of a National Register of Historic Places eligible or listed site, but does not diminish the integrity of the resource to the extent that National Register eligibility is jeopardized. Disturbance of a site results in a loss of integrity. The determination of effect for § 106 would be *adverse effect.* Short-term monitoring is required. **Beneficial:** Stabilization or rehabilitation of a site, structure or landscape in accordance with *the Secretary of the Interior's Standards for the Treatment of Historic Properties.* Or the improvement or protection of cultural objects in a museum collection. The determination of effect for § 106 would be *no adverse effect.*	**Adverse:** Impact to a site, structure, landscape or other cultural resource that results in a loss of integrity. The impact is substantial, noticeable and long-term. The determination of effect for § 106 would be *adverse effect.* Measures needed to mitigate adverse impacts cannot be agreed upon and the National Park Service cannot execute a memorandum of agreement (MOA) in accordance with 36 CFR 800.6(b). Long-term monitoring is required. **Beneficial:** Active intervention to preserve a site, extensive restoration of a site, structure or landscape in accordance with *the Secretary of the Interior's Standards for the Treatment of Historic Properties.* Or would secure the museum collection as a whole and prevent degradation. The determination of effect for § 106 would be *no adverse effect.*	Cultural Resources: *Short-term –* Minor impacts to cultural landscapes, ethnographic resources or cultural vegetation lasting less than one season. *Long-term –* Any impacts lasting longer than one season and any impacts to archeological sites, cultural artifacts or historic structures.

Impact Topic	Figure 3: Impact Threshold Definitions, page 2				
	Negligible	**Minor**	**Moderate**	**Major**	**Duration**
Impact Topic 2: **State-listed endangered or threatened species and their habitats**	An action that would not affect any plants or animals of a state- listed species or their habitat within Isle Royale National Park, or an action that would affect an individual of a selected species, but the change would be so small that it would not be of any measurable or perceptible consequence to the individual or the population.	An action that would slightly affect a few individuals of a sensitive species or have very localized impacts on the habitat of state-listed species within Isle Royale National Park. The impact would require considerable scientific effort to measure and have barely perceptible consequences to the species habitat or function.	An action that would cause measurable effects on: (1) a relatively moderate number of individuals within a sensitive species population, (2) the existing dynamics between species (e.g. predator-prey) or (3) a relatively large habitat area or important habitat attributes within Isle Royale National Park. A sensitive species might deviate from normal population levels under existing conditions but would remain indefinitely viable within the park. Short-term monitoring is required.	An action that would have drastic consequences for: (1) a sensitive species population, (2) dynamics between populations or (3) almost all critical or unique habitat area within Isle Royale National Park. A sensitive species would be permanently altered from the normal population levels present under existing conditions and the species may be at risk of extirpation from the park. Long-term monitoring is required.	Plants and Animals: *Short-term* – Recovers in less than one year *Long-term* – Takes longer than one year to recover
Impact Topic 3: **Visitor experience/ Scenic Views**	Visitors would likely not be aware of changes associated with implementation of the alternative.	**Adverse:** Visitors would likely be aware of the changes associated with implementation of the alternative, however the impacts would be slight and likely short-term, affecting few visitors. **Beneficial:** Visitor experience and scenic views would be positively impacted by the alternative, however the impacts would be slight and likely short-term.	**Adverse:** Impacts to visitor experience and scenic views would be readily apparent and likely long-term. The park would remain available for quality visitor experiences without degradation of park resources and values, but visitor satisfaction may be measurably affected. **Beneficial:** Positive impacts to visitor experience and scenic views would be readily apparent and likely long-term. Visitor satisfaction would likely increase with the implementation of the alternative.	**Adverse:** Visitors would be substantially impacted by the alternative. Changes in experience would be readily apparent and long-term. The change in visitor experience and scenic views would preclude some visitors from enjoyment of park resources or values. **Beneficial:** Positive impacts to visitor experience and scenic views would be substantial, apparent and long-term. Satisfaction would increase and new visitors would enjoy park resources and values.	Visitor Experience and Scenic Views: *Short-term* – Effects last less than three years *Long-term* – Effects last longer than three years

Impact Topic	Figure 3: Impact Threshold Definitions, page 3				
	Negligible	**Minor**	**Moderate**	**Major**	**Duration**
Impact Topic 4: **Park operations**	Park operations would not be affected or the effect would be at or below the lower levels of detection, and would not have an appreciable effect on park operations. No additional staffing or budget would be required.	**Adverse:** The negative effects to facilities and/or visitor services would be detectable, but would be of a extent that would not have an appreciable effect on park operations or budgets. **Beneficial:** The positive impacts to facilities and/or visitor services would be detectable, but would not have an appreciable effect on park operations or budgets.	**Adverse:** The effects would be readily apparent and would result in substantial change in park operations in a manner noticeable to staff and the public. The effects could hinder the staff's ability to provide adequate services and facilities to visitors and staff within existing staffing and budgets. **Beneficial:** Improvements to park facilities and/or visitor services would be readily apparent to visitors.	**Adverse:** The effects would be readily apparent and would result in a substantial decline in park operations in a manner noticeable to staff and the public and would be markedly inferior to existing operations. The park would need additional staff to maintain operations. **Beneficial:** Substantial improvements to facilities and/or visitor services would be readily apparent to staff and the public.	Park Operations: *Short-term* – Effects last less than three years *Long-term* – Effects last longer than three years
Impact Topic 5: **Concessions Operations**	The viability of the concessions operation and the satisfaction of concessions employees would not be affected or the impacts would be below the level of detection.	**Adverse:** The negative effects to morale and the satisfaction of concessions employees would be detectable, but not substantial. **Beneficial:** The positive impacts to the moral and satisfaction of concessions employees would be detectable, but not substantial.	**Adverse:** The effects would be readily apparent and would result in substantial change in the moral and concessions employee satisfaction. This level of negative impact would likely affect visitor experience. **Beneficial:** The positive impacts would be readily apparent and would result in a substantial improvement in the morale and satisfaction of concessions employees. This level of impact would likely provide a positive change in visitor experience.	**Adverse:** The effects to the morale and satisfaction of concession employees would be readily apparent and would result in a substantial decline in the quality of the concessions operations in a manner noticeable to staff and the public. **Beneficial:** The positive impacts to the morale and satisfaction of concessions employees satisfaction would be substantial. Improvements to the quality of the concessions operation would be readily apparent to staff and the public.	Concessions operation: *Short-term* – Effects last less than three years *Long-term* – Effects last longer than three years

Figure 4: Comparative Summary of Impacts

Impact Studied in Detail	**Alternative A** No Action Alternative	**Alternative B**	**Alternative C**	**Alternative D**
Impact Topic 1: **Important Archeological and Other Cultural Resources, Including Historic Properties**	No impact	Potential long term minor direct adverse impact to presently unidentified archeological sites from utility corridor construction.	Potential long term minor direct adverse impact to presently unidentified archeological sites from utility corridor construction and relocation of volleyball court.	Negligible
Impact Topic 2: **State –Listed Endangered or Threatened Species and Their Habitats –**	No Impact	Possible long term minor direct impact to listed species and their habitats from utility corridor construction.	Possible long term minor direct impact to listed species and their habitats from utility corridor construction and relocation of volleyball court.	Negligible
Impact Topic 3 **Visitor Experience / Scenic Views --**	Indirect adverse impact from low concessions employee morale and high staff turnover caused by lack of recreational facilities.	Short-term, moderate adverse direct impact to visitor experience and scenic views based on audio and visual impacts of construction. Long-term, moderate, indirect beneficial impact from improved concession employee morale.	Same as Alt. B.	Same as Alt. B.

Figure 4: Comparative Summary of Impacts, pg. 2

Impact Studied in Detail	**Alternative A** No Action Alternative	**Alternative B**	**Alternative C**	**Alternative D**
Impact Topic 4: **Park Operations**	No impact. Existing facilities would be used by concessions employees and park personnel would not have any additional duties.	Long-term, minor negative impact to park operations. While the concessionaire will be responsible for maintaining the new structure, park personnel will take care of the utilities. Possible minor negative impact to park operations due to the need for new utility lines and associated maintenance.	Same as Alt B.	Long-term, minor negative impact to park operations. While the concessionaire will be responsible for maintaining the new structure, park personnel will take care of the utilities.
Impact Topic 5: **Concessions operations**	Long-term, moderate to major, direct negative impact on the viability of the concessions operation and employee morale. Poor recreation facilities contribute to low employee morale which results in high turnover and decreased efficiency. Could lead to major impacts: higher costs, fewer services, or in the worst case the end of the concessions operation.	Long-term moderate to major, direct beneficial impact on the viability of the concessions operation and the satisfaction of concessions employees. Better facilities will improve employee morale leading to lower turnover and less training and recruitment costs.	Same as Alt. B. Also, long term, direct adverse impact to employees from loss of volleyball court area.	Same as Alt. B. Also long term direct beneficial impact to employees due to ADA accessibility of the site.

Environmental Consequences

In this section, the effects of each of the alternatives on the impact topics are reviewed.

According to NPS guidelines for NEPA (Director's Order 12) there are several categories of impacts to be considered:

- **Direct Impacts** are caused by an action and occur in the same time and place as the action.
- **Indirect Impacts** are caused by an action and occur later in time, or in a different location than the action itself, but are still reasonably foreseeable.
- **Duration of the Impact** may be short term or long term.
- **Type of Impact** may be beneficial or adverse.
- **Intensity of Impact** may be negligible, minor, moderate, or major.
- **Cumulative Impacts** are incremental impacts of an action when added to other past, present, and reasonable foreseeable future actions, regardless of who takes the action.
- **Impacts that cause Impairments of park resources** are not permissible. These types of impacts are defined as those that harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

Impact Topics

1. Important archeological and other cultural resources, including historic properties listed or eligible for the National Register of Historic Places

Affected Environment: The Rock Harbor developed area contains several historic structures and additional structures that will soon be historic that were constructed during the Mission '66 era. Historic structures include the Rock Harbor lodge Guest House, constructed in 1923. Mission '66 structures include the existing dormitory, lodge buildings, visitor center, and marina/store. These buildings were constructed between 1960 and 1964.

No archeological sites have been documented in the construction area, although there are archeological sites in the Rock Harbor vicinity. (Clark, 1995). There are no ethnographic resources in the affected area.

Alternative A (No Action): The no action alternative would have no impact on cultural resources including historic or Mission '66 structures or archeological sites.

Alternatives B and C: These action alternatives have the potential to cause long term minor direct adverse impacts to presently unidentified archeological resources due to the impact of utility line construction. Alternative C has the potential to cause long term minor direct adverse impacts with relocation of the volleyball court.

Alternative D: This action alternative would have no impact on cultural resources including historic or Mission ’66 structures or archeological sites.

Cumulative Impacts: No past, ongoing, or reasonably foreseeable future actions by Isle Royale National Park would, in combination with the impacts just described, result in cumulative impacts to primary national park features under any of these alternatives. The park is undertaking a park-wide cultural resources planning effort that will address the cultural resources throughout the island, including in the Rock Harbor area. This construction project would not impact the integrity or significance of the historic resources at Rock Harbor.

Resource Impairment: None of the actions proposed in these alternatives would impair park resources or values.

2. State listed endangered or threatened species and their habitats

Affected Environment: A number of species listed by the State of Michigan as Endangered, Threatened or “Species of Special Concern” are found at Isle Royale. See appendix A for state listed species found in the park. These species and sub-species are not afforded the same formal protection provided by the Endangered Species Act, but NPS policy grants them similar protection through a commitment to “inventory, monitor, and manage state and locally listed species in a manner similar to its treatment of federally listed species, to the greatest extent possible” (NPS Management Policies 2001).

Alternative A (No Action): This alternative would have no impact on state listed endangered and threatened species or species of special concern or their habitats.

Alternative B and C: These action alternatives have the potential for long term minor direct impact to state listed plant species and bird and mammal species and their habitats from new utility corridor construction. Alternative C has the potential for long term minor direct impacts from relocation of the volleyball court.

Alternative D: This alternative would have a negligible impact on endangered and threatened species or species of special concern and their habitats. The alternative could have a negligible short term impact on state listed bird species due to disturbance during construction activities. The alternative will not have an impact on state listed plant or mammal species. The existing utility corridors will be used in this alternative.

Cumulative Impacts: No past, ongoing or reasonably foreseeable future actions by Isle Royale National Park staff or others would, in combination with the impacts just described, result in cumulative impacts to primary national park features under any of these alternatives. The Rock Harbor area is a non-wilderness, developed area where additional concession facilities are appropriate. Recent actions at Rock Harbor have been confined to the marina area. There are no construction or development projects currently planned in the near future for the Rock Harbor developed area. Before any future projects would take place, a Development Concept Plan would be completed and further environmental analysis would take place.

Resource Impairment: None of the actions proposed in these alternatives would impair park resources or values.

3. Visitor experience/Scenic views

Affected Environment: The Rock Harbor area hosts the greatest concentration of visitors and visitor services on Isle Royale. Three of the four ferries dock at Rock Harbor (the *Isle Royale Queen IV*, the *Voyageur II* and the NPS Vessel *Ranger III).* The seaplane uses the nearby Tobin Harbor Docks. The Rock Harbor Lodge provides the only overnight accommodations on the island and Rock Harbor is the most popular starting point for backcountry camping and canoe/ kayak trips. The Rock Harbor marina is the only full service marina on the island and the Rock Harbor campground is one of the largest campgrounds on the island.

Due to the number of visitors staying at the Rock Harbor Lodge, camping in the Rock Harbor campground, and docked at the Rock Harbor marina, a large construction project in the Rock Harbor developed area has the potential to adversely affect the visitor experience. This is particularly true of the visitor experience of lodge guests. While backcountry campers quickly leave behind the sights and sounds of construction, lodge guests are often in the Rock Harbor area day and night only leaving the area for day hikes or boat trips. Those visitors who use the services available in the Rock Harbor area, particularly the lodge guests, are affected by the morale of the concessions staff and the retention of experienced employees.

Alternative A (No Action): The No Action Alternative would have a long-term, moderate, direct adverse impact on visitor experience. The No Action Alternative would do nothing to improve concessions employee morale or to decrease the staff turnover rate. In fact, as the existing dorm with limited recreational facilities continues to age the situation will only get worse and the expectations of employees who are used to television and convenient telephone and Internet access will likely mean lower morale and higher rates of turnover.

Alternative B, C, and D: This alternative would have a short-term, minor, adverse, direct impact to visitor experience and scenic views and a long-term, moderate, beneficial, direct impact to visitor experience. Short-term, adverse, direct, impacts include audio impacts from the sound of construction, and visual impacts from the work and equipment.

Isle Royale is the only national park that is closed during winter months and access to island is strictly regulated during this period. Therefore, construction will occur over one year during the visitor season (May through September), which will result in negative impacts to visitors. Construction during the peak season will impact a greater number of visitors while construction during the shoulder seasons will impact visitors who may have chosen to come during the "quieter months." In order to lessen the negative impacts of noise, construction will only take place during working hours (8AM to 5PM). Visitors will be notified of the construction when they make lodge reservations.

Once the construction period is complete, this alternative will have a long-term, moderate, beneficial impact on visitor experience. Improved concessions employee morale will have a moderate, beneficial, indirect impact visitor experience.

Cumulative Impacts: No past, ongoing or reasonably foreseeable future actions by Isle Royale National Park staff or others would, in combination with the impacts just described, result in cumulative impacts to primary national park features under any of these alternatives. The Rock Harbor area is a non-wilderness, developed area where additional concession facilities are appropriate. Recent actions at Rock Harbor have been confined to the marina area. No additional construction projects of this type currently scheduled for the Rock Harbor area. In the future, the NPS may plan and construct additional NPS and concession housing units, visitor cabins, and a new visitor center. Before any future projects take place, a Development Concept Plan will be completed and further environmental analysis will take place.

The Isle Royale GMP (1998) planned for visitor use and facilities throughout the park and called for continuation of the concessions operation on Isle Royale. The adverse impacts of the action alternatives are all short-term and there are no additional projects scheduled that would add to the adverse impacts during the recreational hall construction. There are no additional actions being taken by the park that would create cumulative impacts to visitor experience and scenic views.

Resource Impairment: None of the actions proposed in these alternatives would impair park resources or values.

4. Park Operations

Affected Environment:
Isle Royale National Park is under the same budgetary constraints as other national parks. Isle Royale currently has a backlog of deferred maintenance that needs to be performed on existing structures such as buildings, docks, trails, and campgrounds. The impact of new facilities on park operations needs to be understood before the facilities are constructed.

For all action alternatives, the construction of the Recreation Hall would be completely funded through private donations. The construction is being funded by a special reserve fund set aside by the concessionaire for these types of projects. No funds will come from the park budget. This funding includes labor, supplies, and materials for site preparation, utilities, building construction, landscaping and all interior furnishings.

Alternative A (No Action): The No Action Alternative would have no impact on park operations. Existing facilities would continue to be used by concessions personnel.

Alternative B and C: These alternatives would have a long-term, minor, direct negative impact on park operations. The concessions operation will use slightly more electricity, water, and sewer, especially during peak season; however, the utilities in Rock Harbor all operate well below capacity. Any additional utilities costs will be captured in the following year's concession contract. The concessionaire will perform routine maintenance on the buildings. The park will not take on any additional operations requirements with the construction of this building. However, NPS personnel maintain the utilities and the addition of a new building will result in a slightly increased workload for utilities operators.

These alternatives will require more leveling for the construction activities which could lengthen the construction period. Also, they will require installation of new utility lines which will require more construction time and increase the potential for future maintenance issues and costs associated with them.

Alternative D : This alternative would have the same long-term, minor, direct negative impact on park operations for the same reasons as listed above for Alternatives B and C. In addition, this alternative has long term minor direct beneficial impacts because it is on a relatively level site adjacent to an existing paved trail and will provide for ADA accessibility to the new recreation hall. This site will also utilize existing utility corridors, eliminating the need to install new corridors.

With this alternative, the park will need to install approximately 40 lineal feet of 6 inch sewer line and 2 inch water line. Electrical service will include approximately 60 feet of underground cable and one transformer. This structure is located in the Rock Harbor developed area and is located in close proximity to existing utilities. All utilities are on site

The National Park Service (NPS) will maintain ownership and full procession of the structure and utilities. The concessions operation will perform routine maintenance on the exterior and interior envelopes and furnishings. The NPS will maintain major components of the structure such as walls, foundation, roof and roof covering.

The major components of the structure such as the roof have a service life of 30 years. The walls and foundation constructed to building codes should exceed a 50 service life. Initial expense the NPS will obligate in maintaining the structure will be minimal over the next 50 years.

Cumulative Impacts: No past, ongoing or reasonably foreseeable future actions by Isle Royale National Park staff or others would, in combination with the impacts just described, result in cumulative impacts to primary national park features under any of these alternatives. The Rock Harbor area is a non-wilderness, developed area where additional concession facilities are appropriate. Recent actions at Rock Harbor have been confined to the marina area. There are no construction or development projects currently planned in the near future for the Rock Harbor developed area. Before any future projects could take place, a Development Concept Plan would be completed and further environmental analysis would take place.

Resource Impairment: None of the actions proposed in these alternatives would impair park resources or values.

5. Concessions Operations

Affected Environment: The concessions operation at Isle Royale National Park faces challenges unlike those at most national parks in the United States. The remote location and short visitor season are especially difficult challenges that the concessions operation faces. Utilities on Isle Royale are more costly to operate when compared to mainland parks and some of this cost is

passed on to concessions customers. Customers find that they are paying a premium for their stay at the Rock Harbor Lodge and for such things as meals, fuel, and grocery items.

As discussed in the "Purpose and Need for Action" section of this document, concessions employees currently have few recreation facilities, substandard living conditions, and little or no access to the mainland. This results in low employee morale and subsequent difficulty in attracting and retaining experienced, qualified employees. Ultimately this hurts not only visitor experience, but also the sustainability of the concessions operation. The Isle Royale General Management Plan/ Environmental Impact Statement (GMP, 1998) calls for the Park to continue the concession operation in Rock Harbor and to work toward ending the Park subsidy of concession operations.

Alternative A (No Action): The No Action Alternative would have a long-term moderate to major, direct negative impact on the viability of the concessions operation and the satisfaction of concessions employees. The poor quality and lack of recreation facilities will certainly lead to continued morale problems and difficulties in attracting and retaining qualified, experienced employees. The need to continually recruit and train new employees as well as the lower productivity levels of inexperienced or unhappy employees can hurt the long-term viability of the concession operation. In the worst-case, these difficulties could lead to the concession operation having to dramatically increase costs, scale back services, or even cease operations.

Alternative B and C: These alternatives would have a long-term moderate to major, direct beneficial impact on the viability of the concessions operation and the satisfaction of concessions employees. With new recreational facilities including television and Internet service, the morale of concessions employees should improve. These employees will still not be able to go to the mainland on a frequent basis, but they should feel less bored and isolated. With the improved morale, some of the employees who currently leave in the middle of the season will choose to stay throughout the entire season and more employees will choose to return next season. The lower recruiting and training costs, as well as the increased reliability and efficiency of trained employees will have a positive impact on the financial viability of the concessions operation.

Alternative D: This alternative would have the same long-term moderate to major, direct beneficial impact on the viability of the concessions operation and the satisfaction of concessions employees as listed above in Alternatives B and C. It has an additional long term moderate to major direct beneficial impact to the concession operation because of the ADA accessibility.

Cumulative Impacts: No past, ongoing or reasonably foreseeable future actions by Isle Royale National Park staff or others would, in combination with the impacts just described, result in cumulative impacts to primary national park features under any of these alternatives. The Rock Harbor area is a non-wilderness, developed area where additional concession facilities are appropriate. Recent actions at Rock Harbor have been confined to the marina area. There are no construction or development projects currently planned in the near future for the Rock Harbor developed area. Before any future projects take place, a Development Concept Plan would be completed and further environmental analysis would take place.

Resource Impairment: None of the actions proposed in these alternatives would impair park resources or values.

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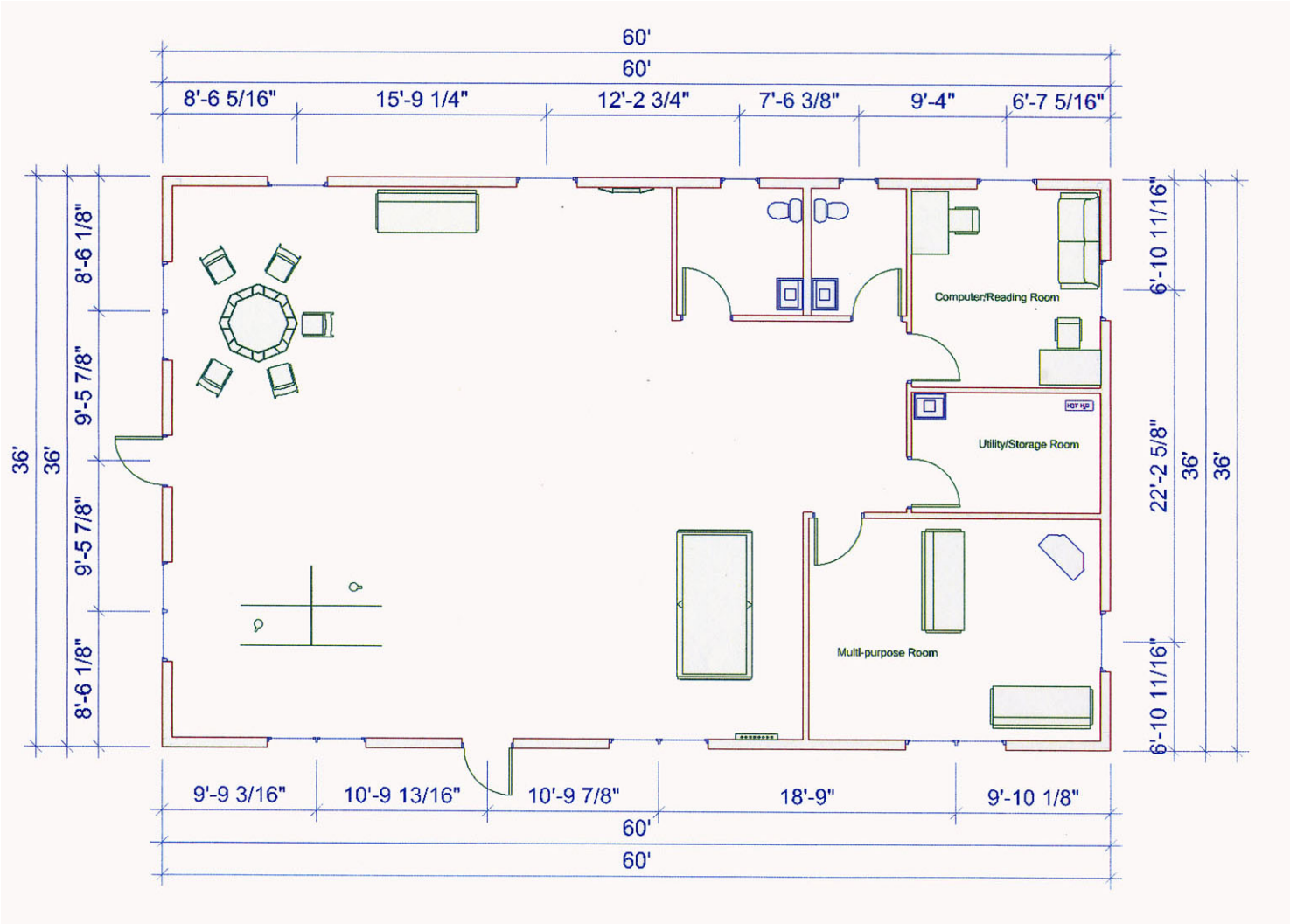
Figure 5: Proposed floor plan for Rock Harbor Recreation Hall



APPENDIX A

LISTED SPECIES OF FLORA AND FAUNA AT ISLE ROYALE NATIONAL PARK

STATE-LISTED PLANT SPECIES OF ISLE ROYALE NATIONAL PARK

COMMON NAME	SCIENTIFIC NAME	RANK[1]		1999 STATUS[1]			
		GLOBAL	STATE	US	MI	ABUNDANCE	HABITAT(S)
Wild chives	*Allium schoenoprasum*	G5	S2		T	uncommon	rock shore
Round-leaved orchid*	*Amerorchis rotundifolia*	G5	S1		E	rare	cedar swamps
***	*Antennaria microphylla*						
Rosy pussytoes*	*Antennaria rosea*	G4G5	SH		T	rare	"Caribou Is."
Big leaf sandwort	*Arenaria macrophylla*	G4	S1		T	rare	mixed woods
Dragon's mouth, Arethusa**	*Arethusa bulbosa*				SC	rare	bogs
Great northern aster	*Aster modestus*	G5	S1		T	rare	grassy, "Windigo"
Slough grass	*Beckmannia syzigachne*	G5	S1S2		T	rare	gravel shore, introduced?
Low northern rock-cress	*Braya humilis*	G4	S1		T		
Reedgrass	*Calamagrostis lacustris*	G3Q	S1		T	rare	rock opening
****	*Calamagrostis stricta*	G5	S1		T		
Autumnal water starwart	*Callitriche hermaphroditica*	G5	S2		SC	rare	aquatic
Calypso orchid	*Calypso bulbosa*	G5	S2		T	uncommon	boreal forest
Sedge	*Carex atratiformis*	G5	S2		T	uncommon	rock shore, beaches
Sedge*	*Carex media*	G5	S2S3		T	frequent	rock shore
Sedge***	*Carex norvegica*						
Eastern paintbrush	*Castilleja septentrionalis*	G5	S2S3		T	common	aspen woods, rock openings
Purple clematis	*Clematis occidentalis*	G5	S3		SC	uncommon	dry woods
Small blue-eyed mary	*Collinsia parviflora*	G5	S2		T	rare	rock ridges
Douglas's hawthorn	*Crataegus douglasii*	G5	S3S4		SC	rare	rock openings
Ram's head lady-slipper	*Cypripedium arietinum*	G3	S3		SC	rare	boreal forest
American rock brake*	*Cryptogramma acrostichoides*	G5	S2		E	uncommon	rock shores & ridges
American rock brake***	*Cryptogramma crispa*						
Slender rock brake	*Cryptogramma stelleri*	G5	S3S4		SC	rare	rock openings (conglomerate)
Rock whitlow-grass	*Draba arabisans*	G4	S3		SC	uncommon	rock shore & openings, island

[1] Source: Michigan State University, Michigan Natural Features Inventory. Michigan's Special Plants: Endangered, Threatened, Special Concern and Probably Extirpated. March 1999.

STATE-LISTED PLANT SPECIES OF ISLE ROYALE NATIONAL PARK (CONT.)

COMMON NAME	SCIENTIFIC NAME	RANK[1]		1999 STATUS[1]			
		GLOBAL	STATE	US	MI	ABUNDANCE	HABITAT(S)
Smooth whitlow-grass	*Draba glabella*	G4G5	S1		E	rare	rock shore, "Passage Is."
Twisted whitlow-grass	*Draba incana*	G5	S1		T	rare	rock shore, "Passage Is."
English sundew	*Drosera anglica*	G5	S3		SC	rare	bogs, rock shore pools
Fragrant cliff woodfern****	*Dryopteris fragrans*	G3	S3		SC		
Black crowberry	*Empetrum nigrum*	G5	S2		T	rare	rock shore
Moor rush****	*Juncus stygius*	G5	S1S2		T		
Blue lettuce	*Lactuca pulchella*	G5	SH		T	rare	openings, recent burns
Auricled twayblade	*Listera auriculata*	G3	S2S3		SC	rare	boreal forest
Involucred honeysuckle	*Lonicera involucrata*	G4G5	S2		T	rare	trails, "Mott, RH Lodge"
Small-flowered wood-rush	*Luzula parviflora*	G5	S1		T	uncommon	
Water-milfoil	*Myriophyllum alterniflorum*	G5	S2S3		SC	uncommon	aquatic (inland lks.)
Pygmy water-lily	*Nymphaea tertagona*	G5	S1		E	rare	stream deltas
Devil's club	*Oplopanax horridus*	G4G5	S2		T	uncommon	swamps, rock openings
Sweet Cicely	*Osmorhiza depauperata*	G5	S2		T	frequent	mixed woods
Marsh grass-of-parnassus	*Parnassia palustris*	G5	S2		T	rare	swamps, lake shores
Franklin's phacelia	*Phacelia franklinii*	G5	S1		T	uncommon	rock openings, "Crystal Cove, Captain Kidd"
Butterwort	*Pinguicula vulgaris*	G5	S3		SC	uncommon	rock shore, mossy banks
Alpine bluegrass	*Poa alpina*	G5	S1S2		T	rare	rock shore
Canby's bluegrass	*Poa canbyi*	G4G5	S1		E	rare	"Monument Rock"
Alpine buckwheat	*Polygonum viviparum*	G5	S1S2		T	uncommon	rock shore, beaches
Prairie cinquefoil	*Potentilla pensylvanica*	G5	S1		T	uncommon	rock shore
Macoun's buttercup	*Ranunculus macounii*	G5	S1		T	rare	swamp forests
Prairie buttercup	*Ranunculus rhomboideus*	G4	S2		T	uncommon	rock ridges
Gooseberry	*Ribes oxyacanthoides*	G5	S3		SC	frequent	clearings, beaches
Pearlwort	*Sagina nodosa*	G5	S2		T	uncommon	rock crevices
Satiny willow	*Salix pellita*	G5	S2		SC	rare	rock shore

STATE-LISTED PLANT SPECIES OF ISLE ROYALE NATIONAL PARK (CONT.)

COMMON NAME	SCIENTIFIC NAME	RANK			1999 STATUS	
		GLOBAL	STATE	US	MI	ABUNDANCE	HABITAT(S)
Tea-leaved willow	*Salix planifolia*	G5	SH		T	uncommon	rock shore, islands
***	*Salix pyrifolia*		SC				
Encrusted saxifrage	*Saxifraga paniculata*	G5	S1		T	rare	rock shore
Prickly saxifrage	*Saxifraga tricuspidata*	G4G5	S2		T	uncommon	rock shore
Rayless mountain ragwort	*Senecio indecorus*	G5	S1		T	uncommon	rock openings
Awlwort	*Sublaria aquatica*	G5	S1		E	rare	aquatic
False Asphodel	*Tofieldia pusilla*	G5	S2		T	uncommon	rock shore pools
Downy oatgrass	*Trisetum spicatum*	G5	S2S3		SC	frequent	rock shore
Dwarf bilberry*	*Vaccinium cespitosum*	G5	S1S2		T	absent?	
Alpine blueberry	*Vaccinium uliginosum*	G5	S2		T	rare	rock shore
Mountain-cranberry	*Vaccinium vitis-idaea*	G5	SX		X	extirpated	
Squashberry	*Viburnum edule*	G5	S2S3		T	common	boreal, mixed forests

* Species on rare plant list and state list but not on Slavick and Janke (1993) list.
** Listed by Slavick and Janke (1993) and rare plants list but not on state list.
*** Species listed by Slavick and Janke (1993) but not on state list or rare plant list.
**** Species listed by Slavick and Janke (1993) and state list. Not on rare plant list.

STATE-LISTED FISH SPECIES OF ISLE ROYALE NATIONAL PARK

COMMON NAME	SCIENTIFIC NAME	RANK[2]		1999 STATUS[2]			
		GLOBAL	STATE	US	MI	ABUNDANCE	HABITAT(S)
Lake Sturgeon	*Acipenser fulvescens*	G3	S2		T		Lake Superior
Cisco or Lake Herring*	*Coregonus artedii*	G5	S3		T		Lake Desor
Siskiwit Lake cisco**	*Coregonus bartletti*	G1Q	S1		SC		Siskiwit
Kiyi	*Coregonus kiyi*	G3	S3		SC		Lake Superior
Shortjaw cisco	*Coregonus zenithicus*	G2	S2		T		Lake Superior
Spoonhead sculpin	*Cottus ricei*	G5	S3		SC		Superior, Siskiwit, Chickenbone, Whittlesey

*Subspecies
**Species

Fish list taken from "Wildlife of Isle Royale" revised by Dr. Peter Jordon 1981.

STATE-LISTED MAMMAL SPECIES OF ISLE ROYALE NATIONAL PARK

COMMON NAME	SCIENTIFIC NAME	RANK		1999 STATUS			
		GLOBAL	STATE	US	MI	ABUNDANCE	HABITAT(S)
Moose	*Alces alces*	G5	S4		SC		
Gray Wolf	*Canis lupus*	G4	S3	LE	E		

Mammal list taken from "Wildlife of Isle Royale" revised by Dr. Peter Jordon 1981.

[2] *Source*: Michigan State University, Michigan Natural Features Inventory. Michigan's Special Animals: Endangered, Threatened, Special Concern and Probably Extirpated. March 1999.

STATE-LISTED BIRD SPECIES OF ISLE ROYALE NATIONAL PARK

COMMON NAME	SCIENTIFIC NAME	RANK[2]		1999 STATUS[2]			
		GLOBAL	STATE	US	MI	ABUNDANCE	HABITAT(S)
Cooper's hawk	*Accipiter cooperi*	G5	S3S4		SC	O,T	
Northern goshawk	*Accipiter gentilis*	G5	S3		SC	R	
Short-eared owl	*Asio flammeus*	G5	S1		E	A,T	
Long-eared owl	*Asio otus*	G5	S2		T	A,T	
American bittern	*Botaurus lentiginosus*	G4	S3S4		SC	R	
Red-shouldered hawk	*Buteo lineatus*	G5	S3S4		T	A	
Piping plover	*Charadrius melodus*	G3	S1	LE	E	H	
Black tern	*Chlidonias niger*	G4	S3		SC	A	
Lark sparrow	*Chondestes grammacus*	G5	SX		X	A	
Northern harrier	*Circus cyaneus*	G5	S3		SC	O,T	
Yellow rail	*Coturnicops noveboracensis*	G4	S1S2		T	H	
Merlin	*Falco columbarius*	G5	S1S2		T	R	
Peregrine felcon	*Falco peregrinus*	G4	S1		E	A,T	
Common loon	*Gavia immer*	G5	S3S4		T	R	
Bald eagle	*Haliaeetus leucocephalus*	G4	S4	LT	T	O	
Black-crowned night-heron	*Nycticorax nyticorax*	G5	S2S3		SC	A	
Osprey	*Pandion haliaetus*	G5	S4		T	O	
Black-backed woodpecker	*Picoides arcticus*	G5	S2		SC	R	
Dickcessel	*Spiza americana*	G5	S3		SC	A	
Caspian tern	*Sterna caspia*	G5	S2		T	A	
Common tern	*Sterna hirundo*	G5	S2		T	O	
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	G5	S2		SC	A	

Legend for Birds List:

R = regular occurence
O = occasional occurence
A = accidental occurence
H = hypothetical occurence
T = breeds on adjacent mainland

Species list and abundance based on "Wildlife of Isle Royale," revised 1981 by Dr. Peter Jordon.

No listed amphibians or reptiles are known to inhabit Isle Royale. In 1977 there was one inconclusive photo taken of what may have been a Black rat snake (Elaphe obsoleta obsoleta) which is listed as Special Concern in Michigan.

No comprehensive inventories of insects, snails, or mussels have ever been done for Isle Royale.

LEGEND FOR ALL LISTS

MI 1999 Current species status under the Michigan Endangered Species Act reviewed during 1996-98. Endangered and Threatened designations are legally effective as of March 20, 1999.

U.S. 1998 Species status under the Federal Endangered Species Act as of January 26, 1998. LE, LT (Listed Endangered, Listed Threatened) = Species has been officially listed as either Endangered (E), or Threatened (T). P (Proposed) = Species has been officially proposed for listing.

( ) Common synonyms of species names accepted by the State Technical Committee.

GLOBAL RANKS

G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences range-wide or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 = imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.

G3 = either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. a single western state, a physiographic region in the East) or because of other factor(s) making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.

G4 = apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

G5 = demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

GH = of historical occurrence throughout its range, i.e. formerly part of the established biota, with the expectation that it may be rediscovered (e.g. Bachman's Warbler).

GU = possibly in peril range-wide, but status uncertain; need more information.

GX = believed to be extinct throughout its range (e.g. Passenger Pigeon) with virtually no likelihood that itwill be rediscovered.

STATE RANKS

S1 = critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.

S2 = imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.

S3 = rare or uncommon in state (on the order of 21 to 100 occurrences).

S4 = apparently secure in state, with many occurrences.

S5 = demonstrably secure in state and essentially ineradicable under present conditions.

SA = accidental in state, including species (usually birds or butterflies) recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range.

SE = an exotic established in the state; may be native elsewhere in North America (e.g. house finch or catalpa in eastern states).

SH = of historical occurrence in state and suspected to be still extant.

SN = regularly occurring, usually migratory and typically nonbreeding species.

SR = reported from state, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.

SRF = reported falsely (in error) from state but this error persisting in the literature.

SU = possibly in peril in state, but status uncertain; need more information.

SX = apparently extirpated from state.