



APOSTLE ISLANDS NATIONAL LAKESHORE

Integrated Environmental Plan - Impacts and Future Vision

Documents, Spreadsheets, and Spreadsheet Purpose

Documents

Integrated Environmental Plan Procedures

Spreadsheets

Integrated Environmental Plan Workbook

Impacts and Future Vision

Regulatory Requirements

Spreadsheet Purpose

Identify categories of park activities that can potentially impact the environment.

Identify potential positive and negative impacts associated with each.

Identify operational controls.

Identify the future vision for each impact area.

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ENERGY

Impacts and Future Vision
Energy (non-transportation)

Category	Activity/Issue	Negative Impact	Positive Impact	Future Vision
Electricity	Electrical use on the mainland	Air pollution, water pollution, use of fossil fuels, dependency on foreign oil, no energy choice, only choice is dirty coal	Inexpensive	Zero emissions, reduce demand
Electricity	Electrical use on the Islands	Expensive	No Pollution	Use as much solar electrical system as possible
HVAC	HVAC on Mainland	Air pollution, use of fossil fuels, and foreign oil dependency	Inexpensive	Non-polluting alternative sources are used and propane is replaced
Heating (Propane)	Heating on the islands	Air pollution, use of fossil fuels, and foreign oil dependency; hard and expensive to transport		Non-polluting alternative sources are used and propane is replaced
Hot Water (electric & propane)	Hot water use	Uses a lot of energy whether propane or electric	Used for cleaning	Hot water that is not dependent on fossil fuels

Future Vision - Energy (non-transportation)

Islands - Demand is reduced through behavioral practices and technology, and the islands of the park are energy independent.

Mainland - Demand is reduced through behavioral practices and technology. Energy that is procured is the cleanest option possible.

Any new buildings are constructed with LEED certification in mind and optimal energy efficiency, to the extent possible. Fossil fuels for heating are replaced with ground water source heat pumps. These practices extend to rented facilities as well.

Key Points of Operational Control

Shut-down procedures that ensure solar systems remain operational by keeping batteries charged - Doug Buildings and Utilities Supervisor.

Shut-down procedures for powering down computers and other equipment - IT Specialist.

Procedure for setting programmable thermostats for heating and hot water systems - Doug Pratt, B&U Supervisor.

Put unoccupied building spaces into maintenance mode - Doug Pratt, B&U Supervisor

No control over external sources of electricity so far.



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HAZARDOUS MATERIALS & SPILLS

Impacts and Future Vision

Hazardous Materials and Spills

Category	Activity/Issue	Negative Impact	Positive Impact	Future Vision
Spills	Unplanned spills	Water/air Pollution	SPCC Plan in place to reduce and react to spills	No spills
Non-point source pollutants	Roadways & parking lots	Leaky vehicles from parking lots and roads		Non-toxic lubricants are used; parking lots and roads are designed to capture runoff to reduce contamination
Hazardous Waste	Hazardous Waste Disposal	Demo and construction waste		Cycle maintenance to minimize waste
Hazardous Materials	Hazardous materials	Used in maintenance operations		Use as much environmental safe materials as possible. Reduce amount needed for a job. Minimum to no inventory

Future Vision - Hazardous Materials and Spills

The very minimum amount of hazardous materials are used; alternative non-toxic products are explored and used whenever feasible. Spills are prevented through planning and practices.

Key Points of Operational Control

Secondary containment wherever hazardous materials are stored.

Reduce number of hazardous materials used, or reduce container size, or replace with less toxic chemicals.

SPCC plan, Emergency Response Plan (ERP) and emergency spill response training

For operational controls related to pumpout of vault toilets see Waste tab.



NATURAL RESOURCES AND ECOLOGICAL INTEGRITY

Impacts and Future Vision

Ecological Integrity

Category	Activity/Issue	Negative Impact	Positive Impact	Future Vision
Vegetation - Exotic Species	Physical measures to reduce the transportation of exotic species	Incorrect use of chemicals can be problematic	Reduce the transportation of exotic species	No exotics species transported throughout the park; exotics are not transported from LSB and Meyer's Beach to the islands via kayakers or other boaters.
Vegetation - Exotic Species	Monitoring and management of exotic species		Retrieve data that is useful in providing alternative measures to prevent the spread and/or eliminate	Monitored exotic species are eliminated. Access to disturbed lands is minimized; disturbed lands are vegetated quickly to minimize exotic introductions;
Vegetation - Exotic Species	Ground disturbing activities	Creates Habitat for Exotics.		Management of exotic species begins during planning and contracting (NPS and contractors required to purchase native seed mixes/plants), and is followed up with post project monitoring.
Vegetation Change	Vegetation change as a result of climate change	Some northern species may die out in the park. It is unknown if new species entering the park as a result of climate change will have a negative impact.	Some southern species may increase. It is unknown if new species entering the park will have a positive impact.	Vegetation change is monitored so that the park is aware of the current condition at any given time. This will assist in decisions that will have effects on ecological integrity.
Wildlife	Non-native wildlife	Negative impacts to the ecosystem		Introduction of non-native wildlife is minimal; NPS activities do not augment their introduction; efforts are made to identify if and how they can be addressed
Wildlife	Overabundant wildlife	Negative impacts to the ecosystem		NPS activities do not augment their introduction; efforts are made to identify if and how they can be addressed
Fire - Wildland Fire	Fire Management	Smoke and health issues	Maintenance of ecological integrity	Fire plays a natural role in ecosystem management; smoke management results in minimal smoke.
Fire - Campfires	Allow campfires in forests that can supply the need of firewood	Wildland fire hazard	Social benefit, primitive experience	Campfires are allowed only in sites that can support the need for firewood. Fire rings are reduced in size to minimize the need for firewood.
Education/ Outreach	Education and outreach are provided to the public		Increases resource stewardship	The visitors to the park understand and embrace stewardship and act accordingly.
Aquatic Exotic Species	Physical measures to reduce the transportation of exotic species	Incorrect use of chemicals can be problematic	Reduce the transportation of exotic species	No exotics species transported throughout the park

Future Vision - Natural Resources & Ecological Integrity
 Ecological integrity is present in the park to the maximum extent possible in the light of climate change. Disturbance processes still function. Vegetation change is identified through monitoring. Introduction of invasive exotic plant and animal species are quickly identified through monitoring and mitigated. NPS activities do not augment the expansion of exotic species. Overabundant native wildlife are quickly identified and mitigated. The visitors to the park understand and embrace stewardship and act accordingly.

Key Points of Operational Control

Potential to transfer exotic species from mainland to the islands & vice versa
 IPM



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PROCUREMENT

Impacts and Future Vision Procurement

Category	Activity/Issue	Negative Impact	Positive Impact	Future Vision
General Purchases	Buy local	May not have what you want	Reduces transportation	Buy from local stores and buy products made locally
Purchasing of Office and Maintenance Supplies	Purchase of aerosols	Air pollution (VOC's & ozone)		No aerosols purchased
Purchasing of Office and Maintenance Supplies	Purchase of applied fluids (paints, coatings)	Some products produce air pollution (VOC's)	Used to protect interior & exterior fabric	Purchase applied fluids with no VOCs
Purchasing of Office Supplies	Purchase of office supplies	Lot of paper waste	Produces hard copies of records	As paperless of an office as feasible
Purchasing of Office Supplies	Purchase of copiers & printers	Air pollution (ozone)	Produces hard copies of records	Non polluting copiers/printers purchased
Purchasing of Property	Purchases of new boats, vehicles, equipment and appliances		Opportunity to try new designs, styles and types that would better gain efficiency and suit the park needs.	The best efficiency possible

Future Vision - Procurement

Procurement practices consider the entire cost of a purchase including but not limited to travel to a site to purchase an item, the quality of the item, how the item will be maintained, and how it will be disposed of if applicable. Only items absolutely required are purchased. Locally produced products are purchased whenever possible, and green products are selected as often as possible. No aerosols or polluting copiers/printers are purchased.

Key Points of Operational Control

- Buy Green
- Buy to increase efficiency
- Put sustainability and resource protection into contracts



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TRANSPORTATION

Impacts and Future Vision Transportation

Category	Activity/Issue	Negative Impact	Positive Impact	Future Vision
NPS	Boat and vehicular transportation	Air pollution, water pollution, use of fossil fuels, dependency on foreign oil (magnified if preventative maintenance checks are not performed)	Use of park activities that benefit the employees and visitors	Minimal pollution and GHG emissions.
NPS	Maintenance of boats, Vehicles, and equipment	Air pollution, water pollution, use of fossil fuels, dependency on foreign oil (magnified if preventative maintenance checks are not performed)	Air pollution, water pollution, use of fossil fuels, dependency on foreign oil if preventative maintenance checks are performed as recommended by manufacturer with quality lubricants	Minimal pollution and GHG emissions
NPS	Creation of combustion exhaust from boats, vehicles & equipment	Air pollution (NOx's, SOx's, CO, CO2)		Reduce exhaust as much as possible. Minimal pollution and GHG emissions
NPS	Vehicle travel (business travel, park operations)	Air pollution, water pollution, use of fossil fuels, dependency on foreign oil	Day-to-day business and career benefits	Alternatives to in-person business operations are utilized whenever feasible; travel is minimized. Good planning to combine trips and reduce mileage. Minimal pollution and GHG emissions
Visitor - In the park	Bicycling/hiking/kayaking/sailing/snow shoeing/skiing	Manufacturing and life cycle of these items	No fossil fuel used while item is in use. Visitor education and recreation	Carbon neutral
Visitor - In the park	Commercial	Air pollution, water pollution, use of fossil fuels, dependency on foreign oil	Mass transportation while visiting the park. Visitor education and recreation	Minimal pollution and GHG emissions
Visitor - to the park	Traveling to the park	Air pollution, water pollution, use of fossil fuels, dependency on foreign oil	Visitor education and recreation	Minimal pollution and GHG emissions

Future Vision - Transportation

Visitors - Visitors are educated and sensitive regarding impacts of travel to the environment. As such the maximum number use low impact transportation methods to arrive at the park in including mass transportation, car pooling, or energy efficient vehicles. While in the park visitors travel via low impact methods such as mass transportation, sailboats, kayaking, bicycling, and hiking. NPS - Transportation is minimized wherever possible using a variety of methods including staying on islands for longer projects, using technology rather than travel for distant meetings, or accomplishing multiple things with one trip. The most efficient method of travel is always considered and where reduction is not possible offsets are utilized to minimize the park's contribution to pollution and greenhouse gas emissions to the maximum amount possible.

Key Points of Operational Control



WASTE

Impacts and Future Vision

Waste

Category	Activity/Issue	Negative Impact	Positive Impact	Future Vision
Solid Waste*	Maintenance of solid waste (trash & garbage)	Water pollution, air pollution & operational cost		No solid waste on hand
Liquid Waste	Liquid waste management (fluids from equipment, boats & vehicles)	Water pollution, air pollution		Totally recycled
Sanitation Waste	Sanitation waste management - Mainland	Expensive for infrastructure	Visitors benefit from facilities	Waste reduction
Sanitation Waste	Sanitation waste management - Islands	Visitors do not like vault toilets	Waste is contained	Waste reduction

*Solid waste can be separated into recycling, electronic waste, and construction debris

Future Vision - Waste Management

Solid (trash and garbage) and liquid waste (vehicle and equipment fluids) are minimized at the source through: 1. life cycle management of items (maintaining minimal inventory and using items within their expiration date) 2. completing routine maintenance, 3. purchasing practices that result in "buy only what is needed" efforts, and purchasing quality items, and 4. maximum recycling efforts. Sanitation waste is minimized in the back country through the use of composting toilets where feasible, an in the front country and mainland through the use of technology where possible to minimize volume.

Key Points of Operational Control

SOPs related to pumping of vault toilets and containment and transport to mainland - Dave Wilkins, Marines and Grounds Supervisor.



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Water

Category	Activity/Issue	Negative Impact	Positive Impact	Future Vision
Potable water	Reduce cold water use	Reduces clean water for future generations. Time, money, and chemicals required to provide	May need enough water for biological activity in waste water system. Provides service for visitors	The amount of potable water the park is managing is minimized. Staff and visitors on islands collect their own water and filter it on their own.
Waste Water	Marine toilets	Dumping into the lake		No dumping occurs.
Waste Water	Back country toilets	Bacterial contamination, water contamination	Waste containment, no need for pump out.	Zero groundwater and bacterial contamination occurs in the park. Structures and footprint are minimal; a "pack in, pack out" policy exists on certain islands.
Storm Water	Storm water management	Erosion	Silt fencing and native vegetation buffers minimize runoff and erosion is prevented,	Zero storm water runoff
Abandoned Wells	Well management	Open wells can lead to aquifer contamination	Capped wells can be reopened at future date	There are very few wells present. Any open wells discovered are capped quickly.

Future Vision - Water

NPS and visitor activities do not contribute to the contamination of Lake Superior. Energy use associated with water is minimized: fossil fuels are not used for water heating; island staff and visitors filter their own water so potable water transportation is minimized. Zero groundwater and bacterial contamination (associated with composting toilets) occurs in the park. Structures and footprint are minimal; a "pack in, pack out" policy exists on most islands. Water consumption is reduced to the minimum needed for a given task and options to reuse grey water are explored and implemented where ever feasible.

Key Points of Operational Control



TRAINING & OUTREACH

Impacts and Future Vision Training and Outreach

Category	Activity/Issue	Negative Impact	Positive Impact	Future Vision
HAZ-COM	Hazardous communication (JHA's, Plans, SO's, etc.)	Paper used, time to create documents, meeting time, bureaucracy, volume	Establish a high expectation of educated employees	All NPS employees and volunteers are trained; employees understand and embrace the communications and act accordingly.
HAZMAT	Field trainings	Extra time spent in the field	Analyzing problems before tackling the job	Safer environment at job site
HAZWOPER Training	First responder trainings	Time for annual training	Some employees are training in spill response	Immediate response to spills
Visitor Communication	Visitor education (talks, printed and electronic)	Perceived overbearing government	Education for visitor	The general public is educated and are outstanding public stewards.
Communicating with Partners	Share Information with our partners (other governments, agencies, Friends, concessioners, outfitters, information burrows, outfitters)	Time spent	Updating and share information	Everyone is updated in the latest technology; partners are good stewards of the land.

Future Vision - Training and Outreach

Training for NPS employees effectively addresses safety in a manner that successfully reduces the likelihood of accidents and injuries. Training relative to environmental management is effective and results in employees that understand and embrace actions that result in protection of the environment. Outreach to the public is effective and results in educated visitors who embrace stewardship and act accordingly.