

Drinking Water State Revolving Fund Project Plan

City of Mackinac Island

Project No. 220457

April 29, 2022

DRAFT

City of Mackinac Island Drinking Water State Revolving Fund Project Plan

**Prepared For:
Department of Public Works
Mackinac Island, Michigan**

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List of Abbreviations/Acronyms

ADD	average day demand
CIP	clean-in-place
City	City of Mackinac Island
DWSRF	Drinking Water State Revolving Fund
EGLE	Michigan Department of Environment, Great Lakes, and Energy
gph	gallons per hour
gpm	gallons per minute
HVAC	heating, ventilation, and air conditioning
lbs	pounds
MDD	maximum day demand
MG	million gallons
MGD	million gallons per day
O&M	operation and maintenance
OSG	onsite generation of sodium hypochlorite
PKHR	peak hour demands
PPD of FAC	pounds per day of free available chlorine
UST	underground storage tank
VFD	variable frequency drive
WTP	Water Treatment Plant

1.0 Introduction

In February 2022, the City of Mackinac Island (City) retained Fishbeck to complete a Drinking Water State Revolving Fund (DWSRF) Project Plan for improvements to the City's drinking water system. This Project Plan was prepared to meet the project planning requirements of the Michigan Department of Environment, Great Lakes, and Energy (EGLE). The projects proposed in this Project Plan include:

- Installation of an 8-inch water main just west of Cadotte Avenue between 6th and 7th Streets.
- Improvements at the Water Treatment Plant (WTP), including closure the underground storage tank (UST) and installing an above-grade fuel tank, equipment improvements, conversion of the disinfection system from chlorine gas to onsite generation of sodium hypochlorite (OSG), expansion of the existing garage, and upgrades to treatment capacity.
- Inspection and repair of a suspected leak in the Upper Reservoir of the City's water system.

The City owns and operates a water supply, treatment, and distribution system that serves residents and seasonal visitors. The proposed water main improvements are based on recommendations from the 2016 Reliability Study completed by Fishbeck. Installation of an 8-inch water main just west of Cadotte Avenue between 6th and 7th Streets would provide many benefits to the City, including increased reliability and system performance as well as improved available fire flows in the area. This main was originally planned for installation as part of a large water main project in the 1980s.

Water is supplied to the system by the City's WTP which treats water pumped from Lake Huron. The proposed improvements at the WTP are based on the 2021 WTP Facility Needs Study completed by Fishbeck. Replacement of aging equipment is recommended to keep the plant in operation. Changing from chlorine gas to OSG to treat the water is needed due to public risk concerns with transportation of gas to and across the City. The garage expansion is needed to partition off existing electrical equipment which is currently located in the general garage area, exposing the equipment to dust and debris and shortening its design life considerably. Increased treatment capacity at the plant is recommended due to the City's staffing issues and to ensure projected water demands can be met.

The Upper Reservoir in the City's water system is suspected to be the source of an almost 100,000-gallon-per-day-leak. Inspection and repair of the suspected leak would result in increased revenues for the City and potentially allow for increased treatment capacity in relation to demands.

A map of the water service area for the City's water system is included in Figure 1. A map of the City's water distribution system, including the pressure districts, storage tanks, water mains, and the WTP is provided in Figure 2.

The water main installation project will provide redundancy and maintain reliable water service to the City. The estimated project cost for the water main replacement is \$721,000.

The recommended projects at the WTP focus on reliability, compliance, flexibility in operation, and safety at the plant. The estimated project costs for the WTP improvements are as follows:

- UST Closure and Above-Grade Fuel Tank Installation has an estimated project cost of \$190,000.
- Equipment Improvements has an estimated project cost of \$381,000.
- Treatment Capacity Expansion, including Disinfection System Improvements and Garage Expansion, has an estimated project cost of \$11,605,000.

Inspection and repair of a suspected leak in the Upper Reservoir of the City's water system has an estimated project cost of \$100,000.

The water main installation, UST closure and above-grade fuel tank installation, equipment improvements, and inspection and repair of the suspected leak for the Upper Reservoir are all planned for fiscal year 2023 with a total estimated cost of \$1,392,000. The Treatment Capacity Expansion including Disinfection System Improvements and Garage Expansion, is planned for fiscal year 2024 and has a total estimate cost of \$11,605,000.

2.0 Project Background

2.1 Delineation of Study Area

The City is situated adjacent to Lake Huron in the Straits of Mackinac. The City area is 5.6 square miles of which 1.2 square miles is water, and 0.6 square miles is Round Island, which results in 3.8 square miles of land on Mackinac Island. The City's water distribution system supplies water to Mackinac Island. The current water distribution system is shown in Figure 2. The water distribution system stretches from the southeast to the northwest of the island, generally following the coastline along the south and west sides of the island. The northeast part of the island is owned by the State of Michigan and is State Park land.

The proposed water main improvements will occur just west of Cadotte Avenue between 6th and 7th Streets as displayed in Figure 3. Also displayed in Figure 3 is the location of the Upper Reservoir, which is proposed to be inspected and repaired.

Water is provided to the distribution system by the WTP at the southeast end of Mackinac Island. An intake in Lake Huron brings raw water into the WTP, where it is treated then pumped through the distribution system. The proposed WTP improvements in this Project Plan will occur within the WTP site as shown in Figure 4.

2.2 Land Use

The City's 2018 Master Plan was reviewed for land use within the study area. About 82% of Mackinac Island is a State Park under the direction of the Mackinac Island State Park Commission. The remaining 18% (less than one square mile) of the island is privately owned and is in high demand for commercial and residential development.

The 2018 Master Plan indicates a total of 10 existing land use categories:

- Residential, Year-Round
- Residential, Seasonal
- Condominium Attached Structure
- Employee Housing
- Accommodations (for Rental to Guests)
- Commercial
- Institutional
- Museum
- Recreation
- Vacant Land/Rights-of-Way

There are no agricultural areas zoned within the study area. The existing land use in the study area is indicated in Map 1. There are no projected significant changes to the land use over the next 20 years, though small changes may occur over time.

The future land use is indicated in Map 2. The future designations classify the land use as follows:

- Conservation/Park
- Recreation/Open Space
- Shoreline Residential
- Cottage Residential

- Mixed Residential
- Single Family Residential
- Hotel/Resort
- Market Street
- Commercial

Historical sites in the City from both the National and State Historic Registers are included Appendix 1.

2.3 Population Projections

Population projections for year-round residents were created for the City using the 2018 Master Plan and U.S. Census Bureau information. The City's year-round population has changed little over the past several decades and U.S. Census Bureau figures for 2020 indicate a population of 471 persons. The population trend from 2010 to 2020 indicates the year-round population declined slightly (-4.3%). Although a recent negative trend in population has been observed, a conservative approach assuming a slight increase in population over time was utilized to project future population. The historical and projected population data is included in Table 2-1.

Table 2-1 – City Historical and Projected Population Data

Year	Population	% Change per Decade
1960*	947	--
1970*	517	-45.4%
1980*	510	-1.3%
1990*	469	-8.0%
2000*	523	11.5%
2010*	492	-5.9%
2020*	471	-4.3%
2030**	474	0.54%
2040**	476	0.54%
2050**	479	0.54%

* From U.S. Census Bureau Data

** Projected populations using a slight growth approach

During the warmer seasons (May through October), the City experiences a large influx of visitors and workers, which corresponds with the higher water demands in the system. The 2018 Master Plan indicates the City experiences an average seasonal population of more than 16,500 persons, of which approximately 4,000 are seasonal workers. The estimated seasonal population information is provided in Table 2-2.

Table 2-2 – Estimated Seasonal Population

Category	Number
Seasonal residents (708 housing units @ 2.05 persons per household, per 2010 Census)	1,451
Hotel and lodging @ full occupancy (1,503 rooms @ 2 persons per room, per 2016 survey)	3,006
Seasonal employees (living on Island, per Tourism Bureau – August 2010)	4,000
Daily transient visitors via ferries (750,000 annual visitors 2016 estimate, divided by 100 days)	7,500*
Boat slips at full occupancy (80 slips @ 2 persons per boat)	160
Airport traffic	80

*The 7,500 figure represents an average of the total visitors spread evenly across the 100 days. In reality, certain days, such as holidays and weekends, will have many more visitors than other days.

Source: 2018 Master Plan

Map 3 visually represents the population density within the study area.

2.4 Water Demand

This section includes information on the historical water use trends over the past 10 years and the water demands projected over the next 20 years. Water demands for the City were projected by statistically evaluating historical water use trends over the past 10 years.

2.4.1 Historical Demands

The City provided data on historical water use for the years 2010 through 2019. It was assumed that the water pumped from the WTP to the system was equivalent to the water demand in the system. In this manner, losses throughout the distribution system and any lost water, such as that used for hydrant flushing and fire protection, are accounted for in the overall demands.

Summer demands were used for this analysis as that is when water demand is highest. The lower population in the City through the winter months has remained relatively static. Although the City requires residents to leave their taps open in cold winter weather to prevent water mains from freezing, the summer demand is still higher. In addition, any population growth is expected only during the summer season as more tourist accommodations and summer homes are constructed. Table 2-3 presents the historical water demands during the summer months.

Table 2-3 – Historical Water Demands (Summer 2010–2019)

Year	ADD (MGD)	MDD (MGD)	Peaking Factor (MDD:ADD)
2010	0.83	1.28	1.54
2011	0.84	1.34	1.59
2012	0.90	1.65	1.82
2013	0.89	1.37	1.55
2014	0.88	1.49	1.68
2015	0.88	1.41	1.61
2016	0.93	1.51	1.62
2017	0.83	1.20	1.44
2018	0.95	1.44	1.52
2019	0.93	1.44	1.55
Overall Average	0.89	1.41	1.59
Overall Maximum	0.95	1.65	1.82
Overall Minimum	0.83	1.20	1.44

ADD average day demand

MDD maximum day demand

MGD million gallons per day

2.4.2 Water Demand Projections

The starting point for the ADD in 2020 was estimated by finding the standard deviation of the historical summer data and adding 1.65 times the standard deviation to the historical average of the ADD. This value is predicted to be greater than 95% of predicted values based on the dataset available.

Table 2-4 summarizes the demand projections for both ADD and MDD over the next 20 years. The starting point for the ADD projections is 0.96 MGD. The starting point for the MDD projections is 1.65 MGD. To project increases in demands into the future, a linear trendline was fit in the ADD dataset provided. The linear trendline indicated a slight increase over time. The ADD water demand for the City's system was projected for the next

20 years using the slight increase indicated in the linear trendline fitted to the ADD dataset. The MDD was projected by multiplying the ADD values by the peaking factor of 1.72.

Table 2-4 – Demand Projections (2020–2042)

Year	ADD (MGD)	MDD (MGD)	Peak Hour Demands (MGD)
2020	0.96	1.65	2.48
2025	0.98	1.69	2.54
2030	1.01	1.74	2.61
2042	1.06	1.83	2.75

The peak hour demands (PKHR) were estimated using a typical MDD:PKHR peaking factor of 1.5. The projected 2042 MDD of 1.83 MGD was used as a basis for the WTP capacity.

2.4.3 20-Year Projected Storage Analysis

Storage capacity for the City's distribution system was evaluated to determine if adequate storage would be provided for the 20-year projected demands and assuming the full capacity of the WTP is utilized. Based on the demand projections (2020–2042), the ADD is approximately 1.06 MGD, and the MDD is approximately 1.83 MGD. An analysis of the storage needed to meet these water demands resulted in a calculated recommended storage volume of 1.55 million gallons (MG).

The total existing system storage is 1.25 MG, which is less than the recommended storage volume. The recommended storage volume can be reduced if the WTP has capacity in excess of the 2042 projected MDD, 1.83 MGD. However, the existing WTP only has a firm capacity of 1.73 MGD. If the WTP capacity is not expanded, an additional 0.3 MG of storage would be needed to make up the shortfall.

If the WTP capacity is expanded as proposed, an excess treatment capacity of 0.92 MGD would be available under standby power. The excess treatment capacity would allow the recommended storage to be reduced to 0.63 MG. The City's existing storage volume, 1.25 MG, exceeds this recommendation.

2.5 Existing Facilities

2.5.1 Water Distribution System

The City's distribution system extends from the southeast to the northwest, generally following the south and west coastlines of Mackinac Island. The water distribution system is depicted in Figure 2.

The system is divided into three pressure districts: the high-pressure district, the low-pressure district, and the northwest low-pressure district. The high-pressure district encompasses the northern, central, and most of the western area of Mackinac Island. The low-pressure district includes the southern shore of Mackinac Island. The northwest low-pressure district is a small development on the western part of the island that is at a lower elevation but is not connected to the low-pressure district. The water mains in the distribution system evaluated for this Project Plan range from 4 to 18 inches in diameter and are made of three different materials: cast iron, ductile iron, and polyvinyl chloride.

There are two reservoirs in the system. The reservoirs are located at elevations that allow them to function like elevated storage at the system hydraulic grade without re-pumping. The Upper Reservoir is a rectangular tank mostly below grade with a capacity of 1,000,000 gallons. The Upper Reservoir feeds the high-pressure district and can also bleed water down to the low-pressure district and the northwest low-pressure district. The Lower Reservoir feeds the low-pressure district and is a rectangular tank mostly above grade with a capacity of 250,000 gallons.

2.5.2 Water Treatment Plant

The WTP, including the raw water intake, was originally constructed in 1984 with a conventional filtration system. The raw water intake was installed 783 feet into Lake Huron at a depth of approximately 40 feet. In 1997, the conventional filtration system was replaced with a membrane filtration system.

Raw water is conveyed from the lake through an 18-inch ductile iron pipe to the shorewell at the WTP. Two vertical turbine shorewell pumps with a capacity of 2,000 gallons per minute (gpm) (2.88 MGD) each draw water directly from the shorewell, which causes water to flow from the intake. The shorewell pumps provide a total capacity of 5.76 MGD and a firm capacity of 2.88 MGD.

Water is pumped by the shorewell pumps through two strainers to four continuous microfiltration membrane filtration skids. The original membranes and the skids were installed in 1997; the membranes were then replaced in 2006 and again in 2016 due to their age and reductions in performance. The new membranes are chlorine-resistant, which allows the City the ability to pre-chlorinate the raw water just prior to filtration due to zebra mussels found between the slats of the intake. The skids have a total capacity of 2.30 MGD and a firm capacity of 1.73 MGD. The firm capacity of the skids is the limiting factor relative to the WTP capacity, meaning the plant has a firm capacity of 1.73 MGD with one skid out of service. Process air is fed to the membrane skids via two compressors housed within the plant.

Filtered water from the membrane skids flows to the concrete clearwell beneath the plant, where chlorine is added for disinfection. The clearwell has a total capacity of 100,000 gallons. Water is pumped from the clearwell to the distribution system by four vertical turbine pumps: two pumps for the low-pressure district and two for the high-pressure district. The pumps currently in use were installed in 1998. During normal plant operations only the high-pressure district pumps are used. Water is pumped to the high-pressure district and then bleeds down into the low-pressure districts through a series of pressure reducing valves. The process flow schematic for the WTP is included in Figure 5.

The WTP uses chlorine gas for disinfection, which is shipped to the City in 150-pound cylinders. The chlorination equipment is located in the chlorine room at the WTP. Since the water demand varies seasonally, so do the chlorine requirements.

The WTP requires improvements to continue reliable operation. Most of the equipment is 20 to 30 years old, and several items need to be replaced or rehabilitated due to age and condition. This Project Plan focuses on the installation of new membrane filtration skids, improvements to the disinfection system, as well as other needs described in Section 2.6.

2.6 Summary of Project Need

2.6.1 Current System Needs

2.6.1.1 Installation of Water Main Between 6th and 7th Streets

In the 1980s, a water main was planned for installation just west of Cadotte Avenue between 6th and 7th Streets to provide increased reliability and redundancy to the area. However, it was never constructed. This area experiences pressure issues, which can be mitigated with this water main improvement.

This Project Plan proposes to install 980 lineal feet of 8-inch water main between 6th and 7th Streets just west of Cadotte Avenue as indicated in Figure 3. This installation will provide redundancy and mitigate pressure issues in the local area as well as improving the available fire flow to the area.

2.6.1.2 WTP Improvements

The following WTP improvements were proposed by the 2018 Disinfection Alternatives Study and the 2021 WTP Facility Needs Study. A site visit was made to the WTP as a part of the needs study to document the existing conditions of the equipment and to discuss existing operations and overall WTP concerns. Staff currently only have the laboratory/control room to utilize as a break and lunch room area and the room is not suitable for this purpose. Staff also have limited space to perform routine maintenance tasks in the WTP. The improvements proposed as part of the needs study would help to mitigate these issues. The needs in both studies were evaluated for this Project Plan and areas requiring improvements are described in the following sections.

2.6.1.2.1 Underground Storage Tank Closure and Above-Grade Fuel Tank Installation

The WTP has an existing 2,000-gallon fiberglass UST for diesel fuel that is used to supply a standby power generator. It was installed in 1985 and is past its useful life. As it is buried, no inspection or maintenance can be performed on the tank. In addition, use of the UST causes increased insurance rates due to the risk it poses. The UST is adjacent to the WTP structure. Piping from the existing UST comes up through the floor into the generator room to supply the generator.

It is proposed that the UST be properly abandoned in-place and the existing piping be cut and capped to seal off any entry to the tank. The UST would not be removed due to the potential detrimental effect on the structure of the WTP building. It is proposed to install an above-grade diesel fuel tank on a new concrete pad near the generator room. In addition, a retaining wall to the north would have to be removed and a new wall installed to allow enough space for the new fuel tank.

2.6.1.2.2 Equipment Improvements

Equipment improvements at the WTP are needed, including:

- Replacement of the in-line strainers downstream of the existing shorewell pumps.
 - The existing strainers are beyond the end of their design lives and are recommended for replacement within the next five years. The northernmost strainer is badly corroded on the exterior. Both strainers would require different mesh sizes for new skid designs if the existing were to be kept.
- Installation of variable frequency drives (VFDs) on the existing high service pumps.
 - The existing high service pumps are throttled using the discharge butterfly valves to achieve the desired flow to the system. The installation of VFDs would allow these pumps to be run at a slower speed to meet the desired flow, which would conserve energy and reduce the wear on the pumps and discharge valves. A considerable amount of electrical cost could be saved annually with the use of VFDs. In addition, this would allow the Upper Reservoir to be taken out of service as it would no longer need to act as a hydraulic control for the pumps.
- Replacement of electrical equipment in the electrical room.
 - Some of the electrical equipment in the electrical room, including a motor control center (MCC-2), two lighting panels (LP-A and LP-B), and a transformer feeding the aforementioned equipment are considered obsolete by the manufacturers and are beyond their design lives. This equipment is recommended for replacement.
- Replacement of the louver actuators.
 - The louvers at the WTP have automatic actuators that break frequently and jam periodically. It is recommended that these actuators are replaced.

2.6.1.2.3 Disinfection System Improvements

Chlorine gas is currently used for disinfection at the WTP. Chlorine gas is injected into water to make a solution that is applied to disinfect the drinking water produced by the WTP. Currently, chlorine gas is transported to the City in 150-pound cylinders on the freight ferry and is stored at the WTP in quantities sufficient for a surplus,

particularly through the winter months. Should a leak occur, it could have devastating consequences at the WTP and could also endanger the staff and surrounding public. In the past, several chlorine gas leaks have occurred at the WTP. Fortunately, none of the plant staff nor public have been injured. In addition to the safety concerns involved with the transportation, handling, and storage, the use of chlorine gas requires annual training for fire, police, and WTP staff. Furthermore, the existing chlorine gas equipment is deteriorating due to a number of small leaks and age.

In 2018, the City retained Fishbeck to evaluate disinfection alternatives for the WTP, the City short-listed the OSG system. This has several advantages including increased safety for plant personnel and the public, the elimination of hazardous material storage onsite, and the elimination of liabilities associated with transportation of hazardous materials via water shipping and overland transport on Mackinac Island.

2.6.1.2.4 Garage Expansion

The WTP garage is currently undersized for the purposes for which it is used. In addition, it contains several electrical systems, including the VFDs for the shorewell pumps, the main distribution equipment for the plant, and the automatic transfer switch for the generator. The electrical equipment is exposed to the debris and dust from the regular use of the garage. The VFDs are particularly sensitive to dust and debris entering air intakes which can have undesirable consequences on the equipment. Therefore, an expansion of the garage along with partitioning off an electrical room is proposed.

2.6.1.2.5 Treatment Capacity Expansion

The WTP capacity is heavily dependent on its typical hours of operations. During the summer months, the WTP is normally run for a maximum of approximately 16 hours per day, which is the most time the current operational staff can achieve with a normal schedule. For the WTP to produce water at the full rated capacity, additional operations staff would be needed. This is not feasible due to the unique circumstances of the City's lack of housing opportunities, lack of year-round staffing needs, and budgetary constraints. Under current conditions, the existing WTP, with a 24-hour rated firm capacity of 1.73 MGD, would have a 16-hour production capacity of only 1.15 MGD. Similarly, a rated firm capacity of 2.73 MGD for the WTP would be required to meet the projected 2042 MDD of 1.83 MGD assuming a 16-hour operational day. Therefore, an operational day of 16 hours was used to size the plant improvements.

EGLE often requires communities to plan for expansion of an existing facility when MDDs reach 80% of the facility's water production capacity. To allow for the WTP to have a capacity of 80% of the projected 2042 MDD and satisfy the production in 16 hours, the total WTP capacity needed is 3.41 MGD. However, a relaxation of the 80% capacity trigger can be reasoned. The WTP would have the option of running longer during those few days when demands exceed the projected 2042 MDD. In addition, the City's slow growth rate and limited development potential limits their potential further growth. For these reasons, a capacity of 2.73 MGD is recommended, though provisions will be made in any design to allow for adding more capacity.

While the existing membrane skids are maintained and continue to operate well, they are becoming technologically obsolete, with parts and support from the manufacturer difficult to obtain. Therefore, membrane skids with a newer design are proposed.

2.6.1.3 Upper Reservoir Leak Inspection and Repair

There is a suspected significant leak of treated water from the Upper Reservoir. The City has observed a steady rate of lost water over the past few years. City staff opened a manhole near the Upper Reservoir and found a chlorine residual in the water within that manhole.

Loss of water from the reservoir is a significant issue for the City in lost revenue, potential for further tank degradation, and impact on the available emergency storage capacity of the water system. For these reasons, it is proposed that an inspection and repair of identified leaks is made to the Upper Reservoir.

2.6.2 Orders and Enforcement Actions

No court or enforcement orders or written enforcement actions have been issued to the City regarding the water system.

2.6.3 Drinking Water Quality Problems

The aesthetic quality of the water produced by the City's WTP is generally good. There are no known drinking water quality problems in the overall distribution system.

2.6.4 Projected Needs for the Next 20 Years

The 2016 Reliability Study included 5-year and 20-year Capital Improvements Plans for the water distribution system and WTP. The recommended improvements are provided in Appendix 2. The Capital Improvements Plans do not show the water main improvement between 6th and 7th Streets because a water main was believed to exist in this location at the time. Fishbeck is currently completing a new reliability study for the City and will include this improvement in the updated Capital Improvements Plan.

The recommended improvements at the WTP were based on the 2021 WTP Facility Needs Study. The proposed WTP projects in this Project Plan address fuel storage, equipment improvements, disinfection, space constraints, and treatment capacity. The projects will also support a 16-hour operational day which is needed due to staffing limitations at the WTP.

Inspection and repair of the suspected leak in the Upper Reservoir is recommended. No additional storage is needed. It is recommended that the Lower Reservoir and clearwell at the WTP are inspected while the tank inspection firm is on the island for the Upper Reservoir.

3.0 Analysis of Alternatives

3.1 Water Main Between 6th and 7th Streets

3.1.1 No-Action

The no-action alternative would result in continuing the operation of the system as before. This would leave the pressure and redundancy issues in the area unresolved. The no-action alternative would not eliminate these problems and therefore, is not considered further.

3.1.2 Optimum Performance of Existing Facilities

Water system performance in the project area cannot be optimized as it does not exist. Deficiencies targeted for improvements are a function of redundancy needs in the area, which would all require capital improvements for correction. Thus, this alternative is eliminated from further consideration.

3.1.3 Regional Alternative

Since the water distribution system is on an island, a regional alternative would be impractical. No further consideration is given to this alternative.

3.1.4 Construction Alternative – New 8-inch Water Main

In this alternative, approximately 980 lineal feet of 8-inch water main would be installed between 6th and 7th Streets. This would address the reliability and redundancy concerns and mitigate pressure issues in the local area. An added benefit would be increased available fire flow in the area. Therefore, this alternative is evaluated further as the principal alternative for water main.

3.2 WTP Improvements

3.2.1 *UST Closure and Above-Grade Fuel Tank Installation*

3.2.1.1 No-Action

If the no-action alternative were to be selected, the condition of the UST would continue to deteriorate. In addition, the rates for insurance would likely continue to increase, with the possibility that the insurance company could refuse to insure it (which has occurred at other facilities). This option is not considered as a viable alternative and will not be considered further in this analysis.

3.2.1.2 Optimum Performance of Existing Facilities

Some repair or inspection could be done to verify the existing UST will not leak. However, it is expected that the insurance company will continue to raise premiums to keep it in-place and may one day not be willing to cover it. This option is considered unviable and will not be considered further in this analysis.

3.2.1.3 Regional Alternative

Since the WTP is on an island, a regional alternative would be impractical. No further consideration is given to this alternative.

3.2.1.4 Construction Alternative – Closure In-Place, New Above-Grade Tank

In this alternative, the existing UST would be closed in-place and a new above-grade tank with double containment would be installed adjacent to the plant. The existing UST piping would be cut and capped to seal off any entry to the tank. Fuel piping with insulation and heat tracing would be run from the new tank to the existing generator in the building. A new concrete pad would be poured to support the new tank. A privacy fence would be installed and painted to match the building. In addition, a retaining wall to the north would have to be removed and a new wall installed to allow enough space for the new fuel tank. This alternative is evaluated further as the principal alternative.

3.2.2 *Equipment Improvements*

Several equipment improvements were identified as necessary to keep the plant running into the future. These improvements include the following:

- Replacement of the in-line strainers downstream of the existing shorewell pumps.
- Installation of VFDs on the existing high service pumps.
- Replacement of electrical equipment in the electrical room.
- Replacement of the louver actuators.

3.2.2.1 No-Action

If the no-action alternative were to be selected, the condition of the equipment to be replaced would continue to deteriorate causing interruptions and issues with plant operation. The existing high service pumps can only run at constant speed, which requires the WTP staff to throttle the flow with a discharge valve. The constant speed pumps do not allow for the Upper Reservoir to be taken out of service, as it is needed to control pressures. No further consideration is given to this alternative.

3.2.2.2 Optimum Performance of Existing Facilities

WTP staff are operating and maintaining the existing equipment as well as possible; however, the equipment still fails occasionally. There is no alternative way to operate and maintain the equipment that will improve its performance. This option is considered unviable and will not be considered further in this analysis.

3.2.2.3 Regional Alternative

Since the WTP is on an island, a regional alternative would be impractical. No further consideration is given to this alternative.

3.2.2.4 Construction Alternative – Equipment Improvements

This alternative includes the replacement of the in-line strainers, replacement of aged electrical equipment in the plant's electrical room, and replacement of louver actuators throughout the plant. In addition, VFDs would be installed on the existing high service pumps to allow them to operate more efficiently and to allow the Upper Reservoir to be taken out of service without over pressurizing the system.

The location of the equipment improvements needed is provided in Figure 6. Note that the garage expansion, disinfection system improvements, UST closure and above-grade fuel tank installation, and the location of the equipment improvements are displayed in the same figure but can be completed separately.

This alternative is evaluated further as the principal alternative.

3.2.3 Disinfection System Improvements

3.2.3.1 No-Action

If the no-action alternative were to be selected, the threat to public health through delivery of chlorine gas to and across the City would continue. In addition, the chlorine gas equipment and room would continue to deteriorate without further investment. No further consideration is given to this alternative.

3.2.3.2 Optimum Performance of Existing Facilities

The optimum performance of the existing facilities would require replacing some of the existing chlorine gas equipment and replacing the corroded heating, ventilation, and air conditioning (HVAC) equipment in the chlorine gas room. Investigation would also be needed into the exhausting of this room, as it exhausts air towards the entrance into the chlorine gas room and laboratory. No further consideration is given to this alternative.

3.2.3.3 Regional Alternative

Since the WTP is on an island, a regional alternative would be impractical. No further consideration is given to this alternative.

3.2.3.4 Construction Alternatives

Due to the space required, an OSG system could not be housed within the existing WTP footprint. Two alternatives for the installation of an OSG system were considered. Both involve expanding the plant to the north to house the OSG system.

3.2.3.4.1 Stand-Alone Expansion to House OSG System

The stand-alone expansion alternative involves constructing a small expansion on the northwest corner of the existing WTP to house the new OSG system. This expansion would include provisions to accommodate additional future expansion of the filter room to include new membrane skids. The expansion would be generally constructed with block walls, concrete floor, siding, and roofing to match the existing building.

With the construction of the OSG system, the existing chlorine gas system can be taken out of service. The chlorine gas room can then be converted to a small office space adjacent to the existing laboratory/control area. The existing chlorine gas equipment and extraneous HVAC equipment would be removed and the wall adjoining with the laboratory would be demolished.

The conceptual layout of the OSG expansion is provided in Figure 6. Note that the garage expansion, disinfection system improvements, UST closure and above-grade fuel tank installation, and the location of the equipment improvements are displayed in the same figure but can be completed separately.

This alternative is evaluated further as a principal alternative.

3.2.3.4.2 Expansion to House OSG System with Treatment Capacity Expansion

The expansion in this alternative would be similar to the stand-alone expansion, except it would be constructed in conjunction with the treatment capacity expansion of the WTP. The other difference is the expansion area housing the OSG system would be topped with precast concrete plank and a loft would be put on top of the room.

This alternative is evaluated further as a principal alternative.

3.2.4 *Garage Expansion*

3.2.4.1 No-Action

If the no-action alternative were to be selected, the electrical equipment in the garage would continue to be exposed to dust and detritus, significantly reducing its expected life. This is not recommended; therefore, this alternative was not considered further.

3.2.4.2 Optimum Performance of Existing Facilities

The only way to optimize the garage as currently arranged would be to use the garage space for the electrical equipment only. The WTP is already limited for space that can be utilized for maintenance of equipment and storage. No further consideration is given to this alternative.

3.2.4.3 Regional Alternative

Since the WTP is on an island, a regional alternative would be impractical. No further consideration is given to this alternative.

3.2.4.4 Construction Alternatives

Two alternatives for the expansion of the garage were considered. Both involve the expansion of the plant to the north.

3.2.4.4.1 Stand-Alone Garage Expansion

This alternative proposes extending the end of the existing garage north to the edge of the existing building line.

A 10-foot roll-up garage door with an adjacent manway door would be provided to the north side of the garage expansion to allow access to the garage area. The construction of the garage expansion would be aesthetically similar to the existing WTP. The general concept of the building structure would be a concrete block wall with cedar shingle siding, concrete floor, and a shingled roof with a wooden truss support system. A trench drain would be installed through the middle of the garage expansion to provide drainage for the expanded area.

The garage expansion would allow for additional space to store equipment and vehicles. The expansion would include a partition wall to create an electrical room for the equipment. As part of the expansion, a hallway would be constructed so that egress from the garage to the main area of the WTP would not necessitate travel through the electrical room. This would help to keep dust and debris from accumulating in the electrical room. New HVAC equipment would be installed in both the garage expansion and the newly partitioned electrical area to ensure the needs of each space is met.

The conceptual layout of the garage expansion is provided in Figure 6. Note that the garage expansion, disinfection system improvements, UST closure and above-grade fuel tank installation, and the location of the equipment improvements are displayed in the same figure but can be completed separately.

This alternative is evaluated further as a principal alternative.

3.2.4.4.2 Garage Expansion with Treatment Capacity Expansion

The expansion in this alternative would be the same as the stand-alone expansion, except it would be constructed in conjunction with the treatment capacity expansion of the WTP.

This alternative is evaluated further as a principal alternative.

3.2.5 *Treatment Capacity Expansion*

3.2.5.1 No-Action

If the no-action alternative were to be selected, the WTP would lack the needed current and future firm treatment capacity based on the 20-year demand projections. In addition, the WTP would need to be operated over a 24-hour period to meet the MDD in the system, which is beyond the capacity of the City's current staffing levels. Parts and service to maintain the existing membrane skids would continue to be difficult to obtain as the technology of the existing skids becomes obsolete. Therefore, this option is eliminated from further consideration.

3.2.5.2 Optimum Performance of Existing Facilities

To assess the improvements needed to attain optimum performance at the existing facility, a 5-year design period was assumed. In that 5-year period, the skids would continue to operate as before, but the membrane modules would need to be replaced to extend the life of the skids. While continued maintenance of the skids and replacement of the membranes would optimize the skids' performance as-is, there is no way to avoid the issues with maintenance and upkeep of the existing membrane skids mentioned in the no-action alternative. This alternative is not considered further.

3.2.5.3 Regional Alternative

Since the WTP is on an island, a regional alternative would be impractical. No further consideration is given to this alternative.

3.2.5.4 Construction Alternatives

Four alternatives for the expansion of the existing WTP treatment capacity were evaluated. The disinfection system and garage expansions previously discussed would be performed in conjunction with each of these treatment capacity construction alternatives to realize construction efficiencies of performing them together.

3.2.5.4.1 Conversion of Existing Skids to Accommodate New Membrane Modules

This alternative adds additional treatment capacity to the WTP by modifying the existing skids to allow them to accommodate new types of membrane modules, which would have increased capacity per module. The manufacturer of the membrane skids was contacted regarding reworking the existing skids to accommodate new modules. It was determined this was not possible without significant structural changes to the skids, which would be costly and could result in an inferior product due to the skids not being designed for that application. Thus, this alternative is not considered further.

3.2.5.4.2 Limited Expansion with Existing Skid Design

This alternative is to install additional skids of the same design as the existing skids either in an addition to the WTP or on the concrete pad opposite the existing skids. However, the original skid design, Model Number 48CMF-L,

is no longer manufactured. Thus, the skids would have to be custom built making them expensive and difficult to make; parts would also be difficult to obtain in the future (an issue the City already has to contend with regarding the existing skids). For these reasons, this alternative is not considered further.

3.2.5.4.3 Limited Expansion with New Skid Design

This alternative is to install skids of a newer design in an expansion as an addition to the existing skids. The new skids would need to be sized for a capacity of approximately 1.0 MGD to achieve the firm treatment capacity. The manufacturer of the membrane skids can provide membrane skids of a newer design that could operate in tandem with the existing skids. However, this would not alleviate the difficulties of maintaining the existing membranes and skids. Also, operating two types of skids using one control system would be complicated. Therefore, this alternative is not considered further.

3.2.5.4.4 Full Replacement with New Skid Design

This alternative is the full replacement of the existing skids with a newer design of membrane skids. This would involve an expansion of the WTP to house the new skids, as well as a new clean-in-place (CIP) and neutralization system. The new skids would have a firm capacity of 2.75 MGD, which would allow the WTP to operate over a 16-hour period to meet the projected 20-year MDD. The new skids would be installed and put into service before the existing skids are demolished. To supply the expanded skid capacity, a third shorewell pump with a VFD would be installed. The expansion would be generally constructed with block walls, concrete floor, siding, and roofing to match the existing building. This is a feasible alternative and is further evaluated as the principal alternative.

3.3 Upper Reservoir Leak Inspection and Repair

3.3.1 *No-Action*

The no-action alternative would result in continued lost water and revenue as well as reduced system capacity due to the suspected leak from the Upper Reservoir. The no-action alternative would not eliminate the leak concerns in the water system and therefore, is not considered further.

3.3.2 *Optimum Performance of Existing Facilities*

There is not a feasible alternative to operate the system to prevent leaks. Thus, this alternative is eliminated from further consideration.

3.3.3 *Regional Alternative*

Since the water distribution system is on an island, a regional alternative would be impractical. No further consideration is given to this alternative.

3.3.4 *Construction Alternative – Inspection and Repair*

In this alternative, an inspection of the Upper Reservoir would be completed to identify the suspected leak. As part of this inspection, the interior wall that separates the Upper Reservoir into two separate compartments would also be inspected. If that wall is found to be structurally sound, repairs could be made with only one compartment out of service while the other continues to service the system. The leak repair would allow the City to save revenue and reduce the strain of a significant leak on the water system. As part of the inspection of the Upper Reservoir, the Lower Reservoir and clearwell would also be inspected. The deployment of a tank inspection firm to the island is not easy, so it is efficient to have them inspect the other water storage structures as well. This alternative is evaluated further as the principal alternative.

4.0 Principal Alternatives

The principal alternatives that emerged from the analysis of alternatives for the water main, WTP improvements, and the Upper Reservoir are as follows:

- Water Main Between 6th and 7th Streets: Construction Alternative – New 8-inch Water Main
- WTP Improvements:
 - UST Closure and Above-Grade Fuel Tank: Construction Alternative – Closure In-Place, New Above-Grade Tank
 - Equipment Improvements: Construction Alternative – Equipment Improvements
 - Disinfection System Improvements:
 - Construction Alternative – Stand-Alone Expansion to House OSG System
 - Construction Alternative – Expansion to House OSG System with Treatment Capacity Expansion
 - Garage Expansion:
 - Construction Alternative – Stand-Alone Garage Expansion
 - Construction Alternative – Garage Expansion with Treatment Capacity Expansion
 - Treatment Capacity Expansion: Construction Alternative – Full Replacement with New Skid Design
- Upper Reservoir Leak Inspection and Repair: Construction Alternative – Inspection and Repair

4.1 Water Main Between 6th and 7th Streets

4.1.1 Monetary Evaluation

A monetary analysis was completed for the water main construction alternative. The project cost summary for the construction alternative is presented in Table 4-1. The cost estimates include the water main itself and the restoration required to complete the improvements.

Table 4-1 – Estimated Project Cost Summary for Water Main Between 6th and 7th Streets

Item	Initial Capital Cost	Salvage Value
New 8-Inch Water Main and Restoration	\$443,000	\$354,000
Subtotal	\$443,000	
Contractor's General Conditions and Profit	\$134,000	
Construction Contingency	\$67,000	
Total Construction Cost	\$644,000	

A present worth analysis was completed for the construction alternative as summarized in Table 4-2. The present worth analysis for the water main construction alternative is included in Appendix 3. The analysis includes associated operation and maintenance (O&M) costs but not sunk costs.

Table 4-2 – 20-Year Present Worth Analysis for Water Main Between 6th and 7th Streets

Item	Cost (Value)	20-Year Present Worth Cost
Estimated Construction Costs	\$644,000	\$644,000
O&M Cost/Year*	\$1,000	\$22,000
Salvage Value	\$354,000	(\$391,000)
Total Worth		\$275,000

*O&M costs shown only account for work related to the water main in question

4.1.2 Environmental Evaluation

4.1.2.1 Cultural Resources

The proposed improvement project will occur in the backyards of existing housing. However, there is no direct expected historical or archeological impact anticipated. Historical sites within the City are summarized in Appendix 1. None of these are in the area of the proposed project.

4.1.2.2 Natural Environment

No long-term impacts to the natural environment are anticipated. The only anticipated impacts to the natural environment are a temporary decrease in air quality due to construction and construction noise which could potentially disrupt the local environment and disturb the local population. Where applicable, construction will occur during the typical construction season for underground work.

4.1.3 Mitigation

The impact on air quality will be controlled to the greatest extent possible by limiting construction to regular working hours during the week; this will also help reduce the impact of construction noise on the local population. Appropriate dust and sound control measures will be taken during construction.

4.1.4 Implementability and Public Participation

The public will be provided with opportunities to comment on the proposed project at the public hearing (see Section 8.0 for more information). Additional public concerns will be considered whenever possible throughout the design and construction.

The City owns and operates the water distribution system, and the proposed project does not require intermunicipal agreements.

4.1.5 Technical Considerations

The installation of an 8-inch water main will help improve reliability and redundancy in the local area.

4.1.6 Residuals

This project will have no impact on residuals.

4.1.7 Potential Industrial/Commercial/Institutional Users

There are no potential industrial, commercial, or institutional users anticipated along the water main installation route, as the area along the route is already developed. The area to be served by the new water main west of Cadotte Avenue is assumed to serve the same customers the water system already serves in that area.

4.1.8 Growth Capacity

The purpose of the proposed project is to better serve existing customers. The water main is not being installed for growth.

4.1.9 Contamination

Map 4 displays the location of contaminated sites in the City. The proposed water main installation will occur just west of Cadotte Avenue between 6th and 7th Streets. There are no known contaminated sites in this location.

4.2 WTP Improvements

4.2.1 Monetary Evaluations

4.2.1.1 UST Closure and Above-Grade Fuel Tank Installation

A monetary analysis was completed for the diesel fuel tank construction alternative. The estimated project costs for the diesel fuel tank work are presented in Table 4-3. These costs include closure of the existing UST in-place and installation of a new above-grade fuel tank adjacent to the WTP.

Table 4-3 – Estimated Project Cost Summary for UST Closure and Above-Grade Fuel Tank Installation

Item	Initial Capital Cost	Salvage Value
Closure of UST In-Place	\$30,000	\$0
Installation of Above-Grade Fuel Tank	\$75,000	\$38,000
Subtotal	\$105,000	\$38,000
Contractor's General Conditions and Profit	\$19,000	
Construction Contingency	\$25,000	
Total Construction Cost	\$149,000	

A present worth analysis was completed for the construction alternative as summarized in Table 4-4. The present worth analysis for the UST closure and above-grade fuel tank installation construction alternative is included in Appendix 4. The analysis includes associated O&M costs but not sunk costs.

Table 4-4 – 20-Year Present Worth Analysis for UST Closure and Above-Grade Fuel Tank Installation

Item	Cost (Value)	20-Year Present Worth Cost
Estimated Construction Costs	\$149,000	\$149,000
O&M Cost/Year	\$5,000	\$106,000
Salvage Value	\$38,000	(\$42,000)
Total Worth		\$213,000

4.2.1.2 Equipment Improvements

A monetary analysis was completed for the equipment improvements construction alternative. The estimated construction costs are presented in Table 4-5. These costs include the following:

- Replacement of the in-line strainers downstream of the existing shorewell pumps.
- Installation of VFDs on the existing high service pumps.
- Replacement of electrical equipment in the electrical room.
- Replacement of the louver actuators.

Table 4-5 – Estimated Project Cost Summary for Equipment Improvements

Item	Initial Capital Cost	Salvage Value
Strainer Replacement	\$55,000	\$19,000
VFD Installation	\$50,000	\$10,000
Electrical Equipment Replacement	\$113,000	\$23,000
Louver Actuator Replacement	\$33,000	\$11,000
Subtotal	\$251,000	\$63,000
Contractor's General Conditions and Profit	\$38,000	
Construction Contingency	\$58,000	
Total Construction Cost	\$347,000	

A present worth analysis was completed for the construction alternative as summarized in Table 4-6. The present worth analysis for the equipment improvements construction alternative is included in Appendix 5. The analysis includes associated O&M costs but not sunk costs.

Table 4-6 – 20-Year Present Worth Analysis for Equipment Improvements

Item	Cost (Value)	20-Year Present Worth Cost
Estimated Construction Costs	\$347,000	\$347,000
O&M Cost/Year	\$25,000	\$528,000
Salvage Value	\$63,000	(\$70,000)
Total Worth		\$805,000

4.2.1.3 Disinfection System Improvements

A monetary analysis was completed for the disinfection system improvements construction alternatives. The estimated construction costs are presented in Table 4-7. These costs include the replacement of the chlorine gas system with an OSG system housed in an expansion of the WTP to the north and taking the existing chlorine gas system out of service. The cost for including the disinfection system improvements with the treatment capacity plant expansion is included in Table 4-11.

Table 4-7 – Estimated Project Cost Summary for Disinfection System Improvements

Component	Estimated Cost	Salvage Value
Building Expansion*	\$260,000	\$208,000
OSG Equipment (includes installation)	\$420,000	\$210,000
Subtotal	\$680,000	\$418,000
Contractor's General Conditions and Profit	\$123,000	
Construction Contingency	\$161,000	
Construction Cost Total	\$964,000	

*Cost includes taking the existing chlorine gas system out of service and converting it to an administrative area.

A present worth analysis was completed for the construction alternatives as summarized in Table 4-8. The present worth analysis for the disinfection system construction alternatives is included in Appendix 6. The analysis includes associated O&M costs but not sunk costs. The present worth analysis for including the disinfection system improvements with the treatment capacity plant expansion is included in Table 4-12.

Table 4-8 – 20-Year Present Worth Analysis for Disinfection System Improvements

Item	Cost (Value)	20-Year Present Worth Cost
Estimated Construction Costs	\$964,000	\$964,000
O&M Cost/Year	\$25,000	\$528,000
Salvage Value	\$418,000	(\$462,000)
Total Worth		\$1,030,000

4.2.1.4 Garage Expansion

A monetary analysis was completed for the garage expansion construction alternatives. The estimated construction costs are presented in Table 4-9. These costs include the expansion of the garage and the partitioning of the electrical equipment into a separate space. The cost for including the garage expansion with the larger treatment capacity plant expansion is included in Table 4-11.

Table 4-9 – Estimated Project Cost Summary for Garage Expansion

Component	Estimated Cost	Salvage Value
Garage Expansion*	\$294,000	\$236,000
Subtotal	\$294,000	\$236,000
Contractor's General Conditions and Profit	\$53,000	
Construction Contingency	\$70,000	
Construction Cost Total	\$417,000	

*Garage expansion costs include construction of the garage expansion itself, partitioning of the original garage area into an electrical room, some sitework, HVAC equipment, and an electrical feed to the new expansion.

A present worth analysis was completed for the construction alternatives as summarized in Table 4-10. The present worth analysis for the garage expansion construction alternatives is included in Appendix 7. The analysis includes associated O&M costs but not sunk costs. The present worth analysis for including the garage expansion with the treatment capacity plant expansion is included in Table 4-12.

Table 4-10 – 20-Year Present Worth Analysis for Garage Expansion

Item	Cost (Value)	20-Year Present Worth Cost
Estimated Construction Costs	\$417,000	\$417,000
O&M Cost/Year	\$5,000	\$106,000
Salvage Value	\$236,000	(\$261,000)
Total Worth		\$262,000

4.2.1.5 Treatment Capacity Expansion

The estimated cost for the expansion of the WTP to the north to house the newly designed membrane skids is presented in Table 4-11. The table also includes the costs for the disinfection system improvements and garage expansion as they would be included with the treatment capacity expansion. Some cost savings would be realized through completing these projects along with the treatment capacity expansion; however, a conservative approach using the same stand-alone cost was used for the estimate.

Table 4-11 – Estimated Project Cost Summary for Treatment Capacity Expansion

Item	Initial Capital Cost	Salvage Value
Disinfection System Improvements and Garage Expansion		
Disinfection System Improvements	\$680,000	\$418,000
Garage Expansion	\$294,000	\$236,000
Treatment Capacity Expansion		
Site Work	\$287,000	\$230,000
Building Construction	\$832,000	\$666,000
Additional Shorewell Pump	\$143,000	\$72,000
Membrane Equipment	\$2,766,000	\$922,000
Process Piping and Valving	\$499,000	\$300,000
Chemical Storage and Feed Equipment	\$184,000	\$37,000
Mechanical Equipment (HVAC)	\$376,000	\$126,000
Electrical	\$637,000	\$213,000
Controls/Programming	\$422,000	\$85,000
Subtotal	\$7,120,000	\$3,305,000

Table 4-11 – Estimated Project Cost Summary for Treatment Capacity Expansion

Item	Initial Capital Cost	Salvage Value
Contractor's General Conditions and Profit	\$1,289,000	
Construction Contingency	\$1,682,000	
Total Construction Cost	\$10,091,000	

A present worth analysis was completed for the treatment capacity expansion, which includes the disinfection system improvements and garage expansion. Associated O&M and equipment replacement costs within the 20-year design life related to the projects were included in the analysis. Sunk costs are not included in the analysis. Table 4-12 provides the comparison of the present worth analysis for the alternatives. The present worth analysis details are included in Appendix 8.

Table 4-12 – 20-Year Present Worth Analysis for Treatment Capacity Expansion*

Item	Cost (Value)	20-Year Present Worth Cost
Estimated Construction Costs	\$10,091,000	\$10,091,000
O&M Cost/Year	\$680,000	\$14,341,000
Replacement Cost	\$815,000	\$815,000
Salvage Value	\$1,509,000	(\$1,668,000)
Total Present Worth		\$23,579,000

*Includes disinfection system improvements and garage expansion

4.2.2 Environmental Evaluation

4.2.2.1 Cultural Resources

The WTP improvements will occur within the existing treatment plant site. There is no direct historical or archeological impact expected. Historical sites within the City are summarized in Appendix 1.

4.2.2.2 Natural Environment

Most of the work for will occur inside the existing WTP building, with the remainder occurring on the current site. No long-term impacts to the natural environment are anticipated. The effects on the natural environment are limited to a temporary decrease in air quality due to construction. In addition, there will be a fair amount of construction noise which could potentially disrupt the local environment and disturb the local population. The closure of the UST will mitigate any concerns of the diesel fuel leaking into the environment.

4.2.3 Mitigation

The impact on air quality will be controlled to the greatest extent possible by limiting construction to regular working hours during the week; this will also help reduce the impact of construction noise on the local population. Appropriate dust and sound control measures will be taken during construction.

4.2.4 Implementability and Public Participation

The public will be provided with opportunities to comment on the proposed projects at the public hearing (see Section 8.0 for more information). Additional public concerns will be considered whenever possible throughout the design and construction.

The City owns and operates the WTP, and the proposed projects do not require intermunicipal agreements.

4.2.5 Technical Considerations

The following design information and assumptions were used to evaluate the WTP principal alternatives:

- The expanded WTP requires a firm capacity of 2.73 MGD.
- OSG is the most advantageous disinfection alternative.
- The WTP will continue to use membrane filtration as the primary means of treatment. While the existing membrane skids are maintained and continue to operate well, they are becoming technologically obsolete, with parts and support from the manufacturer difficult to obtain. A newer style of membrane skid should be considered particularly an “open” style skid, if possible.
- The design should consider minimizing disruption to the WTP’s current operation allowing for smooth construction phasing and continued delivery of water to the City’s water customers.
- The City has indicated that staffing limitations do not allow for a 24-hour operational day and the design must use a 16-hour operational day (the firm capacity noted above is in consideration of a 16-hour operational day).
- The existing generator is powered by diesel fuel which is stored in a UST. Due to the liability associated with a potential leak, this UST should be safely abandoned in-place and replaced with an above-grade tank.
- Space at the existing WTP is at a premium and any expansion or reworking of the existing WTP should consider space for the WTP staff to use for storage or general administration, such as break or lunch rooms.
- The existing garage space is limited due to electrical equipment which is installed at the back wall. The garage should be expanded and the electrical equipment should be separated from the garage space to allow for ease of use of the garage and to help protect the electrical equipment.

4.2.6 Residuals

The improvements will have no impact on the production of residuals.

4.2.7 Potential Industrial/Commercial/Institutional Users

There are some larger hotels and commercial users that are currently accounted for in the water demands. There are no other large users expected or industrial use in the City water system. The proposed improvements consider future projected demands (2042) based on water demand trending for the sizing of the treatment equipment.

4.2.8 Growth Capacity

The improvements account for the projected 2042 demands for sizing and redundancy in the design. The conceptual layout of the plant expansion provides for further expansion of the plant in the future.

4.2.9 Contamination

Map 4 displays the location of contaminated sites in the City. There is an existing UST for storing generator fuel at the WTP site. The proposed WTP improvements include safe abandonment in-place of the existing UST.

4.3 Upper Reservoir Leak Inspection and Repair

4.3.1 Monetary Evaluation

A monetary analysis was completed the Upper Reservoir leak inspection and repair construction alternative. This also includes inspections for the Lower Reservoir and clearwell which will be inspected along with the Upper Reservoir since the tank inspection firm will already be on the island. The project cost summary for this alternative is presented in Table 4-13.

Table 4-13 – Estimated Project Cost Summary for Upper Reservoir Leak Inspection and Repair

Item	Initial Capital Cost	Salvage Value
Inspection of Upper Reservoir	\$5,000	-
Inspection of Lower Reservoir	\$4,000	-
Inspection of Clearwell	\$3,000	-
Inspection Subtotal	\$12,000	-
Repair of Upper Reservoir Leak	\$50,000	\$30,000
Leak Repair Subtotal	\$50,000	\$30,000
Contractor's General Conditions and Profit	\$9,000	
Construction Contingency	\$12,000	
Total Construction Cost	\$83,000	

A present worth analysis was completed for the construction alternative as summarized in Table 4-14. The present worth analysis for the Upper Reservoir construction alternative is included in Appendix 9. The analysis includes associated O&M costs but not sunk costs.

Table 4-14 – 20-Year Present Worth Analysis for Upper Reservoir Leak Inspection and Repair

Item	Cost (Value)	20-Year Present Worth Cost
Estimated Construction Costs	\$83,000	\$83,000
O&M Cost/Year	\$4,000	\$85,000
Salvage Value	\$30,000	(\$33,000)
Total Worth		\$135,000

4.3.2 Environmental Evaluation

4.3.2.1 Cultural Resources

The proposed improvement project will occur at the existing reservoir sites and the WTP. The Upper Reservoir is located near the top of the hill on Mackinac Island, in a relatively rural area of the island without any nearby cultural resources. The Lower Reservoir is located near Fort Mackinac; care will be taken to not damage or impinge on the cultural resources in the area. The clearwell is in the WTP, which as previously discussed, is not a historical site and will not have an impact on any historical sites. Historical sites within the City are summarized in Appendix 1.

4.3.2.2 Natural Environment

No long-term impacts to the natural environment are anticipated. The only anticipated impacts to the natural environment are a temporary decrease in air quality due to construction and construction noise which could potentially disrupt the local environment and disturb the local population. Where applicable, construction will occur during the typical construction season for underground work.

4.3.3 Mitigation

The impact on air quality will be controlled to the greatest extent possible by limiting construction to regular working hours during the week; this will also help reduce the impact of construction noise on the local population. Appropriate dust and sound control measures will be taken during construction.

4.3.4 Implementability and Public Participation

The public will be provided with opportunities to comment on the proposed project at the public hearing (see Section 8.0 for more information). Additional public concerns will be considered whenever possible throughout the design and construction.

The City owns and operates the WTP and water distribution system, and the proposed project does not require intermunicipal agreements.

4.3.5 Technical Considerations

The inspection and repair of a leak in the Upper Reservoir would increase revenue for the City and improve the water system capacity.

4.3.6 Residuals

This project will have no impact on residuals.

4.3.7 Potential Industrial/Commercial/Institutional Users

There are some larger hotels and commercial users that are currently accounted for in the water demands. There are no other large users expected or industrial use in the City water system. The proposed improvements consider future projected demands (2042) based on water demand trending for the sizing of the treatment equipment and water storage.

4.3.8 Growth Capacity

The purpose of the proposed project is to better serve existing customers. This project is not proposed to accommodate growth.

4.3.9 Contamination

Map 4 displays the location of contaminated sites in the City. There are no known contaminated sites near the Upper Reservoir, Lower Reservoir, or WTP

5.0 Selected Alternatives

5.1 Water Main Between 6th and 7th Streets

The selected water main alternative is the installation of a new 8-inch water main between 6th and 7th Streets just west of Cadotte Avenue. This alternative addresses the concerns described in the summary of need including reliability and redundancy issues, as well as pressure issues in the area. As an additional benefit, fire flows in the area would be increased.

5.1.1 Design Parameters

Installation of approximately 980 lineal feet of 8-inch water main.

5.1.2 Maps

A map of the selected area for the proposed water main installation is included in Figure 3. The topography of the area is displayed in Map 5.

5.1.3 Schedule for Design and Construction

The project schedule is consistent with the quarterly DWSRF funding deadlines and is provided in Table 5-1. The project is scheduled for DWSRF Funding Quarter 3 in Fiscal Year 2023.

Table 5-1 – Water Main Installation Schedule

Task Name	Duration	Tentative Start	Tentative Finish
Final Design	5 months	July 2022	January 2023
Construction Permit	3 months	January 2023	March 2023
Bidding	2 months	March 2023	April 2023
DWSRF Funding & Project Award	1 month	April 2023	May 2023
Construction Phase (Seasonally Dependent)	2 months	October 2023	December 2023

5.1.4 Cost Estimate

The estimated project cost for the selected alternative is included in Table 5-2. The costs are provided in April 2022 dollars.

Table 5-2 – Estimated Water Main Project Costs

Category	Cost
Estimated Bare Construction Costs	\$443,000
Contractor's General Condition and Profit	\$134,000
Construction Contingency	\$67,000
Engineering, Construction Administration, and Legal	\$77,000
Total Estimated Project Cost	\$721,000

5.2 WTP Improvements

5.2.1 Basis of Design

A basis of design was established for all the WTP improvements alternatives and is included in Table 5-3.

Table 5-3 – Basis of Design – WTP Improvements

Parameter	Existing	New	
Plant Total Capacity (gpm/MGD)	1,600/2.30	2,546/3.67	
Plant Firm Capacity (gpm/MGD)	1,200/1.73	1,910/2.75	
OSG System			
Design Chlorine Dosage (milligrams/liter)		4	
Flow Condition		ADD	MDD
Flow (MGD)		0.96	2.73
System Capacity (PDD of FAC)		32	91
Salt Consumption (lbs/day)		98	278
Salt Storage Requirements			
Salt Required (lbs) ¹	-	7,450	
Salt Required (tons)	-	3.73	
Pallets ²	-	2	
Brine Tank Sizing			
Number of Tanks	-	1	
Tank Volume (gallons)	-	500	
Salt Storage Capacity (tons)	-	2	
Storage within Tank (days)	-	42	15
Sodium Hypochlorite Day Tank (Oxidant Tank)			
Number of Tanks	-	1	
Tank Volume (gallons)	-	1,500	
Storage Provided (days)	-	3	1

Table 5-3 – Basis of Design – WTP Improvements

Parameter	Existing	New
Membrane Filtration		
Number of Skids	4	4
Modules per Skid	48	52
Design Total Capacity (gpm/MGD)	1,600 / 2.30	2,546 / 3.67
Design Firm Capacity (gpm/MGD)	1,200 / 1.73	1,910 / 2.75
Clean-In-Place System		
CIP Tank Dimensions		
CIP Tank Volume (gallons)	1,125	1,800
CIP Heater (kilowatts)	25	60
Transfer Pump Parameters		
No. of Pumps	1	1
Pump Flow (gpm)	850	700
Pump Horsepower	20	20
Neutralization Tank Dimensions		
Neutralization Tank Volume (gallons)	1,650	5,500
Transfer Pump Parameters		
No. of Pumps	2	1
Pump Flow (gpm)	20	200
Pump Horsepower	3	5
Shorewell Pumps		
Pump Types	Vertical Turbine	Vertical Turbine
No. of Pumps	2	3
Pump Capacity (gpm/MGD)	2,000/2.88	2,000/2.88
Horsepower	75	75
Total Capacity(gpm/MGD)	4,000/5.76	6,000/8.64
Firm Capacity (gpm/MGD)	2,000/2.88	4,000/5.76

¹Winter average flow conditions (0.62 MGD) were used, plant operation 7 days/week for approximately 4 months.

² Pallet = 50 bags of salt at 50 lbs each. Note that some salt would be present in the brine tank, lowering the required amount to be stored.

5.2.2 UST Closure and Above-Grade Fuel Tank Installation

5.2.2.1 Design Parameters

Regulatory requirements for removal/closure of the UST at the WTP were reviewed. The UST holds diesel fuel for a generator to supply backup power to the plant. The existing UST contains a regulated petroleum substance, and based on our review of the state database, the UST is registered. The state database indicated the UST was installed in 1985, is a 2,000-gallon fiberglass tank that contains diesel fuel and is located at 5951 M-185.

Samples were taken onsite at the WTP by drilling a test well near the UST. No traces of diesel fuel were detected in the test well, suggesting the UST is not leaking. This is important to determine as leaking USTs are regulated differently than non-leaking USTs. In addition, relevant regulatory authorities in the City were contacted regarding closing the UST in-place. In principle, the authorities agreed the UST will need to be closed in-place due to its proximity to the foundation of the WTP.

A new 2,000-gallon, concrete encased, dual containment, above-grade diesel fuel tank will be installed adjacent to the WTP. New insulated and heat traced diesel fuel lines will be run from the tank into the existing fuel system

for the WTP generator. The fuel tank will be installed on a new concrete pad just outside of the WTP on the west side of the building. A privacy fence will be built around the fuel tank and painted to match the existing building siding.

5.2.2.2 **Maps**

A conceptual layout of the UST closure and installation of an above-grade fuel tank is included in Figure 6. The topography of the area is displayed in Map 5.

5.2.2.3 **Schedule for Design and Construction**

The project schedule is consistent with the quarterly DWSRF funding deadlines and is provided in Table 5-4. The project is scheduled for DWSRF Funding Quarter 3 in Fiscal Year 2023.

Table 5-4 – UST Closure and Above-Grade Fuel Tank Installation Schedule

Task Name	Duration	Tentative Start	Tentative Finish
Final Design	5 months	July 2022	January 2023
Construction Permit	3 months	January 2023	March 2023
Bidding	2 months	March 2023	April 2023
DWSRF Funding & Project Award	1 month	April 2023	May 2023
Construction Phase (Seasonally Dependent)	2 months	October 2023	December 2023

5.2.2.4 **Cost Estimate**

The estimated project cost for the selected alternative is included in Table 5-5. The costs are provided in April 2022 dollars.

Table 5-5 – Estimated UST Closure and Above-Grade Fuel Tank Installation Project Costs

Category	Cost
Estimated Bare Construction Costs	\$105,000
Contractor's General Condition and Profit	\$19,000
Construction Contingency	\$25,000
Engineering, Construction Administration, and Legal	\$41,000
Total Estimated Project Cost	\$190,000

5.2.3 ***Equipment Improvements***

5.2.3.1 **Design Parameters**

The existing strainers are beyond the end of their design life and are recommended for replacement within the next five years. The northernmost strainer is badly corroded on the exterior. Both strainers would require different mesh sizes for new skid designs if the existing were kept. The original manufacturer of the strainers was contacted to provide an in-kind replacement.

The existing high service pumps are throttled using the discharge butterfly valves to achieve the desired flow to the system. The installation of VFDs would allow those pumps to be run at a slower speed to meet the desired flow, conserving energy and lessening the strain on the pumps and discharge valve. A considerable amount of electrical cost could be saved annually through the installation of these VFDs.

Some of the electrical equipment in the electrical, including MCC-2, LP-A, LP-B, and the associated transformer is considered obsolete by the manufacturer and is beyond its design life. This equipment will be replaced in-kind.

The louvers at the WTP have automatic actuators that break frequently and jam periodically. These louver actuators will be replaced in-kind.

5.2.3.2 Maps

A conceptual layout of the equipment improvements is included in Figure 6. The topography of the area is displayed in Map 5.

5.2.3.3 Schedule for Design and Construction

The project schedule is consistent with the quarterly DWSRF funding deadlines and is provided in Table 5-6. The project is scheduled for DWSRF Funding Quarter 3 in Fiscal Year 2023.

Table 5-6 – Equipment Improvements Schedule

Task Name	Duration	Tentative Start	Tentative Finish
Final Design	5 months	July 2022	January 2023
Construction Permit	3 months	January 2023	March 2023
Bidding	2 months	March 2023	April 2023
DWSRF Funding & Project Award	1 month	April 2023	May 2023
Construction Phase (Seasonally Dependent)	2 months	October 2023	December 2023

5.2.3.4 Cost Estimate

The estimated project cost for the selected alternative is included in Table 5-7. The costs are provided in April 2022 dollars.

Table 5-7 – Estimated Equipment Improvements Project Costs

Category	Cost
Estimated Bare Construction Costs	\$251,000
Contractor's General Condition and Profit	\$38,000
Construction Contingency	\$58,000
Engineering, Construction Administration, and Legal	\$34,000
Total Estimated Project Cost	\$381,000

5.2.4 Disinfection System Improvements

The selected alternative for the OSG system is to include it in the treatment capacity expansion project.

5.2.4.1 Design Parameters

The OSG system capacity was calculated using a maximum chlorine dosage of 4 milligrams per liter. The system capacity in pounds per day of free available chlorine (PPD of FAC) was estimated for various flow conditions. The OSG system sizing of approximately 91 PPD of FAC is based on a design MDD of 2.73 MGD. The power requirement for the system is approximately 2 kilowatt-hours for every PPD of FAC generated. The salt requirement for the system is approximately 3 pounds (lbs) for every PPD of FAC generated. Due to the severe winter weather conditions in the City, the number of salt (pallets) required during the winter months was estimated using the average flow conditions with the plant in operation for all seven days of the week. There are two generators provided for redundancy, each capable of handling the design MDDs.

Two tanks are provided with the OSG system. The brine tank is used to batch mix a brine solution, which is used in the generators to create a 0.8% sodium hypochlorite solution. The day tank, also called the oxidant tank in an OSG system, is used to store a days' worth of sodium hypochlorite solution at the design MDD.

The OSG system uses chemical metering pumps to convey the diluted sodium hypochlorite solution from the oxidant tank to the existing injection points. At the design MDD, a flow rate of 56.2 gallons per hour (gph) is needed from the sodium hypochlorite feed system. To provide this flow, three metering pumps with a capacity of 30 gph each would be provided. This would provide a firm capacity of 60 gph from the metering pumps, while still

allowing the average flow rate of 20 gph from a single metering pump without too much turndown on the metering pumps.

Construction of the OSG system building expansion would be similar to the existing WTP to match its aesthetic. The general concept of the building expansion would be concrete block wall with cedar shingle siding, concrete floor, topped with precast concrete plank. A loft would be built on top of the room.

An 8-foot roll-up garage door would be provided to the exterior out of the west side of the plant to allow easy access into the space for a forklift to load in pallets of salt bags when they are delivered. A space for storing the pallets is proposed at the southwest end of the room. Ventilation would be provided from the roof to allow the hydrogen gas produced during the sodium hypochlorite generation to safely dissipate into the air. The conceptual layout of the OSG system is provided in Figure 6.

With the construction of the OSG system, the existing chlorine gas system can be taken out of service. The chlorine gas room can then be converted to a small office space adjacent to the existing laboratory/control area. The existing chlorine gas equipment and extraneous HVAC equipment would be removed and the wall adjoining with the laboratory would be demolished. At this time, it is assumed the exterior door providing entrance to the chlorine gas room would be kept. However, this door could be removed in the future, and a window could be added to allow natural light into the office space.

5.2.4.2 Maps

A conceptual layout of the OSG system is included in Figure 6. The topography of the area is displayed in Map 5.

5.2.4.3 Schedule for Design and Construction

The project schedule is consistent with the quarterly DWSRF funding deadlines and is provided in Table 5-8. The project is scheduled for DWSRF Funding Quarter 3 in Fiscal Year 2024.

Table 5-8 – Disinfection System Improvements Schedule

Task Name	Duration	Tentative Start	Tentative Finish
Final Design	5 months	July 2023	January 2024
Construction Permit	3 months	January 2024	March 2024
Bidding	2 months	March 2024	April 2024
DWSRF Funding & Project Award	1 month	April 2024	May 2024
Construction Phase (Seasonally Dependent)	2 months	October 2024	December 2024

5.2.4.4 Cost Estimate

The estimated project cost for the OSG portion of the selected alternative, the treatment capacity expansion project, is included in Table 5-9. The costs are provided in April 2022 dollars. For further detail on the costs of the treatment capacity expansion, refer to Section 5.2.6.4.

Table 5-9 – Estimated Disinfection System Improvements Project Costs

Category	Cost
Estimated Bare Construction Costs	\$680,000
Contractor's General Condition and Profit	\$123,000
Construction Contingency	\$161,000
Engineering, Construction Administration, and Legal	\$145,000
Total Estimated Project Cost	\$1,109,000

5.2.5 Garage Expansion

The selected alternative for the garage expansion is to include it in the treatment capacity expansion project.

5.2.5.1 Design Parameters

A 10-foot roll-up garage door with a manway door adjacent would be provided to the north side of the garage expansion to allow access to the garage area. Construction of the garage expansion would be similar to the existing WTP to match its aesthetic. The general concept of the building structure would be concrete block wall with cedar shingle siding, concrete floor, and a shingled roof with a wooden truss support system. A trench drain would be installed through the middle of the garage expansion to provide drainage for the expanded area.

The expansion would include a partition wall to create an electrical room for the equipment. As part of the expansion, a hallway would be constructed so that egress from the garage to the main area of the WTP does not necessitate travel through the electrical room. This would help to keep dust and debris from accumulating in the electrical room. New HVAC equipment would be installed in both the garage expansion and the newly partitioned electrical area to ensure the needs of each space is met.

5.2.5.2 Maps

The conceptual layout of the garage expansion is provided in Figure 6. The topography of the area is displayed in Map 5.

5.2.5.3 Schedule for Design and Construction

The project schedule is consistent with the quarterly DWSRF funding deadlines and is provided in Table 5-10. The project is scheduled for DWSRF Funding Quarter 3 in Fiscal Year 2024.

Table 5-10 – Garage Expansion Schedule

Task Name	Duration	Tentative Start	Tentative Finish
Final Design	5 months	July 2023	January 2024
Construction Permit	3 months	January 2024	March 2024
Bidding	2 months	March 2024	April 2024
DWSRF Funding & Project Award	1 month	April 2024	May 2024
Construction Phase (Seasonally Dependent)	2 months	October 2024	December 2024

5.2.5.4 Cost Estimate

The estimated project cost for the garage expansion as part of the selected alternative, the treatment capacity expansion project, is included in Table 5-11. The costs are provided in April 2022 dollars. For further detail on the costs of the treatment capacity expansion, refer to Section 5.2.6.4.

Table 5-11 – Estimated Garage Expansion Project Costs

Category	Cost
Estimated Bare Construction Costs	\$294,000
Contractor's General Condition and Profit	\$53,000
Construction Contingency	\$70,000
Engineering, Construction Administration, and Legal	\$63,000
Total Estimated Project Cost	\$480,000

5.2.6 Treatment Capacity Expansion

5.2.6.1 Design Parameters

To replace the existing skids with a set of new skids, an expansion of the existing WTP would be needed. The proposed plant expansion would be constructed to the north of the existing process area, utilizing open space on the existing WTP site. A 12-foot roll-up garage door with an adjacent manway door would be provided to the north side of the plant expansion for access to the plant expansion area. A pipe trench would be constructed

along the east side of the expansion to allow easier access to the skids. Space will be left on either side of each membrane skid to allow access for maintenance of the skids. Feed water for the membrane skids will be provided by the existing shorewell pumps along with a third newly installed shorewell pump.

The new skids would require larger CIP and neutralization systems. The new system would be installed in the northwest corner of the expansion. A chemical containment berm would be provided around the area to contain any chemical spills in the event of a rupture of one of the tanks or any associated piping or equipment. A pump would convey the neutralized CIP waste from the neutralization tank to the existing discharge sanitary line in the plant.

Chemical totes for the CIP and neutralization systems chemicals would be stored on the existing concrete pad on plastic spill containment pallets. Chemical metering pumps would convey chemicals from the totes to the CIP and neutralization systems. A new sodium bisulfite feed system would be installed at the end of the same pad. Sodium bisulfite would be fed to the backwash waste to dechlorinate it before it is discharged to Lake Huron. It would consist of 55-gallon drums, a chemical feed scale, and two chemical metering pumps and would be fed directly to the backwash waste discharge line.

5.2.6.2 Maps

The conceptual layouts for the selected WTP improvements are provided in Figures 7 and 8. The topography of the area is displayed in Map 5.

5.2.6.3 Schedule for Design and Construction

The project schedule is consistent with the quarterly DWSRF funding deadlines and is provided in Table 5-12. The project is scheduled for DWSRF Funding Quarter 4 in Fiscal Year 2024.

Table 5-12 – Treatment Capacity Expansion Schedule

Task Name	Duration (days)	Start	Finish
Final Design	12 months	July 2023	January 2024
Construction Permit	3 months	January 2024	March 2024
Bidding	2 months	March 2024	April 2024
DWSRF Funding & Project Award	1 month	April 2024	May 2024
Construction Phase	26 months	October 2024	December 2024

5.2.6.4 Cost Estimate

The estimated project costs for the treatment capacity expansion, which includes the disinfection system improvements and garage expansion, are presented in Table 5-13. The cost estimates are provided in April 2022 dollars.

Table 5-13 – Estimated Treatment Capacity Expansion Costs

Category	Cost
Estimated Bare Construction Costs	\$7,120,000
Contractor's General Condition and Profit	\$1,289,000
Construction Contingency	\$1,682,000
Engineering, Construction Administration, and Legal	\$1,514,000
Total	\$11,605,000

5.3 Upper Reservoir Leak Inspection and Repair

The selected alternative is the inspection and repair of a suspected leak in the Upper Reservoir. This alternative addresses the concerns described in the summary of need, including potential for further tank degradation, lost revenue, and storage capacity.

5.3.1 Design Parameters

Inspection and repair of a suspected 100,000-gallon-per-day leak in the Upper Reservoir.

5.3.2 Maps

A map of the distribution system indicating the location of the Upper Reservoir is included in Figure 3. The topography of the area is displayed in Map 5.

5.3.3 Schedule for Design and Construction

The project schedule is consistent with the quarterly DWSRF funding deadlines and is provided in Table 5-14. The project is scheduled for DWSRF Funding Quarter 3 in Fiscal Year 2023.

Table 5-14 – Upper Reservoir Leak Inspection and Repair Schedule

Task Name	Duration	Tentative Start	Tentative Finish
Final Design	5 months	July 2022	January 2023
Construction Permit	3 months	January 2023	March 2023
Bidding	2 months	March 2023	April 2023
DWSRF Funding & Project Award	1 month	April 2023	May 2023
Construction Phase (Seasonally Dependent)	2 months	October 2023	December 2023

5.3.4 Cost Estimate

The estimated project cost for the selected alternative is included in Table 5-15. The costs are provided in April 2022 dollars.

Table 5-15 – Estimated Upper Reservoir Leak Inspection and Repair Project Costs

Category	Cost
Estimated Bare Construction Costs	\$62,000
Contractor's General Condition and Profit	\$9,000
Construction Contingency	\$12,000
Engineering, Construction Administration, and Legal	\$17,000
Total Estimated Project Cost	\$100,000

5.4 User Costs

The estimated total costs for the selected alternatives in fiscal year 2023 is \$1,392,000 and in fiscal year 2024 \$11,605,000. The resulting debt retirement will be achieved primarily by user rates. Current water rates include a flat rate based on meter size and a commodity rate based on water usage.

For an average residential water customer, the fiscal year 2023 projects are anticipated to increase water rates by approximately \$27 per year. Costs to businesses for water rates and meters may be higher.

For an average residential water customer, the fiscal year 2024 projects are anticipated to increase water rates by approximately \$225 per year. Costs to businesses for water rates and meters may be higher.

The City is in the process of completing a rate study to determine an appropriate rate schedule and methodology to increase rates and meet the needs for both sewer and water utility improvements. Existing rates have not been increased for several years and the current utility budgets are underfunded.

Fiscal responsibility is of the utmost importance to the City, and cost saving measures will be explored throughout the design process. The proposed improvements are necessary to continue to provide reliable water service to customers.

5.5 Disadvantaged Community

The disadvantaged community qualification is determined for each loan that is applied for by a community. A Disadvantaged Community Status Determination Worksheet was submitted to EGLE along with the Intent to Apply. EGLE has determined the City does not meet the disadvantaged community qualifications.

5.6 Ability to Implement the Selected Alternatives

The City owns and operates the water supply, treatment, and distribution system. The proposed improvement projects will occur within the City. All financial and loan-related work will be handled by the City.

6.0 Environmental Evaluation

6.1 Historical/Archeological/Tribal Resources

To identify sites of historical and cultural significance, the City's 2018 Master Plan and the National and State Registers of Historic Places by county were reviewed. Several historical sites were identified throughout the City and are included in Appendix 1. No direct historical or archeological impacts are expected due to the proposed projects.

The Michigan State Historical Preservation Office and the Tribal Historic Preservation Officers were not contacted since the proposed projects have been deemed non-equivalency projects.

6.2 Water Quality

The proposed projects will not affect surface water or groundwater quality or quantity.

6.3 Land/Water Interface

Map 6 depicts the locations of wetlands; no construction work is anticipated within the wetlands. The proposed projects will not have any negative impacts on the wetlands.

The soils map is provided in Map 7. Adverse soils and adverse subsoil conditions are not expected to be encountered during construction.

The Federal Emergency Management Agency does not have a Flood Insurance Rate Map for the City. The current high-water level for Lake Huron is 581.96 feet above mean sea level. No negative impacts on the water boundaries are expected as a result of the proposed projects. Map 8 presents both the 100-year and 500-year floodplains. No negative impacts on the flood boundaries are expected as a result of the proposed water system improvements projects.

6.4 Endangered Species

The federally listed endangered and threatened species for Mackinac County were reviewed and are detailed in Table 6-1. Endangered or threatened species are defined as those species that are or could become endangered or threatened and, therefore, are protected under the Endangered Species Act. The objective of the act is to preserve and restore species threatened with extinction. The Michigan Natural Features Inventory by county was

also reviewed. Additional listings of fauna and flora with a state status of endangered, threatened, or special concern are included in Appendix 10.

Table 6-1 – Mackinac County Federally Endangered and Threatened Species List

Name	Status
Canada lynx (<i>Lynx canadensis</i>)	Threatened
Gray wolf (<i>Canis lupus</i>)	Endangered
Northern long-eared bat (<i>Myotis septentrionalis</i>)	Threatened
Piping plover (<i>Chradrius melodus</i>)	Endangered
Piping plover (<i>Chradrius melodus</i>)	Critical Habitat
Rufa Red knot (<i>Calidris canutus rufa</i>)	Threatened
Eastern massasauga (<i>Sistrurus catenatus</i>)	Threatened
Hine's emerald dragonfly (<i>Somatochlora hineana</i>)	Endangered
American hart's tongue fern (<i>Asplenium scolopendrium</i> var. <i>americanum</i> = <i>Phyllitis japonica</i> ssp. <i>a.</i>)	Threatened
Dwarf lake iris (<i>Iris lacustris</i>)	Threatened
Houghton's goldenrod (<i>Solidago houghtonii</i>)	Threatened
Lakeside daisy (<i>Hymenoxys acaulis</i> var. <i>glabra</i>)	Threatened
Michigan monkey-flower (<i>Mimulus michiganensis</i>)	Endangered
Pitcher's thistle (<i>Cirsium pitcheri</i>)	Threatened

The probability of threatened, endangered, or special concern species can be seen on Map 9. The proposed projects will occur in urban areas where no suitable wildlife habitat is present. No tree removal is anticipated that could have potential impacts to these species.

6.5 Agricultural Land

There are no prime farmlands within the vicinity of the proposed projects. The proposed project activities will not negatively impact existing land use. Prime farmland locations are depicted in Map 10.

6.6 Social/Economic Impact

The proposed water system and WTP improvements will result in direct cultural and social benefits. Public health and safety will benefit from the increased water system quality and reliability the proposed projects will create.

The construction phase of the projects will create jobs and contribute favorably to the local economy.

6.7 Construction/Operational Impact

6.7.1 Water Main Between 6th and 7th Streets

Water main work will occur between 6th and 7th Streets just west of Cadotte Avenue. Routine construction for a typical water main installation is anticipated. No tree removal is anticipated.

Construction hours for projects of this type are generally limited to 7:00 a.m. to 7:00 p.m. Monday through Friday and 7:00 a.m. to 1:00 p.m. Saturday. Pedestrian access to all properties will be maintained throughout construction.

6.7.2 WTP Improvements

The WTP improvements will occur on the WTP site and will not greatly disrupt the area of construction. The area surrounding the WTP is not heavily populated, so construction activity will have minimal disruption. The property has adequate space for staging activities and no significant modifications to the environment are anticipated.

Construction hours for projects of this type are generally limited to 7:00 a.m. to 7:00 p.m. Monday through Friday and 7:00 a.m. to 1:00 p.m. Saturday.

6.7.3 Upper Reservoir Leak Inspection and Repair

The work will occur at the Upper Reservoir site. The area surrounding the Upper Reservoir is not heavily populated, so construction activity will have minimal disruption. The property has adequate space for staging activities and no significant modifications to the environment are anticipated.

Construction hours for projects of this type are generally limited to 7:00 a.m. to 7:00 p.m. Monday through Friday and 7:00 a.m. to 1:00 p.m. Saturday.

6.8 Indirect Impacts

6.8.1 Changes in Development

No significant changes in development are anticipated due to the proposed improvements. However, the proposed projects will enhance the existing water distribution and treatment system.

6.8.2 Changes in Land Use

The proposed projects will not have an impact on existing or future land use as an indirect result.

6.8.3 Changes in Air or Water Quality

The proposed projects will not have any long-term impacts on air or water quality.

6.8.4 Changes to Natural Setting or Sensitive Ecosystems

The proposed projects will not have an impact on the natural setting or sensitive ecosystems.

6.8.5 Changes to Aesthetic Aspects of the Community

The indirect effect of a more reliable, safer WTP and distribution system will be the ability to support economic growth and continue the social and cultural traditions of the City and the region.

6.8.6 Resource Consumption

Resource consumption in the form of building materials and energy will occur over the useful life of the proposed projects.

7.0 Mitigation Measures

7.1 Short-Term Impacts

The short-term impacts associated with the proposed projects are related to the construction work. These impacts will be temporary in nature and will subside at the end of construction.

Measures that will be taken to avoid, eliminate, or mitigate potential short-term environmental impacts include:

- Traffic: Use of designated traffic routes for construction traffic, as well as flagmen, warning signs, barricades, and cones.
- Air emissions: Standard construction mitigation treatments including controlling fugitive dust by watering or covering exposed soil/dust areas, maintaining equipment, using emission control devices on construction equipment, and prohibiting idling of inactive equipment or vehicles. Construction activities will result in increased dust in the vicinity of the construction sites during the length of the proposed construction. Mitigation measures to minimize the negative effect of dust on residents and construction workers will be

defined in the project specifications. It is anticipated that dust control will be provided by the application of water and/or dust palliative during dry and dusty periods.

- Noise control: Noise control provisions will include the use of working machinery and equipment with noise suppression devices and other noise and vibration abatement measures. Noise levels will increase temporarily during construction of the proposed projects but will be mitigated by performing the work only during daytime hours and minimizing work on holidays/weekends.
- Soil erosion and sedimentation control: The contractor will be required to obtain a soil erosion and sedimentation control permit from the local agency prior to the start of the work. Mitigation measures that may be utilized include silt fence, straw bales, rip rap, geotextile fabric, and other such methods, as appropriate.
- Vegetation protection: An attempt to minimize the removal of existing vegetation and restore areas to their pre-construction appearance to the greatest extent possible will be made with the exception of the WTP expansion. Prior to construction, a plan for protecting existing trees and vegetation that are to remain or could be impacted during construction activity would be developed.
- Restoration: Construction will generally be confined to the installation of water main between 6th and 7th Streets just west of Cadotte Avenue and the WTP and Upper Reservoir sites. Any disturbance to existing pavement, vegetation, and utilities will be repaired or replaced in accordance with the project specifications developed during design.

7.2 Long-Term Impacts

There are no anticipated negative long-term impacts associated with the proposed projects.

Measures that will be taken to avoid, eliminate, or mitigate potential long-term environmental impacts include:

- A Soil Erosion Plan for the construction of the proposed projects will be developed and reviewed by the EGLE Land and Water Management Division.
- The contractor will be required to obtain a soil erosion and sedimentation control permit from the local agency prior to the start of the work. Mitigation measures that may be utilized include silt fence, straw bales, rip rap, geotextile fabric, and other such methods, as appropriate.

7.3 Indirect Environmental Impacts

The proposed projects will not result in any changes in anticipated land use. There are no anticipated indirect impacts due to changes to the natural setting or sensitive ecosystems or jeopardy to any endangered species, wetlands, or coast lines. Construction will occur within previously paved rights-of-way, at the WTP site, and within the Upper Reservoir. Therefore, construction will not cross or impact any streams or habitats of threatened and endangered species.

8.0 Public Participation

8.1 Public Hearing Advertisement

The public hearing will be advertised in the St. Ignace News and The Town Crier on April 29, 2022. The advertisement will list the public hearing date, describe the availability of the report for viewing, and briefly describe the proposed projects and estimated costs. Beginning April 29, 2022, the DWSRF Project Plan will be made available online and at City Hall for public review and comment.

The public notice affidavit of publication will be included in the final Project Plan.

8.2 Public Hearing Contents

A formal public hearing will be held virtually on June 8, 2022, at 1:00 p.m. Representatives from the Department of Public Works, Board members, and consultants from Fishbeck will be in attendance to explain the Project Plan to the public.

The following information will be presented at the public hearing:

- A description of the DWSRF Project Plan.
- A brief background of the Mackinac Island drinking water system.
- A description of the drinking water system needs and problems to be addressed by the proposed projects and the principal alternatives that were considered.
- A description of the selected alternatives, including capital costs and a cost breakdown by project component.
- A description of the proposed method of project financing and the proposed annual cost to the typical customer.
- A description of the anticipated social and environmental impacts associated with the selected alternatives and the measures that will be taken to mitigate adverse impacts.

A court reporter will attend the public hearing to provide a verbatim transcript. This transcript with the list of attendees will be provided in the final Project Plan.

8.3 Comments Received and Answered

During the public hearing, any questions from Board members or the general public regarding the proposed improvements will be answered and included in the court transcript accompanying the final Project Plan.

8.4 Adoption of the Project Plan

The City Council is expected to pass a resolution to adopt the DWSRF Project Plan during the Council's regular session on June 15, 2022. The resolution to formally adopt the final Project Plan will be included in the final Project Plan.

Figures

PLOT INFO: Z:\2022\220457\CAD\GIS\ProProj\DWSRF Maps Figures.aprx Date: 4/13/2022 11:24 AM User: mblaser

DATA SOURCES: STATE OF MICHIGAN GIS OPEN DATA PORTAL

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City of Mackinac Island
Mackinac County, Michigan
Drinking Water State Revolving Fund (DWSRF) Project Plan


PROJECT NO.
220457

FIGURE NO.
1

fishbeck
Engineers | Architects | Scientists | Constructors

Hard copy is intended to be 11"x17" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

LEGEND

 Water Service Area

WATER SERVICE AREA

 NORTH





 0 750 1,500 FEET

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DATA SOURCES: MACKINAC ISLAND GIS. STATE OF MICHIGAN GIS OPEN DATA PORTAL.



LEGEND

-  Treatment Plant
-  Hydrant
-  Water System Valve
-  Distribution Main

**WATER TREATMENT PLANT
SITE PLAN**

 NORTH

 0 25 50 FEET



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City of Mackinac Island
Mackinac County, Michigan

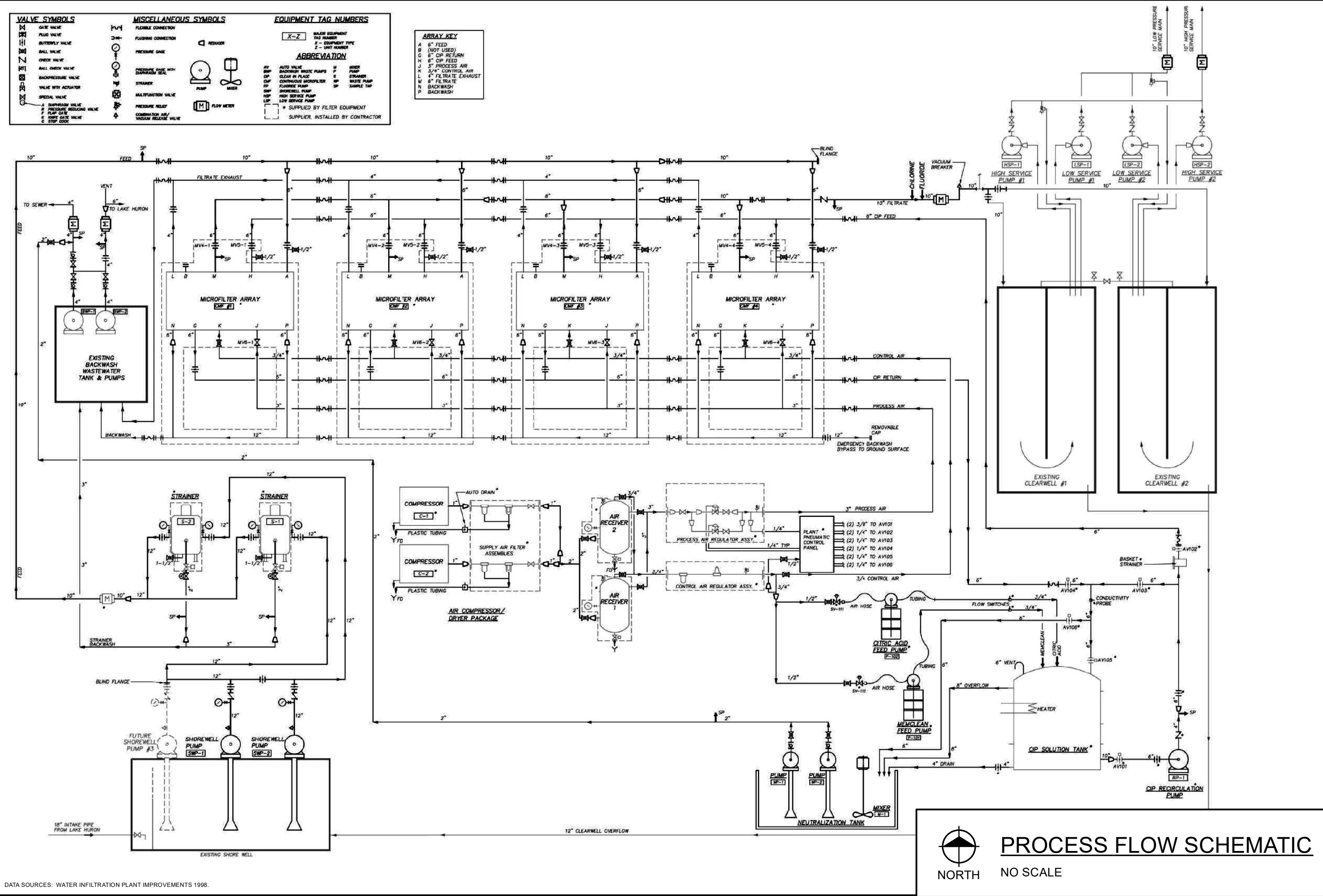
Drinking Water State Revolving Fund (DWSRF) Project Plan

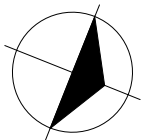
PROJECT NO.
220457

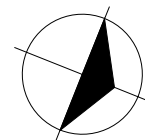
FIGURE NO.
4

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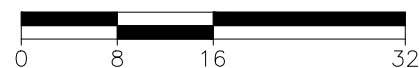
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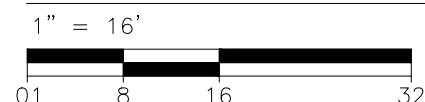
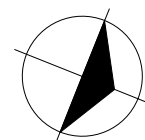






CONCEPTUAL LAYOUT TREATMENT EXPANSION - LOWER PLAN

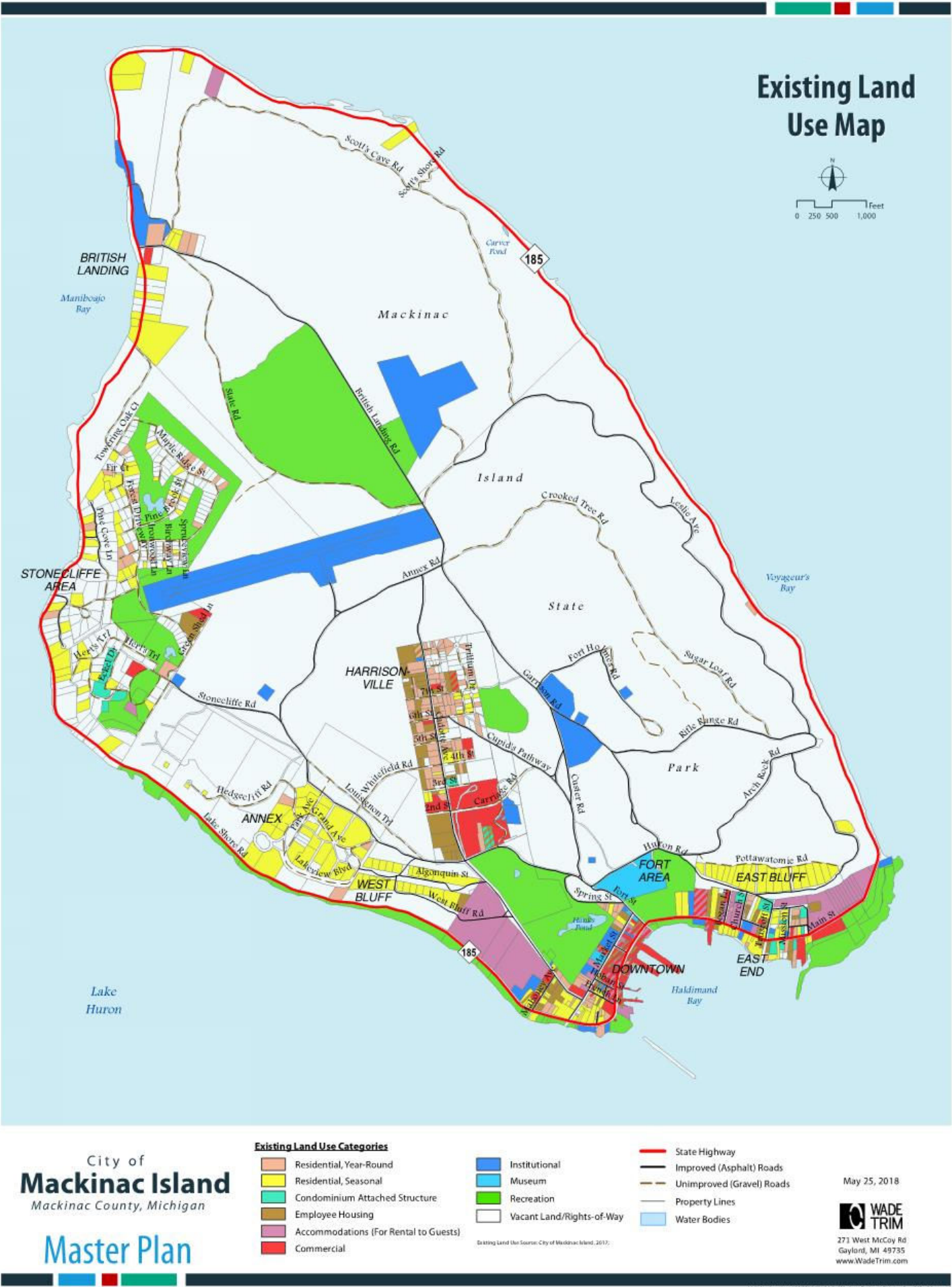
$$1'' = 16'$$




Maps

PLOT INFO: Z:\2022\220457\CAD\GIS\ProProj\DWSRF Maps Figures.aprx Date: 4/13/2022 11:24 AM User: mblaser

DATA SOURCES: CITY OF MACKINAC ISLAND MASTER PLAN, WADE TRIM, ADOPTED 2018.



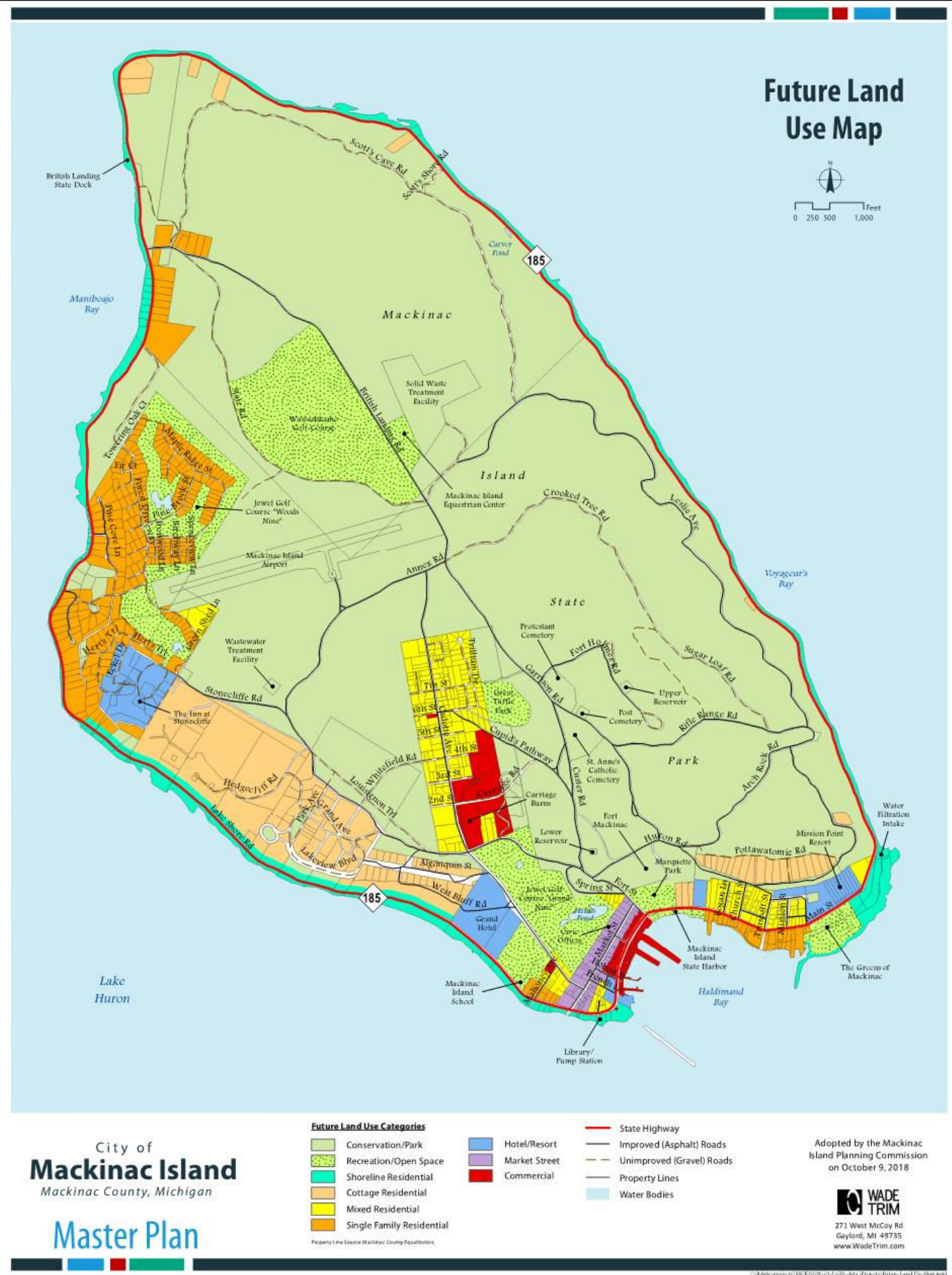
EXISTING LAND USE

City of Mackinac Island
Mackinac County, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220457

MAP
1



PLOT INFO: Z:\2022\220457\CAD\GIS\ProProj\DWSRF Maps Figures.aprx Date: 4/13/2022 10:52 AM User: mblaser

DATA SOURCES: ENVIRONMENTAL CONTAMINATION DATA ACCESSED VIA EGLE ENVIRONMENTAL MAPPER.

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LEGEND

Environmental Contamination

■

Sites of Environmental Contamination (Part 201)

▲

Leaking Underground Storage Tanks Part (213 Closed)

✕

PFAS Sites

NORTH

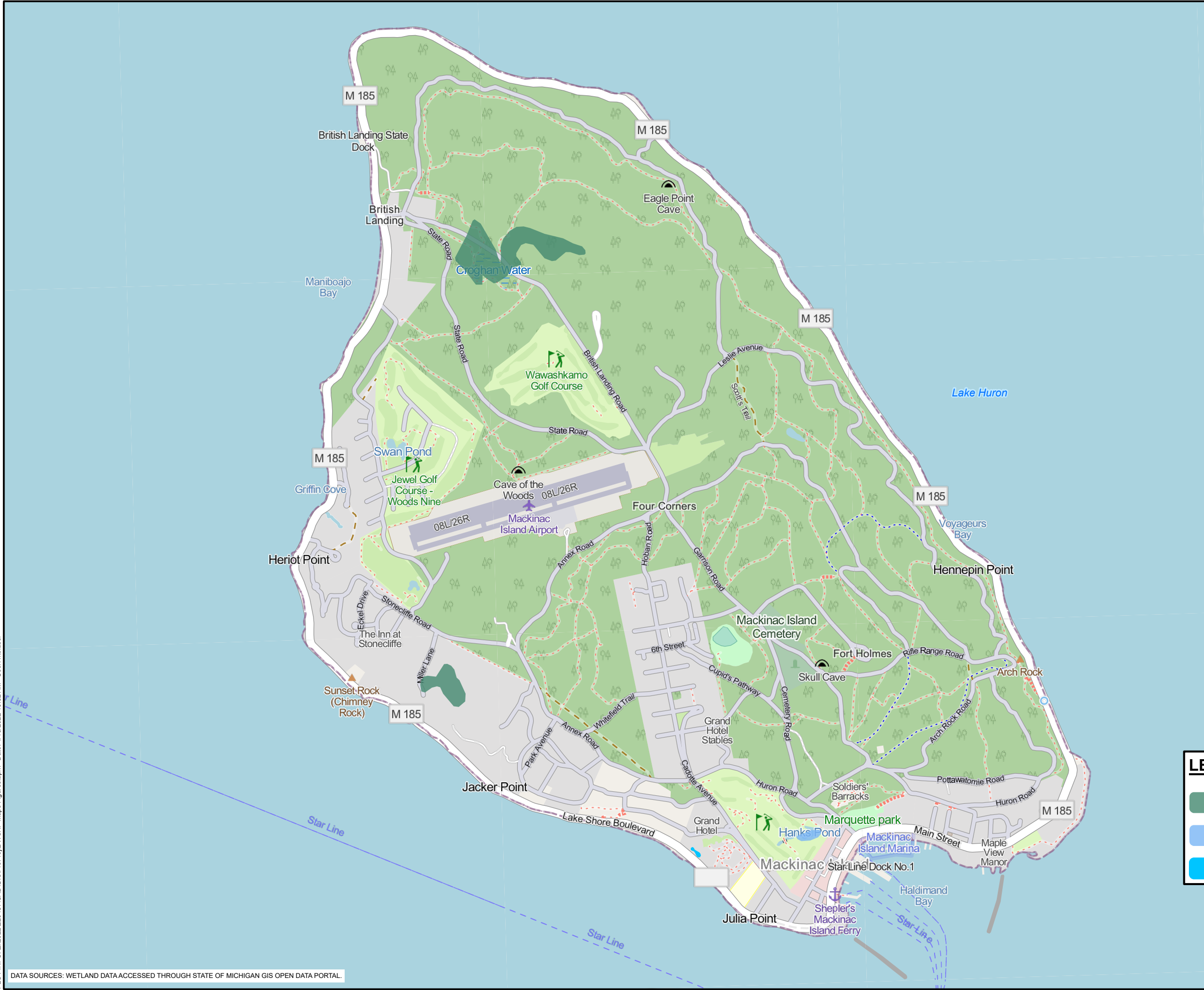
07501,500

FEET

ENVIRONMENTAL
CONTAMINATION

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DATA SOURCES: WETLAND DATA ACCESSED THROUGH STATE OF MICHIGAN GIS OPEN DATA PORTAL.



LEGEND

- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Waterbody

WETLANDS

NORTH 0 750 1,500 FEET

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City of Mackinac Island
Mackinac County, Michigan

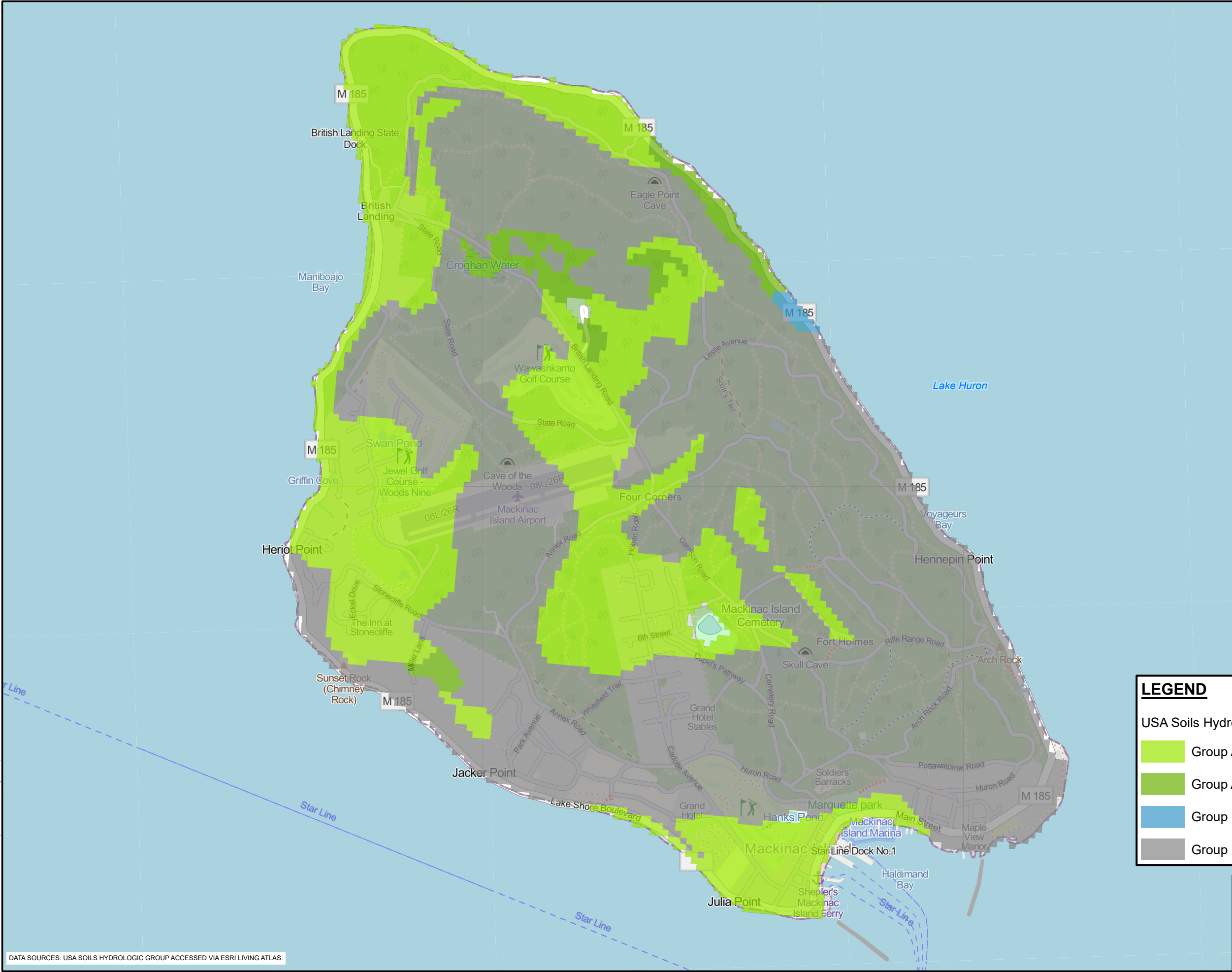
Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220457

MAP
6

PLOT INFO: Z:\2022\220457\CAD\GIS\ProProj\DWSRF Maps Figures.aprx Date: 4/13/2022 10:52 AM User: mblaser

DATA SOURCES: USA SOILS HYDROLOGIC GROUP ACCESSED VIA ESRI LIVING ATLAS.



LEGEND

USA Soils Hydrologic Group

Group A - High Infiltration

Group A/D - (Drained/Natural Condition)

Group B/D - (Drained/Natural Condition)

Group D - Very Low Infiltration

SOILS

0

750

1,500

FEET

fishbeck

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City of Mackinac Island

Mackinac County, Michigan

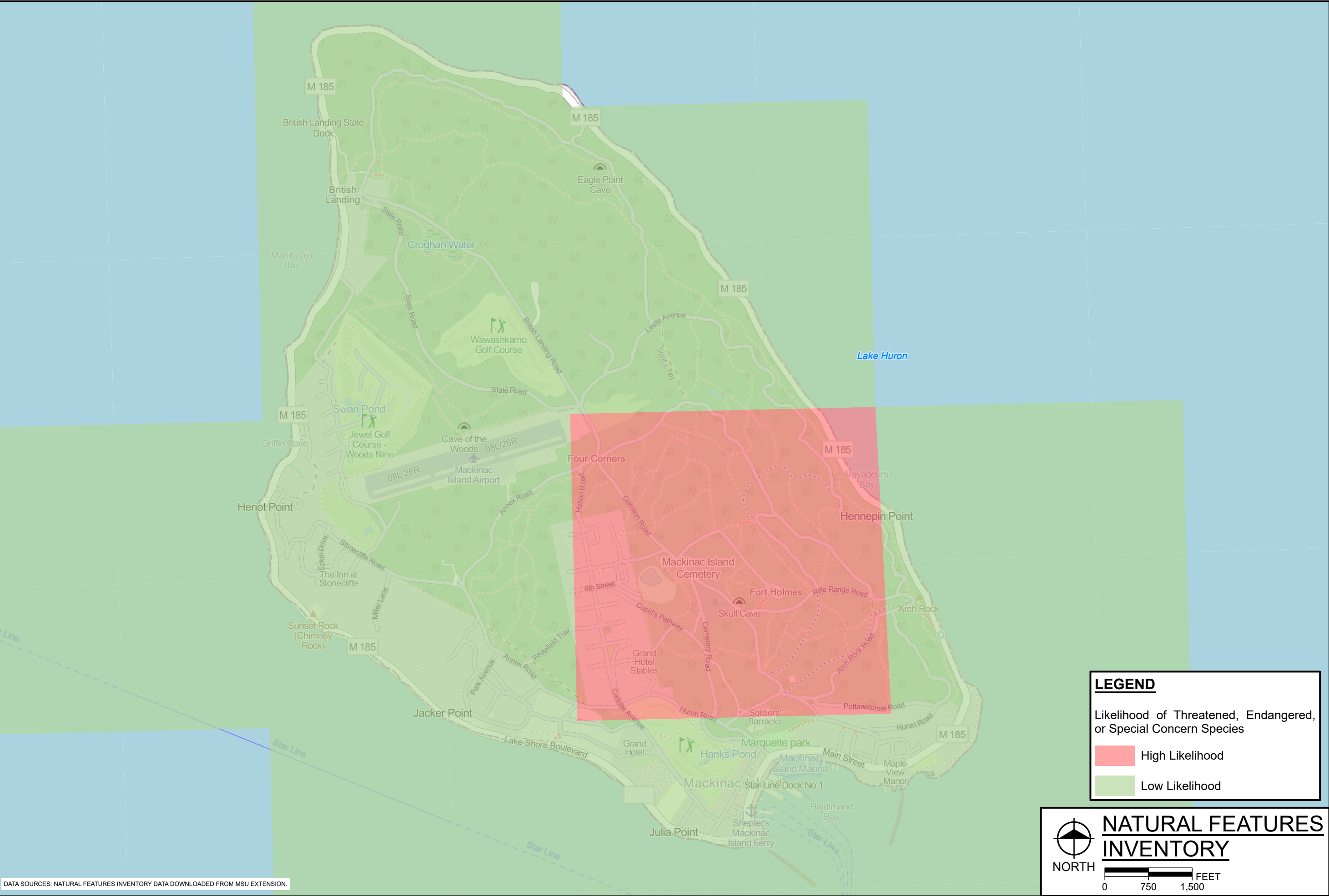
Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220457

MAP
7

PLOT INFO: Z:\2022\220457\CAD\GIS\ProProj\DWSRF Maps\Figures.aprx Date: 4/13/2022 10:52 AM User: mblaser

DATA SOURCES: NATURAL FEATURES INVENTORY DATA DOWNLOADED FROM MSU EXTENSION.



LEGEND

Likelihood of Threatened, Endangered, or Special Concern Species

High Likelihood

Low Likelihood

NATURAL FEATURES INVENTORY

NORTH

0 750 1,500 FEET

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City of Mackinac Island

Mackinac County, Michigan

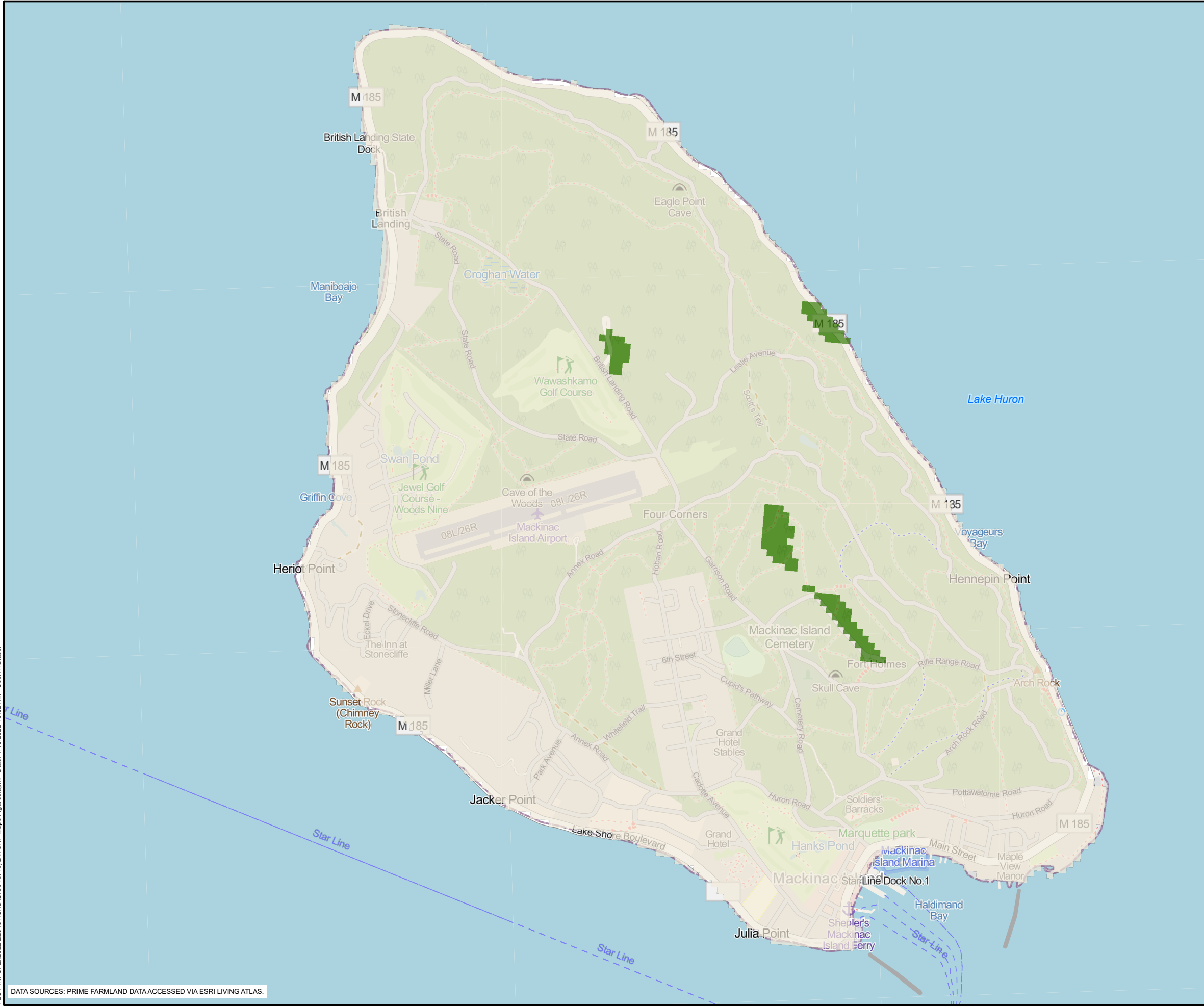
Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO. 220457

MAP 9

PLOT INFO: Z:\2022\220457\CAD\GIS\ProProj\DWSRF Maps Figures.aprx Date: 4/13/2022 10:52 AM User: mblaser

DATA SOURCES: PRIME FARMLAND DATA ACCESSED VIA ESRI LIVING ATLAS.



LEGEND

Prime Farmland

Not Prime Farmland

NORTH

0

750

1,500

FEET

PRIME FARMLAND

fishbeck

Engineers | Architects | Scientists | Constructors

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City of Mackinac Island

Mackinac County, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.

220457

MAP

10

Appendix 1

**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Type all entries - complete applicable sections)

STATE: Michigan	
COUNTY: Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 70-7.21-0009	DATE 7/8/70

1. NAME	
COMMON: Fort Mackinac	
AND/OR HISTORIC: Fort Mackinac	

2. LOCATION			
STREET AND NUMBER: Huron Road			
CITY OR TOWN: City of Mackinac Island			
STATE Michigan	CODE 21	COUNTY: Mackinac	CODE 097

3. CLASSIFICATION			
CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO THE PUBLIC
<input checked="" type="checkbox"/> District <input type="checkbox"/> Building <input type="checkbox"/> Site <input type="checkbox"/> Structure <input type="checkbox"/> Object	<input checked="" type="checkbox"/> Public <input type="checkbox"/> Private <input type="checkbox"/> Both	<input type="checkbox"/> Occupied <input type="checkbox"/> Unoccupied <input checked="" type="checkbox"/> Preservation work in progress	Yes: <input checked="" type="checkbox"/> Restricted <input type="checkbox"/> Unrestricted <input type="checkbox"/> No
PRESENT USE (Check One or More as Appropriate)			
<input type="checkbox"/> Agricultural <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Educational <input type="checkbox"/> Entertainment	<input type="checkbox"/> Government <input type="checkbox"/> Industrial <input type="checkbox"/> Military <input checked="" type="checkbox"/> Museum	<input checked="" type="checkbox"/> Park <input type="checkbox"/> Private Residence <input type="checkbox"/> Religious <input type="checkbox"/> Scientific	<input type="checkbox"/> Transportation <input type="checkbox"/> Other (Specify) _____ _____ _____

4. OWNER OF PROPERTY			
OWNER'S NAME: Mackinac Island State Park Commission			
STREET AND NUMBER: Box 370			
CITY OR TOWN: Mackinac Island	STATE: Michigan	CODE 21	

5. LOCATION OF LEGAL DESCRIPTION			
COURTHOUSE, REGISTRY OF DEEDS, ETC.: County of Mackinac Courthouse			
STREET AND NUMBER: _____			
CITY OR TOWN: St. Ignace	STATE: Michigan	CODE 21	

6. REPRESENTATION IN EXISTING SURVEYS			
TITLE OF SURVEY: Historic American Buildings Survey			
DATE OF SURVEY: 1934, 1936, 1937 <input checked="" type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> County <input type="checkbox"/> Local			
DEPOSITORY FOR SURVEY RECORDS: Library of Congress			
STREET AND NUMBER: _____			
CITY OR TOWN: Washington	STATE: D. C.	CODE 08	

SEE INSTRUCTIONS



STATE: Michigan	COUNTY: Mackinac	ENTRY NUMBER	DATE

FOR NPS USE ONLY

7. DESCRIPTION

CONDITION	(Check One)					
	<input type="checkbox"/> Excellent	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
	(Check One)			(Check One)		
	<input checked="" type="checkbox"/> Altered	<input type="checkbox"/> Unaltered	<input type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site		

DESCRIBE THE PRESENT AND ORIGINAL (If known) PHYSICAL APPEARANCE

Captain Patrick Sinclair arrived at Fort Michilimackinac on October⁴, 1779, and was impressed by the need for the removal of the fortifications to a more easily defensible location. Four days later, he wrote to Sir Frederick Haldimand, Governor General of Canada and the Old Northwest, recommending the construction of a new fort on Mackinac Island which Sinclair considered the "place of greatest safety." Sinclair stated that it would be comparatively easy to construct a defensible fort with a favorable harbor for both protecting and wintering vessels. Building materials, such as limestone, timber, and good clay for brick, were in abundance. Prior to a receipt of confirming orders, Sinclair went ahead and began to have the grounds cleared and preparations begun for the removal of the fort to the Island.

In May of 1780 Sinclair received official sanction to remove the fort and post to Mackinac Island. A formal treaty with the Chippewas of the Island was signed May 12, 1781, and Sinclair continued transferring the buildings of Old Mackinac. By July of 1781 the provisions store, the soldiers barracks with stone chimneys, and the powder magazine had been raised. The defenses of the fort were still being constructed with rubbish from the fort lining the walls. The foundation for the officers barracks was also laid, and troops were removed from the mainland to the Island.

In a report submitted September 20, 1782, R. Hockings, engineer, described the condition of the works at Fort Mackinac and made several suggestions for an adequate state of defense. The fort was situated on the south end of the Island, one hundred and fifty feet above the level of the lake. It was irregular in construction, built of masonry and timber, but none of it, in Hockings' opinion, was adequate for defense against attack. A report submitted some six years later by Gother Mann, Captain of the Royal Engineers, stated that the fort was still incomplete, with the rampart only partly raised and rotten picketing all around. With Sinclair's departure in 1782 the driving force behind the construction at Fort Mackinac had disappeared and his successor, Captain Robertson, followed strictly Haldimand's dictum of a total cessation of fortification and unnecessary expense.

Mackinac Island became a possession of the United States with the signing of the Treaty of Paris in 1783. It was occupied by American forces in October of 1796, and the completion of the fort was then undertaken. Four years later, in a report by Uriah Tracy to the Secretary of War, a definite building program was described. The fort was now enclosed completely by a strong wall, had a well of "never failing water," a powder magazine, officers and enlisted mens' barracks, a storehouse, a strong guardhouse, and three sturdy and well-placed blockhouses. At last an adequate fort on the Island had been completed.

The stone ramparts that enclosed the fort were irregularly constructed and embraced, at the first, an area that could only be defended by a much larger garrison than was ever stationed on the Island. Probably the lower portion of the south wall is all that remains today of the original incomplete British fortifications. Except for this wall, Sinclair used double log walls filled with dirt which easily rotted and had to be continually replaced. The stone walls were not solid but were built with two sides, the interior being filled with loose rubble and rubbish. On top of both the stone and the log

SEE INSTRUCTIONS

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
COUNTY	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE
10-72-0009	7/8/70

(Number all entries)

6. Representation in Existing Surveys (cont'd)

Michigan Historical Commission Registered State Site No. 189, Feb. 19, 1958.
Depository for records: Michigan Historical Commission, 505 N. Washington,
Lansing, Michigan Code 21.

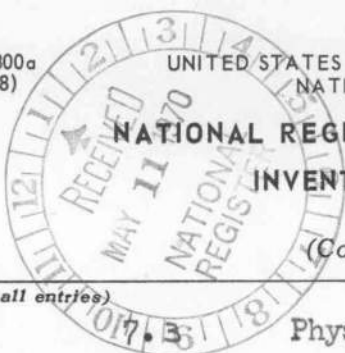
7.2 Physical Appearance (cont'd)

The building is extremely well built with squared and bonded stones at the corners and the interior walls of coursed ashlar rather than loose rubble. The massive stone chimneys and the excellent proportions give the building an appearance of strength and endurance. Remodeled as a tea room in the basement and a museum above, the building remains as a lasting monument to the imaginative builder of Fort Mackinac, Patrick Sinclair.

The fort hospital, which occupied the approximate site of Sinclair's storehouse, was not built until 1828. The buildings known as Officers Quarters Number One and Number Two were built in 1876. Officers Quarters Number Three, which at one time housed the fort commandant, was erected in 1835 and overlooks the parade ground.

In 1875 most of the land on Mackinac Island was designated as a federal park, the second created in the United States. Twenty years later the federal government turned the land over to the State of Michigan, for use as a state park. A board of commissioners was appointed to control and run the park and the proposed museum areas. Since 1958 the Mackinac Island State Park Commission sold \$1,750,000.00 of revenue bonds to finance a historic interpretation program. Exhibits were placed in some of the buildings and initial restoration was begun. Within the last two years some major restorative work has been completed. All three block-houses, the Post Headquarters, and the Quartermaster's Storehouse, have been completely restored. Under restoration at the present are the Post Schoolhouse and the Barracks. Further plans for restoration include the remaining buildings within the fort enclosure. The period settings and historical exhibits installed in many of these buildings, and the buildings themselves, bring the development of Mackinac Island and Fort Mackinac as centers of Northwest history vividly alive.





NATIONAL REGISTER OF HISTORIC PLACES

INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 70-7.21.0009	DATE 7/8/70

(Number all entries)

Physical Appearance (cont'd)

walls were placed rows of sharpened stakes to prevent a breach of the walls in case of attack.

The three blockhouses mentioned in Tracy's report were probably built entirely by the American forces, since no evidence of their construction is found in the early documents of the British from 1780 to the arrival of the American troops in October of 1796. Also, no mention of any existing blockhouses was made by British Lieutenant Foster in his report of the grounds and buildings at the time of his turning over the fort to the Americans. Sketches and maps of the period also fail to list any blockhouses at the fort.

The blockhouses were all three stories high with the bottom two stories of limestone and the upper story built of logs. The blockhouses had fireplaces in each story except for the west blockhouse, where the fireplaces were evidently added later. This blockhouse is also shorter than the other two by four feet in each dimension and was probably the first of the three to be built.

Sinclair did not specifically mention building a guardhouse, but such a building did appear on Hockings' report and map of the fort in 1782. The dungeon still in evidence today was probably part of the original guardhouse with succeeding guardhouses being built on top of it. The date of the present guardhouse is in doubt since there is a reference to its having been rebuilt during the major renovation work in 1828. The present building, eighteen feet by thirty feet, has a limestone foundation and walls of heavy timber framing with studs between. The stone-walled dungeon is eight feet by nine feet and is five and one half feet deep with a trap door covering the opening.

There were buildings on the site of the present Wood Officers Quarters as early as 1784. Whatever building was there had been either burned or destroyed by 1797, since it does not appear on either Massey's sketch of the fort in 1797 or Tracy's report in 1800. A reference was made to repair work on a "Log Officers Quarters" already in existence in 1827. The present building is of logs, the joints chinked with plaster, and with many evidences of repair and whitewashing.

Originally used for officers, the building contained three sets of quarters, the east, the center, and the west. The only means of heating was the four fireplaces. These barracks were occupied in 1862 by three distinguished Confederate prisoners, who were being held as hostages. The building was later used as a canteen.

"The Old Stone Quarters," or Officers Quarters, is the only building still standing that was partly built by the British. Sinclair continually mentioned the proposed construction of the building, but the British never finished it. The stone foundation was laid and the walls begun, but it was left to the Americans to fulfill Sinclair's plans. An extensive building program was inaugurated in 1798, and one of the first products of this program was the completed Stone Officers Quarters.

8. SIGNIFICANCE

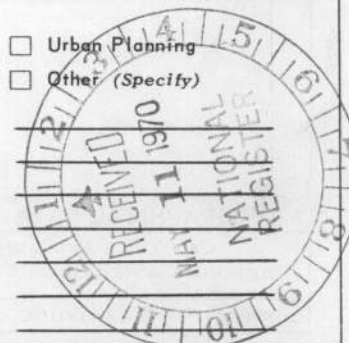
PERIOD (Check One or More as Appropriate)

- ☐ Pre-Columbian ☐ 16th Century ☒ 18th Century ☐ 20th Century
☐ 15th Century ☐ 17th Century ☒ 19th Century

SPECIFIC DATE(S) (If Applicable and Known)

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

- | | | | |
|---|---|--|--|
| <input type="checkbox"/> Aboriginal | <input type="checkbox"/> Education | <input type="checkbox"/> Political | <input type="checkbox"/> Urban Planning |
| <input type="checkbox"/> Prehistoric | <input type="checkbox"/> Engineering | <input type="checkbox"/> Religion/Philosophy | <input type="checkbox"/> Other (Specify) |
| <input type="checkbox"/> Historic | <input type="checkbox"/> Industry | <input type="checkbox"/> Science | |
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Invention | <input type="checkbox"/> Sculpture | |
| <input type="checkbox"/> Architecture | <input type="checkbox"/> Landscape Architecture | <input type="checkbox"/> Social/Humanitarian | |
| <input type="checkbox"/> Art | <input type="checkbox"/> Literature | <input type="checkbox"/> Theater | |
| <input type="checkbox"/> Commerce | <input checked="" type="checkbox"/> Military | <input type="checkbox"/> Transportation | |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Music | | |
| <input type="checkbox"/> Conservation | | | |



STATEMENT OF SIGNIFICANCE

From the mid-1600's, the Straits of Mackinac was considered the most crucial military and economic site in the Upper Great Lakes. A Jesuit mission was established at St. Ignace in 1671 by Fr. Jacques Marquette, and in 1683 the French established their first fort here, commanded by Olivier Morel, Sieur de La Durantaye. This became the major fur-trading entrepôt west of Montreal. After Antoine Laumet (Cadillac) convinced the French court of the advantages of building a post at Detroit in 1701, the Straits of Mackinac was downgraded in French empire plans, and the fort at the Straits (Poste de Missilimakinak) was abandoned in the early 1700's. A series of French wars with the Fox Indians led to the decision to re-establish the fort at Missilimakinak. This was done between 1715 and 1720 by Louis La Porte, Sieur de Louvigny. The new fort was placed on the south side of the Straits, near modern Mackinaw City. From this time until the French defeat in the French and Indian War, Missilimakinak rivaled Detroit as a fur trade center.

The British garrisoned the fort in the 1760's and in 1763 the fort was attacked and captured by Ottawa, Chippewa, and Fox Indians, and many of the garrison were killed. This attack was part of Chief Pontiac's plan to take over all British posts in the west. Later in the decade the most famous British commander there, Major Robert Rogers, spent most of his time planning a route to the alleged Northwest Passage. While the British maintained the post at Missilimakinak, some changes were made to the buildings and stockade. Around twenty years after defeat of the French in the 1760's, the British began to consider moving the post to its third and last location, the Mackinac Island site.

With the possibility of an invasion into Canada by American forces in 1778-1779 Major A. S. De Peyster, commandant, made every effort to strengthen the fort against attack. On October 4, 1779, Captain Patrick Sinclair replaced De Peyster and submitted a report which advised removing the fortifications to Mackinac Island which, both Sinclair and De Peyster agreed, could be much more easily defended. Sinclair began work on the island, and with the receipt of orders from Governor General Haldimand construction was begun on the fortifications, and removal of troops to the new fort was accomplished. The fort was still under construction when the American forces took over in 1796. By the conditions of Jay's Treaty, signed in London in 1794, the British were to evacuate all Northwest posts by June 1, 1796. The British at Mackinac evacuated peacefully and removed to St. Joseph Island, settling there and erecting a small stockade.

SEE INSTRUCTIONS

9. MAJOR BIBLIOGRAPHICAL REFERENCES

(See continuation sheet.)

10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY			OR	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES		
CORNER	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE	
	Degrees Minutes Seconds	Degrees Minutes Seconds		Degrees Minutes Seconds	Degrees Minutes Seconds	
NW	° ' "	° ' "		45° 51' 09"	84° 37' 02"	
NE	° ' "	° ' "				
SE	° ' "	° ' "				
SW	° ' "	° ' "				

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: LESS THAN 10 ACRES

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY:	CODE



11. FORM PREPARED BY

NAME AND TITLE: Miss Donna L. Stiffler		DATE April 17, 1970
ORGANIZATION Michigan Historical Commission		
STREET AND NUMBER: 505 N. Washington		
CITY OR TOWN: Lansing	STATE Michigan	CODE 21

12. STATE LIAISON OFFICER CERTIFICATION

NATIONAL REGISTER VERIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National ☒ State ☐ Local ☐

Name

Ralph A. MacMullen

Director

Title **DEPARTMENT OF NATURAL RESOURCES**Date **5/8/70**

I hereby certify that this property is included in the National Register.

Ernest Allen Connally
Chief, Office of Archeology and Historic Preservation

Date **JUL 8 1970**

ATTEST:

William J. Smith
Keeper of The National Register

Date **MAY 27 1970**

SEE INSTRUCTIONS

16/68500/5080760
3-24-77
UTM Let-um

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 70.7.21.0009	DATE 7/8/70

(Number all entries)

8.2

Significance (cont'd)

The American garrison began the task of completing Sinclair's half-finished fortifications. The fort was enclosed by a strong wall, and various buildings were constructed for the operation of the fortifications. An adequate fort on the Island had been completed.

War was declared on the United States by Great Britain on June 18, 1812. News of this event was slow to reach Fort Mackinac. Captain Charles Roberts, commandant of the British fort on St. Joseph Island, received the news on July 8, 1812, and immediately prepared to capture Mackinac Island and the fort. With his fifty men, one hundred and fifty Canadians, three hundred Indians, and two six-pound pieces of artillery, Roberts left for Mackinac, landing without incident, and, placing one of the artillery pieces directly above the fort, sent a summons to Lieutenant Porter Hanks for capitulation. Hanks, realizing his hopeless position, agreed to the terms, and the fort became once again the property of the British government. Detroit fell soon after.

In 1813 the American forces regained Detroit and were determined to also recapture Fort Mackinac. Its geographic position was strategic to both military and economic operations. A land and naval expedition was planned with the land force headed by Lieutenant Colonel George Croghan. On July 26 the expedition reached Mackinac, and troops landed on the western part of the Island. The British, commanded by Lieutenant Colonel Robert McDouall, poured cannon fire on the advancing Americans who were forced to fall back. Major Andrew Hunter Holmes and twelve private soldiers were killed. Colonel Croghan sailed back to Detroit, with Fort Mackinac still firmly in British control. The Treaty of Ghent was signed December 24, 1814, and word reached the Straits May 15, 1815. The surprised commandant of the fort, Colonel McDouall, received the orders of evacuation and withdrew to Drummond Island which, in the survey of 1822, also proved to be American territory and had to be subsequently abandoned.

American troops were garrisoned at Fort Mackinac until October of 1839 when the fort was temporarily abandoned and then reoccupied May 18, 1840. The fort was evacuated and reoccupied three times between 1840 and 1862. On May 10, 1862, the steamer Illinois deposited three distinguished Confederate prisoners at the fort. General William Harding, General Washington Barrows, and Judge Joseph C. Guild were assigned the Wood Officers Quarters and the guardhouse for the duration of their confinement. The prisoners remained within the fort until September 10, 1862, when they were transferred to Johnson's Island, Lake Erie, and Fort Mackinac was again evacuated.

The fort was reoccupied August 3, 1866, evacuated and reoccupied, and in 1895 the United States abandoned the post, transferring it to the State of Michigan for use as a state park.

Fort Mackinac and the town below the fort had been economic and military centers for over one hundred years. Much of the extensive fur trade in the Northwest passed through the Straits of Mackinac. The fort was considered

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 70.7.21-0009	DATE 7/8/70

(Number all entries)

8.3 Significance (cont'd)

militarily impregnable and became the target of both British and American governmental designs. A fort surgeon, Dr. William Beaumont, made his own history by revealing immeasurable medical information with his studies of a voyageur's stomach. Fort Mackinac could not be abandoned to history. In 1958, after nearly two centuries of the fort's existence, the Mackinac Island State Park Commission began to restore the deteriorating fort. Fort Mackinac is being brought back from ruin. In 1969 the Mackinac Island State Park Commission received an Award of Merit from the American Association for State and Local History "for developing outstanding preservation and restoration work based on sound financing, thorough research, and inter-agency cooperation."



NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 10.7.21-0009	DATE 7/8/70

(Number all entries)

9.2 Bibliographical References

Wood, Edwin. Historic Mackinac. 2 vols. New York: Macmillan Co., 1918.

"The Haldimand Papers," Michigan Pioneer Collections, IX (1886), X (1888).

Prucha, Francis Paul.(ed.). Army Life on the Western Frontier. Norman:
University of Oklahoma Press, 1958.

Armour, David. "Mackinac Island," Historical Society of Michigan Chronicle,
VI (First Quarter, 1970), 16-19.

National Park Service, State Park Conservation Work. "Report on Existing
Ramparts and Buildings at Old Fort Mackinac," 1934. (Mimeographed.)



NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Type all entries - complete applicable sections)

STATE: Michigan	
COUNTY: Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER MAY 5 1972	DATE

1. NAME			
COMMON: Grand Hotel			
AND/OR HISTORIC: Grand Hotel			
2. LOCATION			
STREET AND NUMBER: Grand Hotel Avenue			
CITY OR TOWN: Mackinac Island			
STATE Michigan	CODE 26	COUNTY: Mackinac	CODE 097

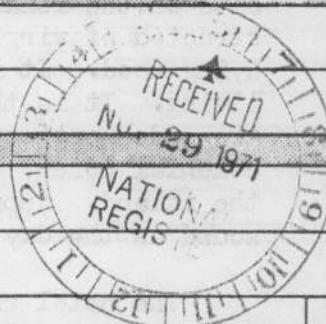
3. CLASSIFICATION			
CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO THE PUBLIC
<input type="checkbox"/> District <input checked="" type="checkbox"/> Building <input type="checkbox"/> Site <input type="checkbox"/> Structure <input type="checkbox"/> Object	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Private <input type="checkbox"/> Both	<input checked="" type="checkbox"/> Occupied <input type="checkbox"/> Unoccupied <input type="checkbox"/> Preservation work in progress	Yes: <input checked="" type="checkbox"/> Restricted <input type="checkbox"/> Unrestricted <input type="checkbox"/> No
PRESENT USE (Check One or More as Appropriate)			
<input type="checkbox"/> Agricultural <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Educational <input type="checkbox"/> Entertainment	<input type="checkbox"/> Government <input type="checkbox"/> Industrial <input type="checkbox"/> Military <input type="checkbox"/> Museum	<input type="checkbox"/> Park <input type="checkbox"/> Private Residence <input type="checkbox"/> Religious <input type="checkbox"/> Scientific	<input type="checkbox"/> Transportation <input type="checkbox"/> Other (Specify) _____ _____

4. OWNER OF PROPERTY			
OWNER'S NAME: Mr. W. S. Woodfill			
STREET AND NUMBER: R. F. D. #2 Box 123			
CITY OR TOWN: Scottsdale	STATE: Arizona	CODE 04	

5. LOCATION OF LEGAL DESCRIPTION			
COURTHOUSE, REGISTRY OF DEEDS, ETC: Registry of Deeds Office			
STREET AND NUMBER: Mackinac County Courthouse			
CITY OR TOWN: St. Ignace	STATE: Michigan	CODE 26	

6. REPRESENTATION IN EXISTING SURVEYS			
TITLE OF SURVEY: Michigan Historical Commission, Registered Historic Building # 10			
DATE OF SURVEY: 7-12-57 <input type="checkbox"/> Federal <input checked="" type="checkbox"/> State <input type="checkbox"/> County <input type="checkbox"/> Local			
DEPOSITORY FOR SURVEY RECORDS: Michigan Historical Commission			
STREET AND NUMBER: 208 N. Capital			
CITY OR TOWN: Lansing	STATE: Michigan	CODE 26	

SEE INSTRUCTIONS

STATE:
MichiganCOUNTY:
MackinacFOR NPS USE ONLY
ENTRY NUMBER
MAY 5 1972
DATE

7. DESCRIPTION

CONDITION	(Check One)					
	<input checked="" type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
	(Check One)			(Check One)		
	<input checked="" type="checkbox"/> Altered	<input type="checkbox"/> Unaltered	<input checked="" type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site		

DESCRIBE THE PRESENT AND ORIGINAL (If known) PHYSICAL APPEARANCE

This resplendent summer hotel was built in 1887 on the choicest site on the island -- a bluff 100 feet above the water. It is constructed of virgin Michigan white pine, often described as the undying wood. It is a classic example of the Victorian days of gracious living. It is the world's largest summer hotel. Its four stories with two side porticoes provide the perfect background for the magnificent colonial porch, the longest in the world, which flares some 800' across the island. Appraisers have reported that the hotel structure is as sound as the day it was built.

The hotel grounds comprise some 500 acres and is 5,102,432 cubic feet in size. It has doubled in size, by additions made in 1897 and 1912. The entire property was remodeled and enlarged in 1919. There are several buildings for housing four hundred employees; in addition there are the superintendent's residence, stables for fifty horses with numerous carriages and wagons, tool house, heating plant, electric plant, ice house and many others.

The interior indeed matches the graciousness of the exterior. The furniture for the hotel cost \$50,000. It was furnished by Grand Rapids dealers. There are 30,000 yards of carpet in the main building. From the east end of the main dining room to the west end of the lobby floor corridor extends the longest piece of carpeting ever made. The kitchen is two and one half stories high. Facilities include a bake shop, butcher shop, ice cream plant, food store rooms, and numerous pantries. In addition there are large general storerooms for household supplies, a linen room, wine cellar, uniform room, baggage room, printing shop and china room. Five large dining rooms are operated for the service of employees' meals.

The cedar grove in front of the hotel is a natural growth. They began their development naturally about 1880. For one hundred years prior to that the site of the grove was used for cleaning fish by local fisherman. The resulting refuse created a fertile topsoil that gave root this present growth of cedar.

The site of the hotel was used for centuries as an Indian burial ground. Not only was ample evidence of this discovered when the hotel foundations were laid but also local history and Indian traditions bear this out. The Indians believed the Island was a sacred gift from their gods as a place for burial of their illustrious dead. Indian chiefs throughout the entire Great Lakes area were brought here for burial.

Mason & Rice, archts.
from Wayne Anderson
Architectural Michigan



SEE INSTRUCTIONS

SEE INSTRUCTIONS

SIGNIFICANCE			
PERIOD (Check One or More as Appropriate)			
<input type="checkbox"/> Pre-Columbian	<input type="checkbox"/> 16th Century	<input type="checkbox"/> 18th Century	<input type="checkbox"/> 20th Century
<input type="checkbox"/> 15th Century	<input type="checkbox"/> 17th Century	<input checked="" type="checkbox"/> 19th Century	
SPECIFIC DATE(S) (If Applicable and Known) 1887			
AREAS OF SIGNIFICANCE (Check One or More as Appropriate)			
<input type="checkbox"/> Aboriginal	<input type="checkbox"/> Education	<input type="checkbox"/> Political	<input type="checkbox"/> Urban Planning
<input type="checkbox"/> Prehistoric	<input type="checkbox"/> Engineering	<input type="checkbox"/> Religion/Philosophy	<input checked="" type="checkbox"/> Other (Specify)
<input type="checkbox"/> Historic	<input type="checkbox"/> Industry	<input type="checkbox"/> Science	Hotel-Resort
<input type="checkbox"/> Agriculture	<input type="checkbox"/> Invention	<input type="checkbox"/> Sculpture	life
<input checked="" type="checkbox"/> Architecture	<input checked="" type="checkbox"/> Landscape Architecture	<input type="checkbox"/> Social/Humanitarian	
<input type="checkbox"/> Art	<input type="checkbox"/> Literature	<input type="checkbox"/> Theater	
<input type="checkbox"/> Commerce	<input type="checkbox"/> Military	<input type="checkbox"/> Transportation	
<input type="checkbox"/> Communications	<input type="checkbox"/> Music		
<input type="checkbox"/> Conservation			
STATEMENT OF SIGNIFICANCE			
<p>The Grand Hotel is located on Mackinac Island, once the center of the Canadian-American fur trade. The island has changed a great deal in appearance since the 1780s when the British and the French-Canadian traders followed the soldiers from the mainland to the island. About 1842 a few Southern families began making the island a resort. They brought their slaves with them and often remained the entire season. Year after year tourists increased, as did the accommodations. Railroad and shipping interests were eager to carry passengers northward on vacations. After the war summer travel further increased with years of prosperity.</p> <p>It was during this time that the hotel was built. Its first guests included the elite families of Chicago, the beer barons of the Middle West, the country's railroad magnates, and the top of Detroit's society. It was built at the instigation of Senator Francis B. Stockbridge of Michigan. The senator purchased the site of the Grand Hotel in 1882. He wanted Michigan to have a great summer hotel. John Oliver Plank, the country's leading resort operator at that time, was operating three fashionable hotels in New England. Plank became interested, and in 1887 he promoted and built the Grand Hotel. Stock was subscribed and owned by the Pennsylvania Railroad, the New York Central Railroad Company, and the Detroit and Cleveland Navigation Company. Cornelius Vanderbilt was the first president of the hotel company. Mr. Plank, as lessee and manager, operated the hotel from its inception in 1887 until 1890.</p> <p>James J. Hays, a prominent Michigan hotel man, leased the hotel from 1890 to 1900. Henry Weaver of St. Louis, Missouri, leased and operated the property from 1900 to 1910. He sold his interests in 1911 to Frank Nagle of St. Louis and Charles J. Holden of Mackinac Island. J. Logan Ballard of French Lick, Indiana, purchased the hotel in 1918. W. S. Woodfill (the present owner) came to the Grand in 1919, a hay fever fugitive from his uncle's lumber business in Greensburg, Indiana. He earned \$75 a month for quarters as hotel clerk. In 1920 he was chief clerk; 1921 assistant manager; and in 1922 he was given charge of the kitchen. A new organization took over the property in 1925, comprised of J. Ballard, E. LaChance and Mr. Woodfill. In 1928 Mr. Woodfill sold his interests to his partners, and in 1929</p>			



9. MAJOR BIBLIOGRAPHICAL REFERENCES

The Story of an Institution (Mackinac Island, 1951.)

St. Ignace News, July 7, 14, 1890.

Woodfill, W. Stewart. "The Grand Hotel." Michigan History, XLI (1957), 426-31.

10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY				O R	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES							
CORNER	LATITUDE				LATITUDE			LONGITUDE				
	Degrees	Minutes	Seconds		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds		
NW	0	'	"	0	'	"	45	51	04	84	37	34
NE	0	'	"	0	'	"						
SE	0	'	"	0	'	"						
SW	0	'	"	0	'	"						

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: less than ten acres

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE

11. FORM PREPARED BY

NAME AND TITLE: Linda Contreras, assistant historian

ORGANIZATION: History Division DATE: Oct. 18, 1971

STREET AND NUMBER: 208 N. Capital

CITY OR TOWN: Lansing STATE: Michigan CODE: 26

12. STATE LIAISON OFFICER CERTIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National ☒ State ☐ Local ☐

Name Samuel R. Milster

Title Deputy Director and SLO
Dept. of Natural Resources

Date 11/22/71

NATIONAL REGISTER VERIFICATION

I hereby certify that this property is included in the National Register.

Robert M. Utley
Chief, Office of Archeology and Historic Preservation

Date 5/5/72

ATTEST:

Robert M. Utley
Keeper of The National Register

Date May 5, 1972

SEE INSTRUCTIONS

16/684330/5080000

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE
MAY 5	1972

(Number all entries)

8.2 Significance Continued

Mr. LaChance sold his interests to Mr. Ballard. In 1933 the hotel was in receivership and Mr. Woodfill again engaged in the business and purchased the property, becoming the sole owner.

Woodfill has striven most successfully in retaining that last bastion, now fast fading from the American scene, of the fine art of gracious living which he has preserved at the Grand Hotel. It is the main tourist magnet for all the north country region. It is the "only hotel in the world with a \$100,000,000 background"--referring to the Mackinac Straits Bridge.

The Grand has housed many distinguished guests. President F. D. Roosevelt selected the presidential suite of the hotel for an international conference with the Premier of Canada. Several times the governors of the United States have assembled here. Governor Luce of Michigan and his family spent the entire summer at the hotel, and ever since it has been the custom of Michigan governors to make the island their summer headquarters. The famous wartime Republican conference, creating the Mackinac Charter on foreign policy, was held here in 1943. In 1945 General Marshall and Admiral King attended a war-time conference at the hotel. The humorist Samuel Clemens found much enjoyment in his many visits and wrote at length of the hotel in his memoirs.



PLEASE RETURN THIS FORM WHEN THE PROPERTY IS RESUBMITTED. DATE 2/23/72
NAME OF PROPERTY Grand Hotel Mich.

The attached National Register Inventory-Nomination form is being returned to the office for clarification of the information indicated below.

*Rec'd
4/24/72*

☐ Insufficient locational information.

☐ Owner of property/locational or legal description necessary.

☐ Geographical location codes missing or incorrect.

☐ No bibliography.

☐ Classification (Item #3) incomplete.

☐ Chemical copies of forms unacceptable.

☐ Nomination form needs SLO signature.

☐ Acreage

Comments: _____

☒ Insufficient map coverage of property.

Comments: An extension of the map is needed to show more of the area surrounding the hotel. This is helpful in case a Section 106 case should arise.

☒ Description (Item #7).

Comments: The box marked 'moved' has been checked yet nowhere in the text has this been mentioned. Is this correct or is the hotel still on its original site?
Check was incorrect. Hotel has not been moved. Form has been corrected to reflect this.

☐ Statement of Significance (Item #8).

Comments: _____

Clarification or correction of the items noted above must be made prior to the initiation of our professional review. Correction of these technical errors or deficiencies does not necessarily insure that the nomination will then satisfy National Register criteria in full.

SIGNED

Robert J. Mullen

United States Department of the Interior
National Park Service

RECEIVED

MAR 14 1988

National Register of Historic Places
Registration FormNATIONAL
REGISTER

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name St. Helena Island Light Stationother names/site number St. Helena Lighthouse, St. Helene Lighthouse

2. Location

street & number St. Helena Island, Lake Michigan☐ not for publicationcity, town Moran Township, St. Ignace☒ vicinitystate Michigan

code

MIcounty Mackinac

code

97

zip code

49781

3. Classification

Ownership of Property

- ☐ private
☐ public-local
☐ public-State
☒ public-Federal

Category of Property

- ☐ building(s)
☒ district
☐ site
☐ structure
☐ object

Number of Resources within Property

Contributing

3

Noncontributing

buildingssitesstructuresobjectsTotal

Name of related multiple property listing:

N/ANumber of contributing resources previously
listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this
☐ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the
National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.
In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of certifying official

Date

State or Federal agency and bureau

In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official

Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

- ☒ entered in the National Register.
☐ See continuation sheet.
☐ determined eligible for the National
Register. ☐ See continuation sheet.
☐ determined not eligible for the
National Register.
☐ removed from the National Register.
☐ other, (explain:)

Signature of the Keeper

Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)

Transportation/water-related

Current Functions (enter categories from instructions)

Transportation/water-related

7. Description

Architectural Classification

(enter categories from instructions)

Materials (enter categories from instructions)

Other: Masonry lighthouse/dwelling

foundation Stone

walls Brick

roof Wood

other N/A

Describe present and historic physical appearance.

St. Helena Island Light Station, built in 1873, is located on St. Helena Island in Lake Michigan in the Straits of Mackinac. The station includes a 71-foot round brick tower which is connected to a two-story brick keeper's dwelling by a short, covered passageway, as well as a brick oil house and a brick privy. The same architectural plans were used to construct the light stations at Poverty Island and Tawas Point. Sturgeon Point lighthouse has a very similar design. The St. Helena Island Light Station occupies less than one acre site on the southeastern point of the island.

Keeper's Dwelling. The rectangular keeper's dwelling measures 26 feet, 6 inches by 31 feet, with a one-story 12 foot by 25 foot brick shed attachment on the west end, and the passageway leading to the tower on the east end of the building. The dwelling has a gabled, wood shingle roof. The exterior brick and stone is in good condition but all exterior doors, wood shutters, and window glass are missing. The two entrances are located at the north end of the shed attachment and on the south side of the covered passageway. The chimney is on the west end of the building. The basement has two rooms, with concrete floors and whitewashed stone walls. The building has nine rooms: four bedrooms on the upper story, and four rooms on the first floor, including a sitting room, kitchen, bedroom, and storeroom, as well as a pantry and hallway. The shed attachment, which served as a woodshed and summer kitchen, is a ninth room to the dwelling. There are three closets; two on the upper story and one on the first floor. Original features still intact include all wood moldings and wooden wainscoting (height 34.5 inches) in the kitchen.

Light Tower. The only entrance to the tower is from the passageway. The base of the tower measures 15 feet, 2 inches in diameter; at its parapet, it measures 12 feet 6 inches in diameter. The brick walls are hollow. An iron circular stairway leads to the top, with three landings. The structure has four windows measuring 3 feet by 1 foot, 8 inches. The tower is missing the upper section of its lanternroom and the original third and one half order fresnel lens made in France by Henri LePaute. Most of the cast iron railing and walkway remains. The U.S. Coast Guard currently maintains the tower as an aid to navigation. Recently, the U.S. Coast Guard installed a plastic lens and enclosed the lantern room with a new roof and walls.

United States Department of the Interior
National Park Service

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Continuation Sheet

Section number 7 Page 2

Passageway. The brick passageway is 11 feet long, connecting the tower and keeper's dwelling. A door is located on the south wall and serves as an entrance to both the keeper's dwelling and the tower.

Privy. Located several feet west of the keeper's dwelling, the privy is made of brick and measures 5 and one half feet by 7 and one half feet.

Oil House. The oil storage house, built in 1896, is located 105 feet north of the tower. It is made of brick, with a metal roof. It measures 7 by 9 feet. Its original metal door is missing, as are many bricks from the north and south walls.

Other evidence includes the foundation of a former one-room, frame shed structure which housed the assistant keeper and his family, located just west of the keeper's dwelling, and the foundation of that building's second location, north of the tower. A well, located near the oil house, was installed by the U.S. Coast Guard HOLLYHOCK in 1943.

Non-extant Structures. The boat house and pier, built in 1895, and assistant keeper's dwelling (circa 1909) are no longer standing. The boat house was demolished by the U.S. Coast Guard in 1980. No fog signal was ever built on this site.

Condition. The condition of the light station in general is poor, but its original exterior appearance, floor plan, and several interior features, such as wainscoting and woodwork, remain intact. Gone are the boat house and assistant keeper's dwelling. The exterior brick of the keeper's dwelling and tower is sturdy and in good condition. On the interior all room show extensive damage due to vandalism and water. All doors and window glass are missing, as are the window shutters and a stairway bannister. The privy lacks a door and floor. The oil house walls are badly damaged, with many bricks missing. The main structure's architectural integrity in form and style is maintained, with few alterations over the years, despite interior vandalism and weather damage.

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

☐ nationally ☐ statewide ☐ locally

Applicable National Register Criteria ☒ A ☐ B ☐ C ☐ D

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)

Maritime history

Transportation

Period of Significance

1872-1938

1872-1938

Significant Dates

1872-73; 1922

1872-73; 1922

Cultural Affiliation

N/A

Significant Person

N/A

Architect/Builder

N/A

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The St. Helena Island Light Station in Lake Michigan is a significant part of a system of lights marking the busy and hazardous Straits of Mackinac--the passageway connecting Lake Michigan with Lake Huron and the rest of the Great Lakes. Some of the earliest Great Lakes light stations were built in this important waterway and strategic point in the Old Northwest Territory, including Bois Blanc (1829) and the Waugoshance lightship (1832). The establishment of St. Helena Island Light Station in 1873 was a critical addition to the network of navigational aids for safe passage through the Straits. St. Helena Island has been in continuous service, and of the five nearby lights, (old Mackinac Point, Round Island, McGulpin's Point, Waugoshance, and Bois Blanc), is the only station still in operation. For various reasons, including changes in shipping routes, and the construction in 1957 of the Mackinac Bridge, most Straits of Mackinac lighthouses were rendered obsolete. Despite automation and the dismissal of the keepers in 1922, St. Helena Island Light Station has remained vital to Great Lakes shipping. For these reasons, St. Helena Island Light Station meets the National Register criteria for its significant role in the broad patterns of Michigan, regional, and transportation history. In addition, the light station is the last remaining evidence of human history and material culture on St. Helena Island, after the destruction by fire of the 1850s fishing community structures.

The U.S. Lighthouse Board first urged the establishment of a light on St. Helena Island in 1867 because the island "affords an excellent anchorage during westerly and southwesterly gales." For the next five years, a request for funds to build a lighthouse at St. Helena Island was repeatedly made, until finally in 1872 an appropriation of \$14,000 was granted and work could be initiated. Work began on the tower, dwelling, shed attachment, passageway, and privy in September 1872. After the winter months, construction resumed, and the station was completed in August of the following year. On September 20, 1873, St. Helena Island was lit for the first time. The original third and one-half order fresnel lens exhibited a fixed red signal with a 315 degree arc of illumination.

☒ See continuation sheet

9. Major Bibliographical References

Aerial Photograph. St. Helena Island Station. Color. By Richard Moehl. Taken March 1986.

Chambers and Chambers. "Consultant's Report and Physical Description of St. Helena Keepers Dwelling." 1987.

Chambers, J. Henry. "Lighthouse Deterioration." Edited talk given at North American Lighthouse Conference, Mackinac Island, Michigan. September 1987.

Davis, Marion M. Island Stories, Straits of Mackinac. Lansing, MI: F. DeKleine Co., 1947.

Davis, Marion M. Michilimackinac Notes. 1941 Scrapbook. Detroit Public Library, Burton Historical Collection. Contains two 1939 photographs of St. Helena Island Light Station.

☒ See continuation sheet

Previous documentation on file (NPS):

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:

- ☐ State historic preservation office
- ☐ Other State agency
- ☒ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Specify repository:

National Archives - Record Group 26

10. Geographical Data

Acreage of property Less than one acre

UTM References

A 16 507993 1665882
Zone Easting Northing

C

B
Zone Easting Northing

D

☐ See continuation sheet

Verbal Boundary Description Beginning at a point on the shoreline 100' southwest of the privy, proceed east 300' along Lake Michigan to the e end of the eastern point of land. Then proceed north/northwest 450' along Lake Michigan to the end of the northern point. Then continue south/southwest along the shoreline 350', turning west to a point 30' north of the west wall of the keeper's dwelling. Then proceed southwest along a straight line 120' to the point of origin on Lake Michigan.

☐ See continuation sheet

Boundary Justification

The site's boundaries represent the natural boundaries of the Lake Michigan shoreline that surrounds this property on three sides, and include the entire spit of land the structures occupy. The western boundary line includes the westernmost outbuildings. Due to changeable water levels, the western boundary is occasionally under water, making the site appear as though it is a small inland.

☐ See continuation sheet

11. Form Prepared By

name/title LuAnne Gavkowski Kozma

organization Great Lakes Lighthouse Keepers Association date February 23, 1988

street & number 22605 St. Gertrude telephone 313/773-0783

city or town St. Clair Shores state Michigan zip code 48081

**United States Department of the Interior
National Park Service**

**National Register of Historic Places
Continuation Sheet**

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A total of five keepers attended the light from 1873 to 1922. The first assistant keeper was assigned to St. Helena beginning in 1909. A one-room shed dwelling was probably built at that time to accommodate the assistant and his family. This structure proved to be inadequate and unsanitary due to its proximity to the privy. In circa 1915, the dwelling was enlarged and moved to a site north of the tower. It is no longer extant.

In 1895, a boathouse, landing crib, and 140-foot boatway were built on the north side of the station, and 200 feet of concrete sidewalk was installed. A brick oil house with metal door, roof, and shelving was erected in 1896.

On June 30, 1922 the light was replaced by an acetylene light and the keepers were dismissed from the station. Care of the light was transferred to the keeper of the Old Mackinac Point Light Station in Mackinaw City, Michigan. The automated light was unusual in that it used the warmth of the sun to cause metal rods to expand and contract, thus regulating the flow of fuel to the lamp. The U.S Coast Guard has since removed the fresnel lens, installed a plastic lens, and removed the upper portion of the lantern room. In 1987 the U.S. Coast Guard erected new walls and a roof to the lantern room. The U.S. Coast Guard continues to keep this automated light to mark the northern entry to Lake Michigan, thus maintaining the station's significant role in Great Lakes navigation. The period of significance is given as 1872 to 1938 to encompass the start of construction of the site in 1872 and the fifty-year cut-off period for National Register qualification.

In 1985 the Great Lakes Lighthouse Keepers Association signed a thirty-year lease with the U.S. Coast Guard to restore and reuse the light station.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 9 Page 2

Graham, Phyllis J. Adaptive Reuse: A Bright Future for Beacons from our Past. University of Michigan. Masters Thesis. 1987. Includes chapter on case-study of St. Helena Island Light Station.

Great Lakes Lighthouse Keeper Association. The Beacon. 1985-1987. Articles on progress of St. Helena Island Light Station restoration project.

Hyde, Charles K. The Northern Lights: Lighthouses of the Upper Great Lakes. Lansing, MI: Two Peninsula Press, 1986.

Phillips, Delcie. Tape-recorded interview. November 4, 1987. Interviewed by Richard Moehl. Tape # 88-1. Great Lakes Lighthouse Keepers Association Oral History Project. Wayne State University Folklore Archive.

Revocable lease. U.S.A. and John Vallier. 1941. National Archives.

Sill, Louis Morgan. "Through Inland Seas." Harper's Monthly. April 1904.

U.S. Army Corps. of Engineers. "Light House and Keepers Dwelling for Saint Helena Island." 1873. Architectural plans. Deposited at State of Michigan Archives.

U.S. Coast Guard. Lease of St. Helena Island Light House. 1985. Leased to Great Lakes Lighthouse Keepers Association.

U.S. Coast Guard. Proceedings of a Board Survey for St. Helena Island Light Station. 21 July 1980. GSA control number 8659.

U.S. Lighthouse Establishment. "Description of Lighthouse Tower, Buildings, and Premises at St. Helena Light Station, Michigan, U.S.A." 1907. National Archives.

U.S. Lighthouse Service. Annual Reports of St. Helena Island Light Station. 1867-1896, incomplete. National Archives.

U.S. Lighthouse Service. Site map of St. Helena Island Light Station. 1902. Corrected to 1909. National Archives.


U.S. Lighthouse Service. Various reports, correspondence, and requests for St. Helena Island Light Station. National Archives.

**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Type all entries – complete applicable sections)

STATE:	
Michigan	
COUNTY:	
Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE
7/11/26,0055	11/5/72

1. NAME			
COMMON: Indian Dormitory			
AND/OR HISTORIC: Indian Dormitory			
2. LOCATION			
STREET AND NUMBER: Huron Street			
CITY OR TOWN: City of Mackinac Island			
STATE Michigan	CODE 26	COUNTY: Mackinac	CODE 097



3. CLASSIFICATION					
CATEGORY (Check One)		OWNERSHIP		STATUS	ACCESSIBLE TO THE PUBLIC
<input type="checkbox"/> District	<input checked="" type="checkbox"/> Building	<input checked="" type="checkbox"/> Public	Public Acquisition:	<input type="checkbox"/> Occupied	Yes:
<input type="checkbox"/> Site	<input type="checkbox"/> Structure	<input type="checkbox"/> Private	<input type="checkbox"/> In Process	<input checked="" type="checkbox"/> Unoccupied	<input checked="" type="checkbox"/> Restricted
<input type="checkbox"/> Object	<input type="checkbox"/> Both	<input type="checkbox"/> Being Considered		<input type="checkbox"/> Preservation work in progress	<input type="checkbox"/> Unrestricted
					<input type="checkbox"/> No
PRESENT USE (Check One or More as Appropriate)					
<input type="checkbox"/> Agricultural	<input type="checkbox"/> Government	<input type="checkbox"/> Park	<input type="checkbox"/> Transportation	<input type="checkbox"/> Comments	
<input type="checkbox"/> Commercial	<input type="checkbox"/> Industrial	<input type="checkbox"/> Private Residence	<input type="checkbox"/> Other (Specify)		
<input type="checkbox"/> Educational	<input type="checkbox"/> Military	<input type="checkbox"/> Religious			
<input type="checkbox"/> Entertainment	<input checked="" type="checkbox"/> Museum	<input type="checkbox"/> Scientific			

4. OWNER OF PROPERTY		
OWNER'S NAME: Mackinac Island State Park Commission		
STREET AND NUMBER:		
CITY OR TOWN: Mackinac Island	STATE: Michigan	CODE 26

5. LOCATION OF LEGAL DESCRIPTION		
COURTHOUSE, REGISTRY OF DEEDS, ETC: Mackinac County Courthouse		
STREET AND NUMBER:		
CITY OR TOWN: St. Ignace	STATE Michigan	CODE 26

6. REPRESENTATION IN EXISTING SURVEYS			
TITLE OF SURVEY: Michigan Historical Commission Registered Hst. Bldg. No. 45			
DATE OF SURVEY: 2-17-65 <input type="checkbox"/> Federal <input checked="" type="checkbox"/> State <input type="checkbox"/> County <input type="checkbox"/> Local			
DEPOSITORY FOR SURVEY RECORDS: Michigan Historical Commission			
STREET AND NUMBER: 3405 N. Logan			
CITY OR TOWN: Lansing		STATE: Michigan	CODE: 26

SEE INSTRUCTIONS

STATE:	ENTRY NUMBER	DATE
Michigan	71.11.26.0055	11/5/71
COUNTRY:		
Mackinac		

7. DESCRIPTION

CONDITION	(Check One)					
	<input checked="" type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
	(Check One)			(Check One)		
	<input checked="" type="checkbox"/> Altered	<input type="checkbox"/> Unaltered	<input type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site		

DESCRIBE THE PRESENT AND ORIGINAL (if known) PHYSICAL APPEARANCE

The Indian Dormitory, set into the hillside below Fort Mackinac, lies to the east of Marquette Park on Huron Street. Built in 1838 to house Indian representatives visiting Mackinac on business with the United States Indian Agent, the structure stands three and one half stories in the front, two and one half stories in the back, and faces the harbor of Mackinac Island.

The plans for the building were drawn up under the supervision of Henry Rowe Schoolcraft, then United States Indian Agent, and the building was contracted by Oliver Newberry of Detroit. An office and living quarters for the resident agent and his family were to be provided, along with sleeping and eating areas for the visiting Indians. The building was finished in 1838 and was used by the Indian Agency until 1850.

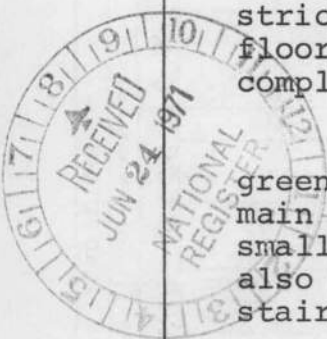
By the 1850s the building was no longer necessary as a dormitory and was being used by the Agency as a school for Indian children. Eventually the Indian children were joined by the white children of the island and the school became the main schoolhouse for the entire City of Mackinac Island in the late 1860s. Some alterations were made at this time, for both utilitarian and safety reasons, and the school remained in operation until 1960 when a new school building was opened. The Dormitory was then turned over to the Mackinac Island State Park Commission which began to restore the structure to its original appearance. Restoration was aided by the discovery of the original floorplans by Dr. Eugene Petersen, director of the project, in the National Archives in Washington.

The first floor is constructed of stone with unshuttered double-sashed six over six windows. There is a central hall with a stairway leading to the second floor. On the west side is a large kitchen with a brick fireplace and brick floor. The east room is used almost entirely for storage. This lower level follows the basic floorplan of the Dormitory except in the back where the hillside prevents strict delineation. The front, or southern, wall of the first floor has a ground level entrance but the northern wall is completely underground.

The second floor is constructed of white clapboard with green shuttered double-sashed six over six windows. The main entrance, a short flight of wooden stairs, leads to a small wooden porch on the second floor. The second floor also has a central hallway, running north and south, with a staircase leading to the third floor. The walls are plastered,

(continued)

SEE INSTRUCTIONS



**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
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(Number all entries)

7. Physical Appearance (continued)

as is the ceiling. The floors in the second and third stories are made of wood. The west side of the second floor is divided into three rooms--parlor, small bedroom, and kitchen. These rooms and the office on the east side have been restored with period furnishings similar to those of the ten-year span the Dormitory served the Indian Agency.

The third floor, originally the dormitory for visiting Indians, has been converted into a museum, with murals and artifacts recreating Indian life. A major exhibit depicts Schoolcraft's influence on the creation of Longfellow's "Song of Hiawatha." The building is owned and operated by the Mackinac Island State Park Commission and has become part of their extensive program of restoration on Mackinac Island.

8. Significance (continued)

Schoolcraft promoted the dormitory idea with great eagerness despite opposition from a small faction in the Senate and the lukewarm reception of the Office of Indian Affairs. At first the Indian Agent proposed the enlargement and alteration of the existing Agency building at Mackinac, and this plan was submitted to the Office of Indian Affairs and subsequently approved. An adequate amount, \$4,800, was then appropriated for such plans.

Despite these proceedings, Schoolcraft began to press for the construction of a new building and recommended bid samples and plans for such a structure. While negotiations and messages flew back and forth from Washington and Mackinac, Schoolcraft took matters into his own hands and took over the empty Mission House of the American Board of Commissioners of Foreign Missions, sending Indian Commissioner Harris remodeling plans.

Finally, in August of 1837, the Commissioner and his agent came to an agreement. Harris approved the new building plans submitted by Schoolcraft and authorized the acceptance of bids on the construction of a dormitory.

The dormitory was completed by September of 1837, and William Johnston, Schoolcraft's mixed-blood brother-in-law, began his duties as Keeper of the Dormitory. He had been

(continued)

SIGNIFICANCE

PERIOD (Check One or More as Appropriate)

☐ Pre-Columbian

☐ 16th Century

☐ 18th Century

☒ 20th Century

☐ 15th Century

☐ 17th Century

☒ 19th Century

SPECIFIC DATE(S) (If Applicable and Known)

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

Aboriginal

☐ Prehistoric

☐ Historic

☐ Agriculture

☐ Architecture

☐ Art

☐ Commerce

☐ Communications

☐ Conservation

☒ Education

☐ Engineering

☐ Industry

☐ Invention

☐ Landscape

☐ Architecture

☐ Literature

☐ Military

☐ Music

☐ Political

☐ Religion/Phi-

losophy

☐ Science

☐ Sculpture

☒ Social/Human-

itarian

☐ Theater

☐ Transportation

☐ Urban Planning

☐ Other (Specify)



STATEMENT OF SIGNIFICANCE

The line of settlement in Michigan was moving relentlessly northward by the early 1830s. Settlers were anxious to have negotiations with the Ottawas and Chippewas to settle all Indian land claims north of the Grand River Valley. The Indians, burdened by increasing debt to the white traders, were willing to negotiate, and, when approached by Indian Agent Henry R. Schoolcraft, agreed to send representatives to Washington. A treaty was signed between the Ottawa and Chippewa nations and the United States on March 28, 1836, in Washington. Ratified by the Senate on May 20, the treaty was formally proclaimed on May 27, 1836.

The treaty defined the property ceded by the Indians to the United States. The cession included two-thirds of the western half of the Lower Peninsula and the eastern half of the Upper Peninsula. One of the largest Indian land cessions in United States history, the treaty did provide for the reservation of various tracts to be held in use for the Indian nations. These reserves were scattered from Little Traverse Bay to Grand Island and included areas as large as fifty thousand acres.

The Indians were to be supplied with agricultural implements, medicines, provisions, goods, and other articles "as the President may deem proper." Blacksmith and gunsmith shops were to be opened for Indian use, and teachers were to be sent to Indian tribes.

Article Seven also provided for the construction of "a dormitory for the Indians visiting the post," and the appointment of a "person to keep it, and supply it with firewood." The dormitory would be "continued for ten years, and as long thereafter as the President may deem this arrangement useful and necessary." The idea of a dormitory for the conduction of business and for temporary lodging seems to have been a new idea and was welcomed enthusiastically by the Indians.

(continued)

SEE INSTRUCTIONS

9. MAJOR BIBLIOGRAPHICAL REFERENCES

Records of the Michigan Superintendency of Indian Affairs, 1814-1851,
Letters Sent by Superintendent and Agent at Mackinac, 1845-1851,
National Archives Microfilm, Reel 142, Michigan Historical Commission
Archives.

Annual Report of School Inspectors for State of Michigan (1869-1871),
Township of Holmes, City of Mackinac Island.

Records of the Executive Office, 1810-1910, Indians--Dormitory School
at Mackinac Island, Michigan Historical Commission Archives. (cont.)

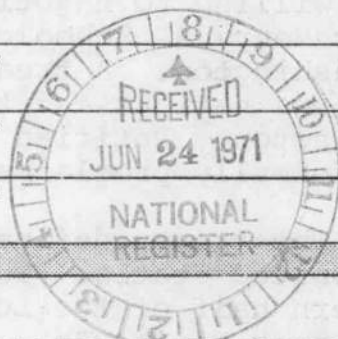
10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY			O R	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES		
CORNER	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE	
	Degrees Minutes Seconds	Degrees Minutes Seconds		Degrees Minutes Seconds	Degrees Minutes Seconds	
NW	° ' "	° ' "		45° 51' 04"	84° 36' 54"	
NE	° ' "	° ' "				
SE	° ' "	° ' "				
SW	° ' "	° ' "				

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: approx. one acre

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE



11. FORM PREPARED BY

NAME AND TITLE: Donna L. Stiffler, Assistant Historian	
ORGANIZATION Michigan Historical Commission	DATE May 20, 1971
STREET AND NUMBER: 3405 N. Logan	
CITY OR TOWN: Lansing	STATE Michigan
	CODE 26

12. STATE LIAISON OFFICER CERTIFICATION

NATIONAL REGISTER VERIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National ☒ State ☐ Local ☐

Name P. L. MacMillan
Director
Title Dept. of Natural Resources

Date 6/9/71

I hereby certify that this property is included in the National Register.

Arnot Allen Connally
Chief, Office of Archeology and Historic Preservation

NOV 5 1971

Date _____

ATTEST:

W. M. Crawford
Acting Keeper of The National Register

Date Oct 27, 1971

SEE INSTRUCTIONS

16/685160/5080060

3-22-71

NATIONAL REGISTER OF HISTORIC PLACES

INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 71-11-26-0055	DATE 11/5/71

(Number all entries)

8.2 Significance (continued)

appointed to this position in the fall of 1836 and continued to operate as keeper until July of 1838 when he was replaced by Schoolcraft's younger brother, James.

Henry Schoolcraft laid down several rules for the maintenance of the Dormitory and the activities of the keeper. No Indian could be admitted to the Dormitory without the approval of the keeper, nor could any "Intemperate Indian" be allowed to enter the Dormitory premises. All fuel was to be supplied by the keeper, as were provisions and services. The keeper was, in all ways, to be an example to the visiting Indians.

The Dormitory was operated by James Schoolcraft until the spring of 1842 when he was replaced by Dr. Justin Rice of Port Huron. Schoolcraft turned the Dormitory and records over to Rice and left Mackinac Island. Rice remained at Mackinac until 1845 when he, too, was replaced. The Democratic party had succeeded in electing a president, and the new Superintendent of Indian Affairs for the District of Michigan and Agent for the Michigan Indian Agency, William A. Richmond, appointed Frederick H. Stevens of Troy to take Rice's position. Stevens operated the Indian Dormitory until it was closed, March 28, 1846. Stevens left the island, and the Dormitory was empty.

The building was rented out by the Agency for several years to a variety of individuals and organizations. During the mid-1860s the Dormitory was leased to Union School District No. 1 and became a teaching facility for over two hundred of the island children. Congressman Thomas W. Ferry, a native of Mackinac Island, had proposed such an arrangement, arguing that such an agreement would be beneficial to both the federal government and the people of Mackinac Island.

Congressman Ferry submitted a bill to Congress during the summer of 1870 that proposed the transference of the Dormitory to the trustees of the Union School. The bill reached the floor of the House in July. Ferry spoke on behalf of his proposal on July 14, and the bill passed the House and Senate the same day.

For over ninety years the Indian Dormitory served as the primary educational unit for the City of Mackinac Island. A new school was built by the city in 1960, and in 1964 the

(continued)

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 71.11.26.0055	DATE 11/5/71

(Number all entries)

8.3 Significance (continued)

Dormitory was purchased by the Mackinac Island State Park Commission from the city. The Commission began restoration immediately, and the Dormitory returned to its original appearance. Exhibits reminiscent of the 1830s and 1840s fill the lower floors and capture the mood of the activities of the early days of the Indian Dormitory. An interpretive Indian museum on the top floor reflects the interest of Henry Rowe Schoolcraft in the condition of the Michigan Indians and their smooth transition into the white man's society.

9. Major Bibliographical References

Correspondence, Interior Department, Indian Affairs, 1871-1886, James Long to Governor Harry P. Baldwin, Michigan Historical Commission Archives.

A Compilation of All the Treaties Between the United States and the Indian Tribes (Washington: Government Printing Office, 1873), pp. 606-611.

U. S., Statutes at Large, XVI, 365.

Records of the Michigan Superintendency of Indian Affairs, 1836-1851, Letters Received by Superintendent and Agent at Mackinac, National Archives Microfilm, Michigan Historical Commission Archives.

Detroit Free Press, August 1, 1966, p. 17C.

State Journal (Lansing), April 3, 1966, p. 3.

Charles C. Royce, Indian Land Cessions in the United States (Washington: Government Printing Office, 1899).



Resub

970008002

NPS Form 10-900
(Rev. 10-90)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM



This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

=====

1. Name of Property

=====

historic name Young, Lawrence A., Cottage

other names/site number Michigan Governor's Summer Residence

=====

2. Location

=====

street & number Fort Hill and Huron Roads not for publication
N/A

city or town Mackinac Island vicinity N/A
state Michigan code MI county Mackinac code 097
zip code 49757

=====

3. State/Federal Agency Certification

=====

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this X nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property X meets does not meet the National Register Criteria. I recommend that this property be considered significant nationally X statewide locally. (See continuation sheet for additional comments.)

John R. Halsey
Signature of certifying official

10-2-97
Date

MI SHPO
State or Federal agency and bureau

In my opinion, the property _____ meets _____ does not meet the National Register criteria. (_____ See continuation sheet for additional comments.)

Signature of commenting or other official

Date

State or Federal agency and bureau

=====

4. National Park Service Certification

=====

I, hereby certify that this property is:

☒ entered in the National Register

_____ See continuation sheet.

_____ determined eligible for the
National Register

_____ See continuation sheet.

_____ determined not eligible for the
National Register

_____ removed from the National Register

_____ other (explain): _____

Signature of Keeper

Date
of Action

=====

5. Classification

=====

Ownership of Property (Check as many boxes as apply)

_____ private
_____ public-local
☒ public-State
_____ public-Federal

Category of Property (Check only one box)

☒ building(s)
_____ district
_____ site
_____ structure
_____ object

Number of Resources within Property

Contributing

 1

Noncontributing

_____ buildings

_____ sites

_____ structures

_____ objects

 1

 0 Total

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

National Register Of Historic Places
Continuation Sheet

Section 7 Page 1

Young, Lawrence Andrew, Cottage
name of property

Mackinac County, MI
county and State

Description

The Young Cottage is a two-story frame Arts-and-Crafts-inspired building with a full basement and third floor built into the roof. It has an L-shaped footprint with the main portion positioned in an east-west direction and a smaller wing extending north. It has intersecting hipped roofs pierced by large gabled dormers, a minor recessed porch on the north and a major recessed porch on the south which originally wrapped around to the east and west. The west portion has been enclosed to create a sun porch. The walls and roof are finished with wood shingles and the foundation walls and chimneys are constructed of native limestone boulders. The house stands by itself to the west of Fort Mackinac on a projecting knob of the bluffs along the south end of Mackinac Island at an elevation of about 125 feet above the level of Lake Michigan. The cottage's extensive verandahs enjoy a sweeping view of the entire Straits of Mackinac area.

Exterior

Although the main entrance is located on the east facade of the main block, the south facade is dominant. It is the primary view of the building as seen not only from the village below, but also from all main approaches to the island by boat. This facade is symmetrical about its center axis. Shingled corners carry the upper floor down to the stone foundation and frame the major south fully recessed five-bay porch. One-story porch extensions can be seen east and west of the south facade. Large windows are located on the back wall of the recessed porch which illuminate the living room and the dining room. In addition, this wall has board and batten siding and contains two sets of glazed French doors to the living room. The shingled second story has a large centered bay which is flanked by two individual windows on each side. The wood shingled hipped roof features three large double window dormers, also symmetrically placed.

The west facade is dominated by two massive chimneys with stonework matching the foundation. The one-story original west porch protrudes forward, but is now enclosed with sliding glass windows. A major bay window is featured on the second floor and both single and double windows are arranged in a random manner on the shingled first and second floor levels. The hipped roof supports two single window dormers.

On the north facade the north wing protrudes forward of the main portion of the house and features the recessed kitchen porch. The arrangement of single windows on this facade is random because of the interior room arrangement including the main stair. The hipped roof

National Register Of Historic Places
Continuation Sheet

Section 7 Page 2 -

Young, Lawrence Andrew, Cottage
name of property

Mackinac County, MI
county and State

supports several double window dormers, one of which is paired and at a right angle with another on the east facade of the north wing.

The main entrance is located on the east facade of the main block and features both a recessed porch with shingled corners and a protruding one-story porch. French doors with an elliptical fanlight are centered on the front entrance steps. The second floor features two major bay windows symmetrically placed. The large dormer on this main facade has a pair of doubled windows. The east facade of the north wing contains an assortment of single windows along with the entrance side of the recessed kitchen porch.

Interior

The visitor enters directly from the east porch to the living room. The dining room opens directly from the living room and together they occupy the entire south side of the main portion of the house. In the living room a wood staircase wraps around a massive fireplace on the north wall and on the south wall a built-in bench in a multiple sash bay window is flanked by double doors to the south porch. The ceiling has exposed wood beams with paneling between. The dining room is separated from the living room by mid-height book cases, open above. The dining room ceiling is a visual focal point with exposed beams formed in an octagonal pattern. A large multiple sash window looks onto the south porch and a massive wood breakfront is positioned directly across. The west wall contains another large fireplace and a door which accesses the sun room (an enclosure of the original west porch). Completing the first floor is the rear stair hall, servant's dining room, kitchen, rear entry, kitchen pantry and a butler's pantry with built-in cabinets which leads directly to the dining room. All walls are wood paneled with exposed studs on some interior walls.

The focal point of the second floor is the upper stair hall at the top of the main stair from the living room below. The stair hall serves five chambers. Chamber No. 1 is the master bedroom and traditionally has been used by the Governor and his wife. Four bath rooms serve the chambers and each chamber has its own closet. A play room is located at the north end of the west wing.

The rear stair hall leads up to the third floor where four original chambers and one bath room are located. These were designated for servants' use on the original plan. Two additional bedrooms have been added in original attic space and one of the original chambers has been remodeled as an additional bath.

National Register Of Historic Places
Continuation Sheet

Section 7 Page 3 -

Young, Lawrence Andrew, Cottage
name of property

Mackinac County, MI
county and State

Site

The original site was divided generally into three zones. Refined landscape treatment was limited to the immediate setting of the house -- a relatively small area at the east end of the property. The rest of the property was either developed for utilitarian purposes (the barn area) or left as relatively undisturbed woods. The barn was situated at the road edge, midway on the north side of the property, and housed saddle horses as recently as the 1960s, when it was demolished. The native forest which covered the west end of the property also wrapped around the south edge back to the house, and extended (off site) to the bottom of the south slope.

The road which defines the north edge of the grounds divides near the west end of the property, with one branch continuing west in the direction of Grand Hotel, and the other curving around and down the steep slope to the village below. At the east end of the property the road (now restricted to pedestrian traffic) follows along the west side of Fort Mackinac down a steep grade into the village. Large grassy areas are visible in early photographs of the area east of the house, especially near the road edge high on the slope. Most of the slope below the house is densely wooded, with one long opening in the tree cover visible east of the house. Native white cedars of relatively uniform height are the prevalent species.

Historic Integrity

Almost all of the original physical characteristics have survived since this property was constructed with the following exceptions. The west porch has been enclosed to create the sun room and a private deck for the Governor and his family has been enclosed on this roof. Today, the residence is surrounded by a mature growth of coniferous and deciduous trees as well as other landscape materials. As nature matures a setting, its integrity is maintained only if major alterations have not taken place, and none have at this site. The original dark stained color of the house exterior has been changed to white paint. The result is a dramatic change from the warm, earthy feeling of turn-of-the-century Shingle Style architecture to the "whiteness" that pervades much of Mackinac Island today. A return to the original color is strongly being considered.

=====

8. Statement of Significance

=====

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

- ☒ A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ B Property is associated with the lives of persons significant in our past.
- ☒ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ D Property has yielded, or is likely to yield information important in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.)

- ☐ A owned by a religious institution or used for religious purposes.
- ☐ B removed from its original location.
- ☐ C a birthplace or a grave.
- ☐ D a cemetery.
- ☐ E a reconstructed building, object, or structure.
- ☐ F a commemorative property.
- ☒ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

Architecture

Politics/government

Period of Significance 1901-1960

Significant Dates 1901
1945
1960

Significant Person (Complete if Criterion B is marked above)
N/A

Cultural Affiliation N/A

Architect/Builder Frederick W. Perkins

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

=====

9. Major Bibliographical References

=====

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS) None
 preliminary determination of individual listing (36 CFR 67) has been requested.
 previously listed in the National Register
 previously determined eligible by the National Register
 designated a National Historic Landmark
 recorded by Historic American Buildings Survey #
 recorded by Historic American Engineering Record #

Primary Location of Additional Data
 State Historic Preservation Office
X Other State agency
 Federal agency
 Local government
 University
 Other

Name of repository: Mackinac Island State Park Commission

=====

10. Geographical Data

=====

Acreeage of Property About 1.6 acres

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing	Zone	Easting	Northing
1	16	684760	5080110	3	_____	_____
2	_____	_____	_____	4	_____	_____
<u> </u> See continuation sheet.						

National Register Of Historic Places Continuation Sheet

Section 8 Page 1

Young, Lawrence Andrew, Cottage
Name of Property

Mackinac County, MI
County and State

Significance

The official summer residence of the governors of Michigan is a fine example of the large cottages on Mackinac Island's southern bluffs built in the period from the early 1880s to the early 1900s. Built in 1901 as a summer residence for Chicago attorney Lawrence A. Young, the cottage is an imposing example of Arts-and-Crafts-inspired design planned by Chicago architect Frederick W. Perkins. It reflects the social history of Mackinac Island as an important resort destination for wealthy and prominent Midwesterners beginning with the completion of railroad connections to nearby Mackinaw City in 1881-82. The cottage's use as the Michigan governor's summer residence began in 1945. Over the years, the house has hosted numerous political gatherings and visits by important state and national political figures. Probably the most important single event which has taken place there was the visit on June 2, 1960, of Senator John F. Kennedy with Governor G. Mennen Williams. As a result of this meeting, Williams, then a presidential aspirant himself, agreed to withdraw from the race and support Kennedy's candidacy. Michigan's support gave the Kennedy candidacy enough delegate strength to assure Kennedy the nomination.

The Mackinac Island area with its great natural beauty and storied military and fur trade history was an early tourist destination in the upper Great Lakes. A few visitors began arriving even in the 1820s and 30s, and the growing tourism resulted in 1850-52 in the opening of the first two hotels on the island. Island tourism remained relatively small in scale until 1881-82, when the Michigan Central Railroad, running north from Detroit, and the Grand Rapids and Indiana, coming north from Indiana through Grand Rapids, completed their lines to Mackinaw City and the Straits of Mackinac. With the opening of direct railroad connections with Detroit, Chicago, and other Midwestern cities, Mackinac Island quickly became an important summer resort destination for wealthy Midwesterners. Large summer hotels, including the opulent Grand, built in 1886-87 by a combination of the two railroads and the Detroit and Cleveland Navigation Company, soon opened to cater to the growing number of prosperous tourists.

Wealthy vacationers wished to build cottages on the high bluffs at the south end of the island overlooking the Straits of Mackinac, but most of the high ground belonged to the federal government. Part was a military reservation associated with Fort Mackinac. The fort was founded by the British in 1780 and was transferred to the United States at the end of the War of 1812. The larger part, taken from what was previously a much larger Fort Mackinac military reservation, was the Mackinac National Park. Mackinac National Park was established in 1875 under authorizing legislation introduced by U. S. Senator Thomas M. Ferry of Grand

National Register Of Historic Places Continuation Sheet

Section 8 Page 2 -

Young, Lawrence Andrew, Cottage

Name of Property

Mackinac County, MI

County and State

Haven, Michigan, in order to protect the island's natural beauty as well as the surroundings of the fort, which even then was viewed as historic.

The act establishing the national park empowered the Secretary of War to grant leases of small lots on the bluffs for cottage sites for periods of up to ten years, with the proceeds to be used for development of the park. Platting actually took place in 1884 and the first lease was executed the following year.

Chicago businessman Gurdon S. Hubbard was the owner of a portion of the bluffs west of Fort Mackinac. Due to the government's delay in platting lots in the national park, Hubbard became the first to actually offer cottage sites on the bluffs. In 1882 he platted part of his property as "Hubbard's Annex to the Mackinac National Park" and began offering lots for sale.

The federal government closed Fort Mackinac in 1894 and in 1895 transferred both the fort and the Mackinac National Park to the state of Michigan to become the Mackinac Island State Park, Michigan's first state park. The still-functioning Mackinac Island State Park Commission was established to manage the park. The commission voted in 1895 to lease cottage sites for \$100 per year with each lessee required to construct a cottage worth at least \$3000 within one year of the date of the lease. The commission issued its first lease in 1898.

In 1901 the commission issued its fourth lease, for the "West Fort Lot," to Chicago attorney Lawrence A. Young. Young retained Chicago architect Frederick W. Perkins to design his cottage. Perkins (1866-1928) was a Wisconsin native who trained at the Massachusetts Institute of Technology and the Ecole des Beaux Arts in Paris. He is described in the *AIA Guide to Chicago* as a "society architect." The *AIA Guide* identifies two large suburban houses Perkins designed in 1890-91 for Frank H. and Alonzo M. Fuller next door to one another on South Ellis in Chicago. Perkins' authorship of the Young Cottage design is known only because his plans -- dated October 10, 1901 -- remained in the cottage and are now in the possession of the house's owner, the Mackinac Island State Park Commission. Young's contractor, Patrick Doud, reportedly fielded a seventy-five member construction crew to build his cottage.

Little information is available about summertime visits to Mackinac Island by the state's governors in the years after the state took over the Mackinac National Park. It is known that in the early 1930s Governor William A. Comstock made use of one of the former officers' quarter buildings as a summer residence, but how long this may have served the purpose is not known.

The Mackinac Island State Park Commission purchased the former Young Cottage in 1945 for \$15,000. Since that time the house has served as the official Michigan governor's summer residence. In the years since 1945, the house has hosted presidents -- Presidents Truman,

National Register Of Historic Places Continuation Sheet

Section 8 Page 3

Young, Lawrence Andrew, Cottage

Name of Property

Mackinac County, MI

County and State

Ford, and Bush have been overnight guests and then Arkansas Governor Bill Clinton attended a dinner there -- and been the site of negotiations between governors and legislative leaders, but specific information is hard to obtain, in part because a log of guests and events was (deliberately) not kept.

One important event at the cottage that can be documented is a meeting in 1960 between then Governor G. Mennen Williams and Senator John F. Kennedy. Senator Kennedy was seeking the Democratic nomination for President, but in May of 1960 did not yet have the nomination sown up. G. Mennen Williams was himself considering running for President and Michigan's delegates to the national convention were for the most part pledged to him if he opted to run. Kennedy's delegate count was rising toward the point where his nomination would be assured. Donald M. D. Thurber, a long time friend of Governor Williams and also a classmate of Senator Kennedy's at Harvard, was one of those who worked to bring about a meeting between Williams and Kennedy. Another was Frank Blackford, the state insurance commissioner, who came into contact with Robert Kennedy and Pierre Salinger, then working for a congressional committee investigating the Teamsters and corruption, in the course of a state investigation of the Teamsters' major insurance provider. Preliminary meetings between Thurber and Kennedy and between Blackford, Kennedy, and Salinger resulted in a meeting between Governor Williams and Senator Kennedy at the Mackinac Island cottage on June 2, 1960. In a joint press statement issued in time to be published that evening in the *Detroit Free Press*, Governor Williams pledged his support for Senator Kennedy's candidacy. The Michigan delegation to the Democratic National Convention in Los Angeles, as a result of the governor's efforts, voted overwhelmingly for Kennedy.

The Young Cottage is one of about fifty surviving large frame summer cottages built on Mackinac Island's southern bluffs between the mid-1880s and early 1900s. The great majority of these houses date from the late 1880s and early 1890s. Most of the cottages are of Eastlake, Queen Anne, Shingle Style, or Colonial or Georgian Revival design. The Young Cottage is unusual among the Mackinac Island cottages for its Arts and Crafts design.

Mackinac Island's cottages remain as some of the most impressive summer houses of that era in Michigan. The importance of the island's War of 1812 and fur-trade-related historic properties has long been recognized by their collective designation as a National Historic Landmark under the Mackinac Island name. The Grand Hotel, which stands at the lower edge of the West Bluff cottage area, has also been designated a National Historic Landmark. Mackinac Island as a whole, including its well preserved recreation-related resources, appears eligible for the national register if not for inclusion under the National Historic Landmark designation.

National Register Of Historic Places
Continuation Sheet

Section 8 Page 4 _

Young, Lawrence Andrew, Cottage

Name of Property

Mackinac County, MI

County and State

Archaeological Potential

The Young Cottage is located immediately adjacent to and west of Fort Mackinac. Due to the prehistoric and historical occupation of this portion of the island, the archaeological potential in the area is generally high. Considerable archaeological investigation on the island has borne out this potential. Given this situation, the Young Cottage location must also be considered to be archaeologically sensitive for prehistoric and historic deposits.

United States Department of the Interior
National Park Service

National Register Of Historic Places
Continuation Sheet

Section 9 Page 1 -

Young, Lawrence Andrew, Cottage
name of property

Mackinac County, MI
county and State

9. Major Bibliographical References

Armour, David A. *100 Years at Mackinac*. Mackinac Island State Park Commission. 1995.

Berthelot, Helen Washburn. *Win Some, Lose Some: G. Mennen Williams and the New Democrats*. Detroit, MI: Wayne State University Press, 1995.

Eckert, Kathryn Bishop. *Buildings of Michigan*. Society of Architectural Historians, Buildings of the United States. New York, Oxford: Oxford University Press. 1993.

McKee, Russell, ed. *Mackinac: The Gathering Place*. Lansing, MI: Michigan Natural Resources Magazine, 1981.

National Register Branch, Interagency Resources Division, National Park Service, U.S. Department of the Interior. *Guidelines for Completing National Register of Historic Places Forms*. National Register Bulletin 16. Washington, DC: U.S. Government Printing Office. 1991.

Perkins, Frederick W. Original Plans, eight sheets dated October 10, 1901, Mackinac Island State Park Commission Archives, Lansing, Michigan

Petersen, Eugene T. *Inside Mackinac*. Inside Mackinac, Route 1, Box 244C, St. Ignace, Michigan 49781. 1990.

Petersen, Eugene T. *Mackinac's Grand Hotel: The Early Years*. Historical Society of Michigan. 1988.

Petersen, Eugene T. *Mackinac Island: Its History in Pictures*. Mackinac Island State Park Commission. 1973.

Porter, Phil. *View From The Veranda: The History and Architecture of the Summer Cottages on Mackinac Island*. Mackinac Island State Park Commission, Reports on Mackinac History and Archaeology, Number 8. 1981.

Scully, Vincent. *American Architecture and Urbanism*. New York: Praeger Publishers, Inc. Second Printing. 1971.

Sinkevitch, Alice, ed. *AIA Guide to Chicago*. New York: Harcourt, Brace & Co., 1993.

United States Department of the Interior
National Park Service

National Register Of Historic Places
Continuation Sheet

Section 9 Page 2 -

Young, Lawrence Andrew, Cottage
name of property

Mackinac County, MI
county and State

Withey, Henry F., and Elsie Rathburn Withey. *The Biographical Dictionary of American Architects (Deceased)*. Los Angeles, CA.: New Age Publishing Co., 1956.

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

=====

11. Form Prepared By

=====

name/title Richard C. Frank (revised by Robert O. Christensen, NR Coord, MI SHPO)

organization Richard C. Frank, FAIA date Oct., 1997

street & number 7172 Glencoe Drive telephone 313/433-0999

city or town Gregory state MI zip code 48137-9657

=====

Additional Documentation

=====

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location.
A sketch map for historic districts and properties having large acreage
or numerous resources.

Photographs

Representative black and white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items)

=====

Property Owner

=====

(Complete this item at the request of the SHPO or FPO.)

name Mackinac Island State Park Commission, Carl Nold, Director

street & number P. O. Box 30028 telephone 517/373-4296

city or town Lansing state MI zip code 48909

=====

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National Register Of Historic Places
Continuation Sheet

Section 10 Page 1

Young, Lawrence Andrew, Cottage
name of property

Mackinac County, MI
county and State

10. Geographical Data

Verbal Boundary Description

Beginning near the southeast corner of the east porch along a fence line approximately 60' to the intersection of another fence at Fort Hill which generally follows the edge of Huron Road in a northwesterly direction approximately 380' where the fence turns and runs another approximately 150' enclosing the northwest end of the site, and then in a southeasterly direction along the crest of the steeply sloping southerly bank approximately 300' to the southwest corner of the south porch, then parallel and immediately adjacent to the south porch to the point of beginning. This boundary is shown on a site survey, entitled "Survey of Governor's Summer Residence" prepared in 1996. This survey is attached as a part of this nomination.

Boundary Justification

The Governor's Summer Residence site is located totally within the property under the jurisdiction of the Mackinac Island State Park Commission. No separate legal boundary description exists for the Residence. This boundary includes the entire site associated with the residence.

United States Department of the Interior
National Park Service

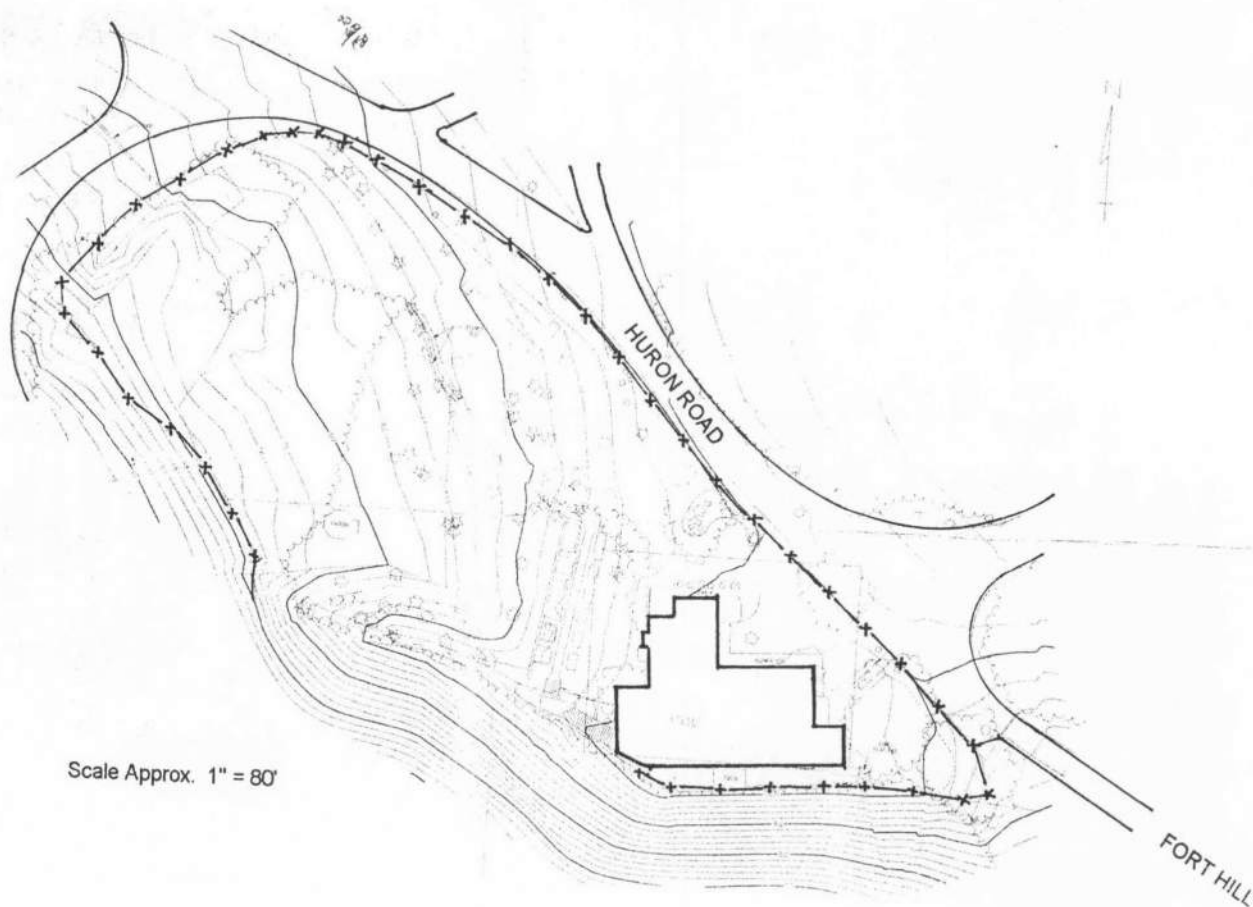
National Register Of Historic Places
Continuation Sheet

Section _____ Page _____

Young, Lawrence Andrew, Cottage
name of property

Mackinac County, MI
county and State

Sketch Site Plan



**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Type all entries - complete applicable sections)

STATE: Michigan	
COUNTY: Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 71.5.26.0027	DATE 5/6/71

1. NAME			
COMMON: Mathew Geary House			
AND/OR HISTORIC: Mathew Geary House			
2. LOCATION			
STREET AND NUMBER: Market Street			
CITY OR TOWN: City of Mackinac Island			
STATE Michigan	CODE 26	COUNTY: Mackinac	CODE 097



3. CLASSIFICATION	
CATEGORY (Check One)	OWNERSHIP
District <input type="checkbox"/> Building <input type="checkbox"/> Site <input checked="" type="checkbox"/> Structure <input type="checkbox"/> Object <input type="checkbox"/>	Public <input checked="" type="checkbox"/> Private <input type="checkbox"/> Both <input type="checkbox"/> Public Acquisition: In Process <input type="checkbox"/> Being Considered <input type="checkbox"/>
STATUS	
Occupied <input type="checkbox"/> Unoccupied <input checked="" type="checkbox"/> Preservation work in progress <input type="checkbox"/>	ACCESSIBLE TO THE PUBLIC
Yes: Restricted <input checked="" type="checkbox"/> Unrestricted <input type="checkbox"/> No: <input type="checkbox"/>	
PRESENT USE (Check One or More as Appropriate)	
Agricultural <input type="checkbox"/> Government <input type="checkbox"/> Park <input type="checkbox"/> Transportation <input type="checkbox"/> Comments <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Private Residence <input type="checkbox"/> Other (Specify) <input checked="" type="checkbox"/> In process of restoration Educational <input type="checkbox"/> Military <input type="checkbox"/> Religious <input type="checkbox"/> Entertainment <input type="checkbox"/> Museum <input type="checkbox"/> Scientific <input type="checkbox"/>	

4. OWNER OF PROPERTY	
OWNERS NAME: Mackinac Island State Park Commission	
STREET AND NUMBER:	
CITY OR TOWN: Mackinac Island	STATE: Michigan
	CODE 26

5. LOCATION OF LEGAL DESCRIPTION	
COURTHOUSE, REGISTRY OF DEEDS, ETC: Mackinac County Courthouse	
STREET AND NUMBER:	
CITY OR TOWN: St. Ignace	STATE: Michigan
	CODE 26
APPROXIMATE ACREAGE OF NOMINATED PROPERTY: approximately one acre	

6. REPRESENTATION IN EXISTING SURVEYS	
TITLE OF SURVEY: Michigan Historical Commission Registered Site No. 90	
DATE OF SURVEY: January 6, 1971 Federal <input type="checkbox"/> State <input type="checkbox"/> County <input type="checkbox"/> Local <input checked="" type="checkbox"/>	
DEPOSITORY FOR SURVEY RECORDS: Michigan Historical Commission	
STREET AND NUMBER: 3405 North Logan Street	
CITY OR TOWN: Lansing	STATE: Michigan
	CODE 26

SEE INSTRUCTIONS

STATE: Michigan
COUNTY: Mackinac
ENTRY NUMBER: 71.5.26.0027
DATE: 5/6/71
FOR NPS USE ONLY

7. DESCRIPTION

CONDITION	(Check One)					
	Excellent <input type="checkbox"/>	Good <input checked="" type="checkbox"/>	Fair <input type="checkbox"/>	Deteriorated <input type="checkbox"/>	Ruins <input type="checkbox"/>	Unexposed <input type="checkbox"/>
INTEGRITY	(Check One)			(Check One)		
	Altered <input checked="" type="checkbox"/>	Unaltered <input type="checkbox"/>	Moved <input type="checkbox"/>	Original Site <input checked="" type="checkbox"/>		

DESCRIBE THE PRESENT AND ORIGINAL (if known) PHYSICAL APPEARANCE

The Mathew Geary House is located on Lot 96 of Assessor's Plat No. 3, in the City of Mackinac Island. The land was originally set forth by patent to Mr. John Ogilvie from the United States in July of 1811 and was purchased by the American Fur Company in 1832. Mathew Geary purchased the property in 1844 from John H. Kinzie, formerly of the American Fur Company.

The present structure was built shortly after Geary's purchase of the property. It is a two-story clapboard dwelling, resting upon a high brick foundation. A small, two-story porch has been added to the front of the house, as well as a one-story sunporch on the western side, and a two-story addition to the rear of the house. The basement may be entered from the ground level of the house by descending a short flight of steps.

The main floor consists of four rooms, a central hall, and a central staircase. The back east room is a kitchen, and the front east room has in recent years served as a bedroom. On the west side of the center hall is one large room, a combination living-dining room at present. The sunporch may be entered from this room.

The second floor consists of four bedrooms, two located on either side of the central hall. The bathroom is at the back of the house in the two-story addition.

The house is now owned by the Mackinac Island State Park Commission and is in fairly good condition. Some rain water has loosened wallpaper and plaster, and the floor has bevelled in a few areas. The leaking roof was replaced in 1970 with cedar shingles, and the building is now dry. The exterior, painted white some years ago, is badly in need of repainting. The house is to be restored by the Mackinac Island State Park Commission.



SEE INSTRUCTIONS

8. SIGNIFICANCE

PERIOD (Check One or More as Appropriate)

☐ Pre-Columbian

☐ 16th Century

☐ 18th Century

☐ 20th Century

☐ 15th Century

☐ 17th Century

☒ 19th Century

SPECIFIC DATE(S) (If Applicable and Known)

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

Aboriginal

☐ Prehistoric

☐ Historic

☐ Agriculture

☐ Architecture

☐ Art

☒ Commerce

☐ Communications

☐ Conservation

☐ Education

☐ Engineering

☐ Industry

☐ Invention

☐ Landscape

☐ Architecture

☐ Literature

☐ Military

☐ Music

☐ Political

☐ Religion/Philosophy

☐ Science

☐ Sculpture

☐ Social/Humanitarian

☐ Theater

☐ Transportation

☐ Urban Planning

☐ Other (Specify)



STATEMENT OF SIGNIFICANCE

In July of 1811 a parcel of land was set forth by patent from the United States government to John Ogilvy. This land, known as the south one-half of Lot 282, remained in Ogilvy's possession until his death in 1819. The property was then willed to George Moffat, who, in turn, sold the land to the American Fur Company. The Company was already well-established on the island and dominated every phase of island life. The former Ogilvy property was next to the American Fur Company store, facing the Company warehouse, agency house, and clerks quarters to the west. As property of the American Fur Company, the Ogilvy parcel was part of the giant economic complex that stretched from the Atlantic Coast to the Rockies. A steady influx of furs poured into the Company warehouse and the island and its people prospered.

However, the booming fur trade was not to last. With its decline during the late 1830s much of the Fur Company property was sold. The south half of Lot 282 was received in 1838 by John Kinzie, a former Company employee. Several years later the property was purchased by Mathew Geary, a prominent Mackinac Island resident.

Mathew Geary first became a village trustee of the Village of Mackinac Island in 1848. For the next few years Geary remained a village trustee. Prior to his first election as trustee, Geary had been elected fish inspector, a position he held for several years. He also held other elective and appointive positions in village government. In 1855 he served with John Biddle as Superintendent of the Poor and was also fire warden in that same year. He acquired the south half of Lot 282 during the mid-1840s and built a substantial home on the property.

Following Geary's death, this house and another property, known as the "Rose Cottage", remained in the Geary family until the late nineteenth century. The Geary children

(continued)

SEE INSTRUCTIONS

9. MAJOR BIBLIOGRAPHICAL REFERENCES

(On Continuation Sheet)

10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY			OR	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES		
CORNER	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE	
	Degrees Minutes Seconds	Degrees Minutes Seconds		Degrees Minutes Seconds	Degrees Minutes Seconds	
NW	° ' "	° ' "		45° 51' 03"	84° 37' 06"	
NE	° ' "	° ' "				
SE	° ' "	° ' "				
SW	° ' "	° ' "				

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: approximately one acre

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE

11. FORM PREPARED BY

NAME AND TITLE:
Miss Donna L. Stiffler, Assistant Historian

ORGANIZATION: Michigan Historical Commission DATE: Nov. 30, 1970

STREET AND NUMBER:
3405 N. Logan

CITY OR TOWN: Lansing STATE: Michigan CODE: 26

12. STATE LIAISON OFFICER CERTIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National ☐ State ☐ Local ☒

Name: R. A. MacMillan
Director
Title: Dept. of Natural Resources

Date: 2/25/71

NATIONAL REGISTER VERIFICATION

I hereby certify that this property is included in the National Register.

Ernest A. Connolly
Chief, Office of Archeology and Historic Preservation

Date: MAY 6 1971

ATTEST:

William M. H. [Signature]
Keeper of The National Register

Date: APR 29 1971

SEE INSTRUCTIONS

17M PCT m
34-77

**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Continuation Sheet)

STATE	
Michigan	
COUNTY	
Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE
71.5.26.0027	5/6/71

(Number all entries)

8.2 Statement of Significance (continued)

Maintained ownership of the property until they left the island, and then various owners held title to the "Geary Homestead" until the property was acquired by the Mackinac Island State Park Commission in August of 1968. The property then became part of the massive Mackinac Island restoration program, and plans are in progress for the addition of the historic Geary House to the growing number of meaningful restorations that grace the island, silent witnesses to the history of Mackinac Island and the Old Northwest.

9. Major Bibliographical References

Abstract of Title to South Half of Lot 282, Island of Mackinac, Mackinac County, Michigan. Copy in files of Michigan Historical Commission.

Mackinac Island Town Records, 1816-1861. Microfilm in Michigan State Archives.

Supervisor's Journal, Michilimackinac, 1821-1858. Microfilm in Michigan State Archives.

Election Returns for Delegate to Congress from Michigan Territory for Mackinac County, 1829-. Microfilm in Michigan State Archives.



**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Type all entries - complete applicable sections)

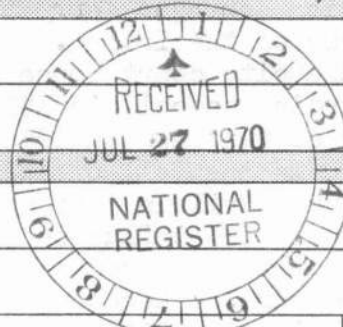
STATE: Michigan

COUNTY: Mackinac

FOR NPS USE ONLY

ENTRY NUMBER: 71.1.26.0002

DATE: 1/25/71



1. NAME

COMMON:
Mission Church

AND/OR HISTORIC:
Mission Church

2. LOCATION

STREET AND NUMBER:
Huron Street

CITY OR TOWN:
City of Mackinac Island

STATE: Michigan

CODE: 26

COUNTY: Mackinac

CODE: 097

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO THE PUBLIC
<input type="checkbox"/> District <input type="checkbox"/> Site <input type="checkbox"/> Object	<input checked="" type="checkbox"/> Building <input type="checkbox"/> Structure <input type="checkbox"/> Public Acquisition: <input type="checkbox"/> In Process <input type="checkbox"/> Being Considered	<input type="checkbox"/> Occupied <input checked="" type="checkbox"/> Unoccupied <input type="checkbox"/> Preservation work in progress	Yes: <input checked="" type="checkbox"/> Restricted <input type="checkbox"/> Unrestricted <input type="checkbox"/> No

PRESENT USE (Check One or More as Appropriate)

<input type="checkbox"/> Agricultural	<input type="checkbox"/> Government	<input type="checkbox"/> Park	<input type="checkbox"/> Transportation	<input type="checkbox"/> Comments
<input type="checkbox"/> Commercial	<input type="checkbox"/> Industrial	<input type="checkbox"/> Private Residence	<input type="checkbox"/> Other (Specify)	
<input type="checkbox"/> Educational	<input type="checkbox"/> Military	<input checked="" type="checkbox"/> Religious		
<input type="checkbox"/> Entertainment	<input type="checkbox"/> Museum	<input type="checkbox"/> Scientific		

4. OWNER OF PROPERTY

OWNER'S NAME:
Mackinac Island State Park Commission

STREET AND NUMBER:
Stevens T. Mason Building

CITY OR TOWN:
Lansing

STATE: Michigan

CODE: 26

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.:
Mackinac County Court House

STREET AND NUMBER:

CITY OR TOWN:
St. Ignace

STATE: Michigan

CODE: 26

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY:
Michigan Historical Commission Registered Historic Building No. 3

DATE OF SURVEY: 7-19-56

DEPOSITORY FOR SURVEY RECORDS:
Michigan Historical Commission

STREET AND NUMBER:
505 N. Washington Avenue

CITY OR TOWN:
Lansing

STATE: Michigan

CODE: 26

SEE INSTRUCTIONS

STATE: Michigan

COUNTY: Mackinac

ENTRY NUMBER: 71.1.26.0002

DATE: 1/25/71

FOR NPS USE ONLY

7. DESCRIPTION

CONDITION	(Check One)					
	<input checked="" type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
	(Check One)			(Check One)		
	<input type="checkbox"/> Altered	<input checked="" type="checkbox"/> Unaltered	<input type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site		

DESCRIBE THE PRESENT AND ORIGINAL (if known) PHYSICAL APPEARANCE

The Mission Church at Mackinac Island was established by Reverend William Montague Ferry in February of 1823 during his inspection visit and survey of the island. During the early years of the church the members met in the city court house and later, with the completion of the Mission House (boarding school) in 1825, moved their services to an upper room in the east wing of this new building.

In the fall of 1829, following a year of religious interest and fervor, a church building was begun, funded by the villagers and traders of Mackinac Island. The influence of the American Fur Company was felt in the large gift of two hundred and fifty dollars donated by John Jacob Astor. Martin Heydenburk, a teacher from the Mission School, was relieved from his instructional duties to erect the church. In three weeks time timber had been hewed, with fifty pieces flattened to be made into joists and scantling. Three hundred logs were hauled to the shore and later moved to Michael Dousman's sawmill.

During the next season the frame was erected, and the building was enclosed before the winter. The steeple was completed and the building dedicated by March of 1830.

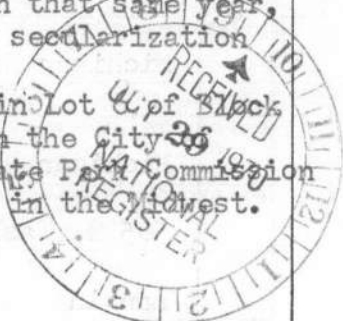
The building was patterned after Colonial New England churches. Built entirely of wood, it rests upon a foundation of plastered stone. The exterior walls are whitewashed with the shutters at all windows painted green. The church roof is covered with wood shingles and topped by a belfry and steeple rising over eighteen feet. The belfry has louvered openings and is octagonal in shape and is now covered with aluminum roofing. The finial of the steeple is topped by a weathervane.

A short flight of steps leads to the double doors of the entryway. The small vestibule opens onto the first floor with stairs on the east side leading to the gallery. The first floor of the church contains three rows of box pews, many of which are original, built of pine boards painted white. There are aisles on either side of the center row. Several rows of pews are located in the front of the church, facing the pulpit on either side. The pulpit desk is the original placed in the building in the 1830s. Built of wood, the pulpit is of a bay shape and may be entered by a half-door on the west side. The top board and the slanting-rest for the Bible were added to the pulpit in 1894. During the 1830s the windows behind the desk were curtained with crimson moreen by the ladies of the church. A new organ was placed in the building in 1900, and the old organ was donated to the new Episcopal Church. In the same year a framed portrait of the founder, William M. Ferry, was hung in the vestibule.

The gallery is supported by heavy timbers, and covers approximately one-third of the space occupied by the first story. It was completely resealed in 1894. The pulpit platform was also installed in that same year, replacing the stage that had been constructed following the secularization of the church in the mid-nineteenth century.

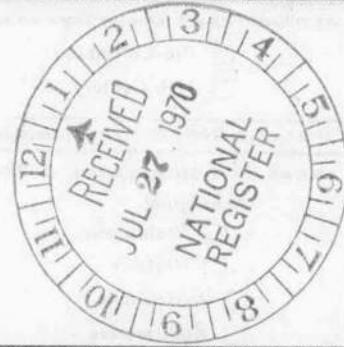
The church is located on Huron Street, facing north, in Lot 4 of Block 4 of C. R. Miller's Subdivision of the Mission House lots in the City of Mackinac Island. It was acquired by the Mackinac Island State Park Commission in 1955 and is one of the oldest surviving church buildings in the Midwest.

SEE INSTRUCTIONS



9. MAJOR BIBLIOGRAPHICAL REFERENCES

See Continuation Sheet.



10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY			OR	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES		
CORNER	LATITUDE Degrees Minutes Seconds	LONGITUDE Degrees Minutes Seconds		LATITUDE Degrees Minutes Seconds	LONGITUDE Degrees Minutes Seconds	
NW	° ' "	° ' "		45° 51' 0"	84° 36' 25"	
NE	° ' "	° ' "				
SE	° ' "	° ' "				
SW	° ' "	° ' "				

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: Less than an acre

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE

11. FORM PREPARED BY

NAME AND TITLE: Donna L. Stiffler, Assistant Historian		
ORGANIZATION Michigan Historical Commission	DATE May 28, 1970	
STREET AND NUMBER: 505 N. Washington		
CITY OR TOWN: Lansing	STATE Michigan	CODE 26

12. STATE LIAISON OFFICER CERTIFICATION

NATIONAL REGISTER VERIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National ☒ State ☐ Local ☐

Name Ralph C. MacMullen

Director,
Title Dept. of Natural Resources

Date 7/22/70

I hereby certify that this property is included in the National Register.

Ernest A. Connolly
Chief, Office of Archeology and Historic Preservation
JAN 25 1971

Date _____

ATTEST:

William J. Hunt
Keeper of The National Register
DEC 1 1970

Date _____

SEE INSTRUCTIONS

UTM 22T 44
323-71

16/685650/5079940

8. SIGNIFICANCE

PERIOD (Check One or More as Appropriate)

- | | | | |
|--|---------------------------------------|--|---------------------------------------|
| <input type="checkbox"/> Pre-Columbian | <input type="checkbox"/> 16th Century | <input type="checkbox"/> 18th Century | <input type="checkbox"/> 20th Century |
| <input type="checkbox"/> 15th Century | <input type="checkbox"/> 17th Century | <input checked="" type="checkbox"/> 19th Century | |

SPECIFIC DATE(S) (If Applicable and Known)

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

- | | | | |
|---|---------------------------------------|---|--|
| <input type="checkbox"/> Aboriginal | <input type="checkbox"/> Education | <input type="checkbox"/> Political | <input type="checkbox"/> Urban Planning |
| <input type="checkbox"/> Prehistoric | <input type="checkbox"/> Engineering | <input checked="" type="checkbox"/> Religion/Phi- | <input type="checkbox"/> Other (Specify) |
| <input type="checkbox"/> Historic | <input type="checkbox"/> Industry | losophy | |
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Invention | <input type="checkbox"/> Science | |
| <input type="checkbox"/> Architecture | <input type="checkbox"/> Landscape | <input type="checkbox"/> Sculpture | |
| <input type="checkbox"/> Art | <input type="checkbox"/> Architecture | <input type="checkbox"/> Social/Human- | |
| <input type="checkbox"/> Commerce | <input type="checkbox"/> Literature | itarian | |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Military | <input type="checkbox"/> Theater | |
| <input type="checkbox"/> Conservation | <input type="checkbox"/> Music | <input type="checkbox"/> Transportation | |

STATEMENT OF SIGNIFICANCE

Mackinac Island had become second only to Detroit in importance as a center for trade and military operations in the Michigan Territory by the 1820s. Fort Mackinac was one of the five major posts established in the Northwest to protect the frontier. Below the fort on the hill, the village of Mackinac Island bustled every year with Indians and traders who gathered periodically to barter and exchange, the Indians many times moving on to Drummond Island to receive annual gifts from the British. Militarily and economically Mackinac reached its pinnacle of importance during these early years of the nineteenth century.

Established in 1797 and later absorbed by the United Foreign Missionary Society, the Northern Missionary Society turned its attention to Mackinac Island in 1822. Primarily untouched by Protestant mission work, Mackinac had been visited in 1802 by Reverend David Bacon of the Connecticut Missionary Society, and in 1820 by Reverend Dr. Jedidiah Morse who preached one Sabbath. It was Morse who informed the Society of the needs of Mackinac Island. In 1820 Morse, a Congregational minister and renowned geographer, visited Mackinac in connection with a government-sponsored tour to determine the condition of the American Indians. Morse was convinced that the Indian had to be civilized and educated. This could be best accomplished, he believed, by establishing "education families" at military posts. These mission posts would receive protection from the fort and would, in turn, exert a moral and religious influence upon the men at the fort and the native Indians.

In 1822 a graduate of Union College and Rutgers College, Reverend William Montague Ferry, was sent to Mackinac Island by the Northern Missionary Society for observation and survey of the situation. After his tour Ferry was determined to establish a mission on the island. Traveling to the east, he married Amanda White on July 8, 1823, and returned to Mackinac under the auspices of the United Foreign Missionary Society in October.

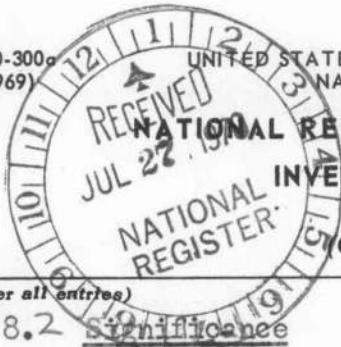
The Indians of the Great Lakes had greatly suffered from the War of 1812 and were in need of help from some quarter. Ferry's intention was to establish a large boarding school where the Indian children could receive the physical and spiritual benefits of civilization and Christianity.

The school was established rapidly, with twelve pupils the first year. Half-day scholars from the island joined the school the second year, and for many years thereafter the enrollment averaged one hundred and fifty.

(cont.)

SEE INSTRUCTIONS





NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 71.1.26.0002	DATE 1/25/71

(Number all entries)

8.2 Significance (cont.)

The Mission House was built in 1825 and included the boardingschool, living quarters for the mission family, and rooms for divine services. During Ferry's first weeks on the island a congregation, Presbyterian in form, had been organized and grew slowly over the years.

During the years 1828-1829 a religious awakening swept the island. The intensity of Christian spirit added thirty-three members to the church, including Robert Stuart, the American Fur Company's resident partner and manager. Stuart became an influential elder in the church and served in this capacity for many years, as did Henry R. Schoolcraft, the governmental Indian agent.

An outgrowth of this religious upheaval was the desire for a house of worship. Consequently, in 1829 a building was begun by Martin Heydenburk, a teacher and carpenter at the Mission House. The Mission Church was dedicated in March of 1830, funded by the traders and villagers of Mackinac Island. It was a church of the people. Traders, soldiers, Indians, and their women filled the pews each Sunday. The children from the mission filed in together and sat with the teachers and their families. The congregation usually averaged two hundred to two hundred and fifty people.

Reverend Ferry now became the resident minister of the Mission Church as well as superintendent of the Mission School. In his annual reports and numerous letters to the American Board of Commissioners for Foreign Missions, Ferry gave detailed accounts of religious conversions and the problems associated with church life. He was particularly concerned about the Catholic influence in the area and many times lambasted the doctrines and practices of the Roman church.

The Mackinac Mission became more and more expensive as time progressed. Ferry's religious and secular responsibilities increased as the church grew, and in the 1830s the Mission School had to be gradually cut down. With the withdrawal of the American Fur Company in 1834 the population of the island began to decrease, and the Mission Church began to decline in membership. Ferry, convinced that the Mission School had failed in its goals, left the island in 1834, and the mission was formally closed in 1837.

The church organization did not long survive. Without a successor to Reverend Ferry various laymen were forced to fill the pulpit, among whom was Henry R. Schoolcraft. Church life gradually ceased. The building stood primarily unused until the late nineteenth century when it was used by the Catholics for services until their own house of worship was built. Later the townspeople used the building for local public assemblies.

In August of 1891 a movement was begun on Mackinac Island to erect a union chapel, embracing all faiths, to be used primarily during the summer season. Financial difficulties arose and the project was dropped until

(cont.)



UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES

JUL 27 1980 INVENTORY - NOMINATION FORM

NATIONAL REGISTER
(Continuation Sheet)

STATE

Michigan

COUNTY

Mackinac

FOR NPS USE ONLY

ENTRY NUMBER

DATE

71.1.26.0002

1/25/80

(Number all entries)

8. Significance (cont.)

1894, when the proposal was made to utilize the existing Mission Church for this purpose. The property was purchased on August 29, 1894, by a board of trustees made up of island residents and summer cottagers. Services were held each Sunday during the summer months, with visiting ministers of various faiths filling the pulpit.

During the 1930s and 1940s the building was used by the Oxford Group for preparedness lectures, and the services during the summer were consolidated into one annual commemorative meeting held toward the end of the summer season. In 1954 the trustees offered the church property to the State of Michigan for preservation as a structure of historic significance.

The legislature in 1955 enacted Senate Bill No. 1151 which authorized the Mackinac Island State Park Commission to purchase, for the sum of one dollar, the Old Mission Church. The property was to be maintained "as an historic shrine by the Mackinac Island State Park Commission and shall be open to the public." Improvements were made at the church, and the building was opened to the public during the 1956 season.

Commemorative services are held each year by the Mackinac Island Historical Society, and the church is open to the public every day during the tourist season. Over one hundred and forty years old, the Church continues to function as a place of worship and fellowship. One of the oldest surviving church buildings in the Midwest, the Old Mission Church remains as a symbol of religious activity and influence.

9. Bibliography

Ledgers of Mission Church, in the Records of the Mackinac Island State Park Commission, Michigan State Archives, Lansing.

Minutes of the Mackinac Island State Park Commission, Michigan State Archives, Lansing.

Historical American Buildings Survey, report on the Old Mission Church, submitted on June 30, 1937.

Missionary Herald, XXI (1825), 288; XXIII (1827), 10; XXIV (1828), 10, 313; XXV (1829), 12, 189, 215; XXVI (1830), 13, 387; XXXI (1835), 28; XXXIII (1837), 26.

Williams, Meade Creighton. The Old Mission Church of Mackinac Island. Detroit: Press of Wilton-Smith Co., 1895.

Wood, Edwin O. Historic Mackinac. Vol. I. New York: Macmillan Co., 1918.

Annual Reports of the American Board of Commissioners for Foreign Missions. Boston: Crocker and Brewster, 1838.

**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Type all entries - complete applicable sections)

STATE: Michigan	
COUNTY: Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 71-4,261,0024	DATE 4/16/71

1. NAME	
COMMON: Mission House	
AND/OR HISTORIC: Mission House	

2. LOCATION			
STREET AND NUMBER: Huron Street (on the campus of Mackinac College)			
CITY OR TOWN: City of Mackinac Island			
STATE Michigan	CODE 26	COUNTY: Mackinac	CODE 097

3. CLASSIFICATION				
CATEGORY (Check One)	OWNERSHIP		STATUS	ACCESSIBLE TO THE PUBLIC
<input type="checkbox"/> District <input type="checkbox"/> Site <input type="checkbox"/> Object	<input checked="" type="checkbox"/> Building <input type="checkbox"/> Structure <input type="checkbox"/> Private <input type="checkbox"/> Both		<input type="checkbox"/> Occupied <input checked="" type="checkbox"/> Unoccupied <input type="checkbox"/> Preservation work in progress	Yes: <input type="checkbox"/> Restricted <input type="checkbox"/> Unrestricted <input checked="" type="checkbox"/> No
PRESENT USE (Check One or More as Appropriate)				
<input type="checkbox"/> Agricultural <input type="checkbox"/> Commercial <input type="checkbox"/> Educational <input type="checkbox"/> Entertainment	<input type="checkbox"/> Government <input type="checkbox"/> Industrial <input type="checkbox"/> Military <input type="checkbox"/> Museum	<input checked="" type="checkbox"/> Park <input type="checkbox"/> Private Residence <input type="checkbox"/> Religious <input type="checkbox"/> Scientific	<input type="checkbox"/> Transportation <input checked="" type="checkbox"/> Other (Specify)	<input type="checkbox"/> Comments
now unoccupied				

4. OWNER OF PROPERTY			
OWNER'S NAME: Mackinac College			
STREET AND NUMBER:			
CITY OR TOWN: City of Mackinac Island	STATE: Michigan	CODE 26	

5. LOCATION OF LEGAL DESCRIPTION			
COURTHOUSE, REGISTRY OF DEEDS, ETC: Mackinac County Court House			
STREET AND NUMBER:			
CITY OR TOWN: St. Ignace	STATE: Michigan	CODE 26	

6. REPRESENTATION IN EXISTING SURVEYS			
TITLE OF SURVEY: Michigan Historical Commission Registered State Site No. 313			
DATE OF SURVEY: 11/6/70 <input type="checkbox"/> Federal <input checked="" type="checkbox"/> State <input type="checkbox"/> County <input type="checkbox"/> Local			
DEPOSITORY FOR SURVEY RECORDS: Michigan Historical Commission			
STREET AND NUMBER: 3405 North Logan			
CITY OR TOWN: Lansing	STATE: Michigan	CODE 26	



STATE: Michigan	COUNTY: Mackinac	ENTRY NUMBER 71-4,261,0024	DATE 4/16/71
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FOR NPS USE ONLY

SEES INSTRUCTIONS

4-11-74

PH0027421

7. DESCRIPTION

CONDITION	(Check One)					
	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
	(Check One)			(Check One)		
	<input checked="" type="checkbox"/> Altered	<input type="checkbox"/> Unaltered	<input type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site		

DESCRIBE THE PRESENT AND ORIGINAL (If known) PHYSICAL APPEARANCE

In 1823 Reverend William Montague Ferry and his wife, Amanda, came to Mackinac Island under the auspices of the American Board of Commissioners for Foreign Missions. The Ferrys, utilizing village and fort buildings for schoolrooms and places of worship, began their work. The Board purchased property from Daniel Bourassa and his wife, Margaret, and plans were laid for extensive mission work at Mackinac.

By 1825 the mission had grown and needed larger quarters. A Detroit firm was commissioned to erect a structure that would serve as an all-purpose mission building. Construction was begun in the same year, but the Detroit firm left the building uncompleted. Martin Heydenburk, a teacher and carpenter at the mission school, was relieved from his teaching duties to complete the half-finished structure. The building was completed by Heydenburk late in 1825.

Built of wood upon a stone foundation, the mission house was of simple, functional design. U-shaped, it was divided into three major sections. The center was mainly used for public purposes: divine worship, large organizational meetings, and other mission assemblages. The two wings were used to house the boarding students and the mission family. Scattered throughout the building were classrooms and workshops. A broad expanse of lawn and brush led to the lakeshore.

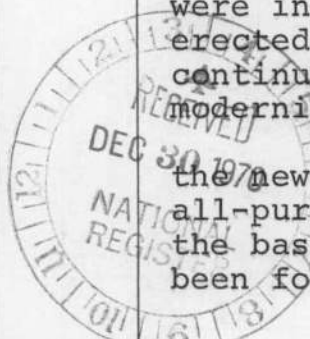
The mission at Mackinac remained in operation until 1837 when it was officially closed. At this time the mission families left the island, and the property was sold. The Mission House was bought by Edward A. Franks in 1845 and was remodeled by Franks for use as a hotel. A third story had been added to the building during the later years of the mission work. Franks used this floor and the rooms in both wings as hotel suites, leaving the basement for a large kitchen area and the center lower floors for the main public areas. The Mission House became one of the most popular hotels on the island during the latter nineteenth century. The hotel remained in the Franks family for approximately the next one hundred years.

When the Moral Rearmament Movement located on Mackinac Island, the Mission House, along with several other hotels on the island, was used for temporary housing and instructional quarters. As the movement grew more buildings on the island were incorporated into the MRA complex and new buildings were erected to fill the needs of the group. The Mission House continued to be used as a hotel, with some remodeling and modernizing.

During the middle 1960s the Mission House was sold to the newly-established Mackinac College to be used as an all-purpose student union. The interior was somewhat remodeled, the basic structure remaining essentially the same as it had been for the past one hundred years. With huge financial

(cont.)

SEE INSTRUCTIONS



**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Continuation Sheet)

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(Number all entries)

7.2 Description (cont'd)

problems ahead, Mackinac College was forced to close in 1969, and all college property was put up for sale. The Mission House, deteriorating and neglected, is slowly being destroyed by time, the elements, and human neglect.

9. Major Bibliographical References (cont'd)

Straits of Mackinac: Crossroads of the Great Lakes. Grand Rapids: Wm. B. Eerdmans Publishing Company, 1957



9. MAJOR BIBLIOGRAPHICAL REFERENCES

Missionary Herald, XXI (1825), 288. XXIII (1827), 10; XXIV (1828), 10, 313; XXV (1829), 12, 189, 215; XXVI (1830), 13, 387; XXXI (1835), 28; XXXIII (1837), 26.

Wood, Edwin O. Historic Mackinac. Vol I. New York: Macmillan Co., 1918.

Annual Reports of the American Board of Commissioners for Foreign Missions. Crocker & Brewster, 1838.

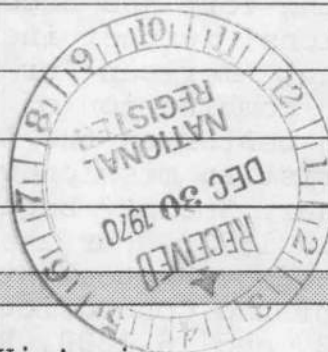
10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY			OR	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES		
CORNER	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE	
	Degrees Minutes Seconds	Degrees Minutes Seconds		Degrees Minutes Seconds	Degrees Minutes Seconds	
NW	0 0 0	0 0 0		42 0 51	81 0 36	
NE	0 0 0	0 0 0		03 0 28	28 0 00	
SE	0 0 0	0 0 0				
SW	0 0 0	0 0 0				

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: approx. one acre

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE



11. FORM PREPARED BY

NAME AND TITLE: Miss Donna L. Stiffler, Assistant Historian		
ORGANIZATION Michigan Historical Commission	DATE 10-1-70	
STREET AND NUMBER: 3405 N. Logan		
CITY OR TOWN: Lansing	STATE Michigan	CODE 26

12. STATE LIAISON OFFICER CERTIFICATION

NATIONAL REGISTER VERIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National ☐ State ☒ Local ☐

Name R.A. MacMullan
Title Director
Dept. of Natural Resources

Date 12/22/70

I hereby certify that this property is included in the National Register.

Ernest A. Connolly
Chief, Office of Archeology and Historic Preservation
APR 16 1971

Date _____

ATTEST:

William J. Hunt
Keeper of The National Register
MAR 22 1971

Date _____

SEE INSTRUCTIONS

16/68570/508020

UTM Ref no
3-23-71

8. SIGNIFICANCE

PERIOD (Check One or More as Appropriate)

- ☐ Pre-Columbian ☐ 16th Century ☐ 18th Century ☒ 20th Century
☐ 15th Century ☐ 17th Century ☒ 19th Century

SPECIFIC DATE(S) (If Applicable and Known)

1825

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

- | | | | |
|---|---|---|--|
| <input type="checkbox"/> Aboriginal | <input checked="" type="checkbox"/> Education | <input type="checkbox"/> Political | <input type="checkbox"/> Urban Planning |
| <input type="checkbox"/> Prehistoric | <input type="checkbox"/> Engineering | <input checked="" type="checkbox"/> Religion/Phi- | <input type="checkbox"/> Other (Specify) |
| <input type="checkbox"/> Historic | <input type="checkbox"/> Industry | losophy | |
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Invention | <input type="checkbox"/> Science | |
| <input type="checkbox"/> Architecture | <input type="checkbox"/> Landscape | <input type="checkbox"/> Sculpture | |
| <input type="checkbox"/> Art | <input type="checkbox"/> Architecture | <input checked="" type="checkbox"/> Social/Human- | |
| <input type="checkbox"/> Commerce | <input type="checkbox"/> Literature | itarian | |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Military | <input type="checkbox"/> Theater | |
| <input type="checkbox"/> Conservation | <input type="checkbox"/> Music | <input type="checkbox"/> Transportation | |

STATEMENT OF SIGNIFICANCE

The island of Mackinac, by the 1820s had become a major military and economic center. One of five posts built to protect the expanding frontier, Fort Mackinac commanded the Straits of Mackinac and held strategic military control over much of the Old Northwest. The village clustered below the fort had become the focus of large trading operations, further increased by the introduction of an important American Fur Company trading post.

The combination of a military installation and a fur trading center on the island made Mackinac a logical area for Christian mission work. Established in 1797, the Northern Missionary Society became interested in the Mackinac situation early in 1822. For the most part Mackinac Island had been untouched by Protestant mission work. Reverend David Bacon of the Connecticut Missionary Society had visited in 1802, and in 1820, Reverend Dr. Jedidiah Morse preached on Sabbath. Morse, a Congregational minister and renowned geographer, was convinced that the Indian had to be civilized and educated. In his view, this could be best accomplished by establishing "education families" at military posts. Protection would thereby be received from the forts for the mission posts. The mission posts would, in turn, exert a religious and moral influence upon the garrisons at the various forts and upon the native Indians.

In 1822 Reverend William Montague Ferry was sent to the island by the Northern Missionary Society, which was later absorbed by the United Foreign Missionary Society. A graduate of Union College and Rutgers College, Ferry became determined after his tour to establish a mission on the island. He returned to the east and married Amanda White on July 8, 1823.

Ferry returned to Mackinac Island in October of 1823 under the auspices of the United Foreign Missionary Society. Three years later this Society merged with the American Board of Commissioners for Foreign Missions, which then took the mission at Mackinac under its control. The board represented the Reformed Dutch, the Presbyterian, and the Congregationalist denominations.

The War of 1812 and its results had caused great suffering

SEE INSTRUCTIONS

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8.2 Significance (cont) (Continuation Sheet)

(Number all entries)

among the Indians of the Great Lakes. The United States Government had given little aid, and help was needed from some quarter. Ferry's stated intention in establishing a mission at Mackinac was to build a boarding school where the Indian children could experience the benefits of civilization and Christianity. With this solid beginning, Ferry believed, these children could advance the level of their existence and that of their people.

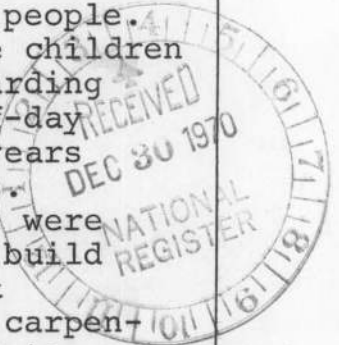
One week following the arrival of the Ferrys, twelve children were enrolled in the school. By 1829 the number of boarding students had increased to 104. In the second year half-day scholars from the island joined the school. For many years thereafter the school averaged in attendance 150 pupils.

With the rapid growth of the mission larger quarters were needed. A firm from Detroit was contracted in 1825 to build a new structure. The framework was erected and enclosed but was left unfinished. Martin Heydenburk, a teacher and carpenter at the school, was relieved from his regular duties to finish the building. By late 1825 the Mission House, as it was called, was completed and ready for occupation. The building consisted of rooms for the boarding school, living quarters for the mission family, and rooms for divine services.

The program at the school included reading, geography, ancient and modern history, writing and arithmetic. The girls also helped with the sewing, cooking, and other household tasks. The boys worked in the garden, the shoemaker shop, the blacksmith shop, and on the farm. Examinations were given orally each year in July.

The growth of the mission school was coincidental with the growth of the mission church. In Ferry's first weeks on the island a church had been organized. A building was erected in 1829 and was dedicated in March of 1830. The church, like the mission school, was a mixture of peoples. Many of the traders who sent their children to the mission school worshipped in the mission church, seated beside soldiers, villagers, pupils, teachers, and Indians. Few full-blooded Indians were enrolled in the school. Many tribes were represented, such as Ottawa, Chippewa, and Pottawatomi, by the school children who were either one-half or one-quarter Indian. These children, along with white pupils, filed into church every Sabbath and joined their elders in worship.

Ferry's duties doubled as the church, and the mission grew in size. The mission at Mackinac was becoming more and more expensive to maintain. By the mid-1830s, with pressure from the board, enrollment at the school was cut back. During this same period Mackinac's position as an economic and military center was beginning to change. The withdrawal of the American Fur Company brought a severe decline in trade and the beginnings of a population decrease. The Indians were



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8.3 Significance (continued) (Continuation Sheet)

(Number all entries)

retreating further into the interior, ceding most of their lands to the United States in a series of treaties. Ferry, discouraged and disillusioned, left the island in 1834, convinced that the Mackinac mission had been a major failure.

The mission at Mackinac was officially closed in 1837. In the report of 1837 the board listed several reasons for the discontinuance of the mission, the main reason cited being the gradual disappearance of the Indian tribes from the surrounding area. The mission families withdrew, several of the members going on to other fields of missionary endeavor. The boarding pupils were returned to their homes or placed in other situations. Most of the property was immediately sold.

The Mission House was bought by Edward A. Franks in 1845 and was remodeled to serve as a summer hotel. The hotel remained in the Franks family for nearly one hundred years. Mackinac Island became a popular summer resort area during the latter half of the nineteenth century. Over thirty hotels were located on the island, the Mission House being one of the most popular.

During the 1940s Mackinac Island became the focus of activity for the Oxford Groups, or the Moral Rearmament Movement. The movement had begun under the leadership of Dr. Frank Buchman whose group founded its work on the concept of moral and spiritual rearmament for all nations and peoples. In 1942 the Oxford Group was invited to Mackinac Island by Governor Murray D. Van Wagoner. Several hotels were used by the group, including the Mission House.

As the movement grew, buildings were purchased and erected. The Mission House became part of the MRA complex and was used to house the members who attended the international assemblies.

In 1966 the Oxford Group left the island and sold much of the property to the newly-established Mackinac College. The Mission House was used for various purposes, mostly as a center for extra curricular activities. At the end of the 1969 school year Mackinac College faced severe financial difficulties, and the school was forced to close its doors. The Mission House property is, at this moment, once again up for sale.



NATIONAL HISTORIC LANDMARK NOMINATION

USDI/NPS NRHP Registration Form (Rev. 8-86)

MACKINAC ISLAND

United States Department of the Interior, National Park Service

National Register of Historic Places Registration Form

Page 1

1. NAME OF PROPERTYHistoric Name: **MACKINAC ISLAND**

Other Name/Site Number:

2. LOCATION

Street & Number: Straits of Mackinac, northeast of Mackinaw City, Michigan

Not for publication:

City/Town: City of Mackinac Island

Vicinity:

State: Michigan

County: Mackinac

Code: 97

Zip Code: 49757

3. CLASSIFICATION

Ownership of Property

Private: X
Public-Local: X
Public-State: X
Public-Federal: X

Category of Property

Building(s):
District: X
Site:
Structure:
Object:

Number of Resources within Property

Contributing

395
28
14
8
445

Noncontributing

395 buildings
5 sites
32 structures
 objects
432 Total

Number of Contributing Resources Previously Listed in the National Register: 59

Name of Related Multiple Property Listing:

Designated a
NATIONAL HISTORIC LANDMARK on

OCT 09, 1960

by the Secretary of the Interior

MACKINAC ISLAND

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4. STATE/FEDERAL AGENCY CERTIFICATION

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ____ nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ____ meets ____ does not meet the National Register Criteria.

Signature of Certifying Official_____
Date_____
State or Federal Agency and Bureau

In my opinion, the property ____ meets ____ does not meet the National Register criteria.

Signature of Commenting or Other Official_____
Date_____
State or Federal Agency and Bureau**5. NATIONAL PARK SERVICE CERTIFICATION**

I hereby certify that this property is:

- ____ Entered in the National Register
- ____ Determined eligible for the National Register
- ____ Determined not eligible for the National Register
- ____ Removed from the National Register
- ____ Other (explain):

Signature of Keeper_____
Date of Action

MACKINAC ISLAND

United States Department of the Interior, National Park Service

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6. FUNCTION OR USE

Historic:	DEFENSE RECREATION AND CULTURE LANDSCAPE DOMESTIC COMMERCE/TRADE	Sub: fortification outdoor recreation park single dwelling hotel specialty store
Current:	RECREATION AND CULTURE LANDSCAPE DOMESTIC COMMERCE/TRADE	Sub: outdoor recreation park single dwelling hotel specialty store restaurant

7. DESCRIPTION

ARCHITECTURAL CLASSIFICATION: Queen Anne
Other: Carpenter Gothic
Shingle Style
Classical Revival
Modern Movement
Other: Rustic
Colonial Revival
French Colonial
Federal

MATERIALS:

Foundation: stone, concrete
Walls: wood, stone
Roof: asphalt, wood
Other:

MACKINAC ISLAND

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National Register of Historic Places Registration Form

Describe Present and Historic Physical Appearance.

This nomination is an amendment to the existing Mackinac Island National Historic Landmark, designated in 1960 as "a location of outstanding significance in the history of the Old Northwest and the advance of the American frontier prior to 1830." The original nomination recognized Fort Mackinac and other properties related to the island's role as a military outpost and fur trade depot in the late eighteenth and early nineteenth centuries. This amendment expands the designation to recognize the entire island, the second national park in the United States, and one of the country's premier tourist destinations since the mid-nineteenth century.

Mackinac Island is located in the Straits of Mackinac, where Lake Huron meets Lake Michigan and Michigan's Upper and Lower Peninsulas are in closest proximity. The island is about three miles east of the southeastern tip of the Upper Peninsula. Just over 8 miles in circumference and about 3 ½ square miles in area, Mackinac Island is neither the largest nor smallest island in the straits, but its dramatic height sets it apart. The National Historic Landmark district includes all of the island plus Haldimand Bay, the island's natural harbor at the south end. The district extends into the straits as far as the tips of the two breakwalls that protrude from Haldimand Bay. The bay and this section of the straits are part of the Straits of Mackinac Great Lakes State Bottomland Preserve. A small, unidentified shipwreck (20UH123) is within the boundaries. The entire district is within the jurisdiction of the city of Mackinac Island, whose municipal boundaries extend one mile from the shoreline. Approximately 80 percent of the island is under the jurisdiction of Mackinac Island State Park.

Mackinac Island began to appear when the last glaciers receded from the region about fifteen thousand years ago. The island's cliffs and rock formations were formed by the erosive action of the ancient Great Lakes on the resistant limestone bedrock. As the lake waters receded and the land rebounded from the weight of the glaciers, Mackinac Island rose to its present height, with its highest point at Fort Holmes approximately 320 feet above lake level. About 75 percent of the island is wooded. With its tree-lined roads and pathways, striking limestone formations, and dramatic views from the bluffs, Mackinac Island retains the scenic beauty that brought it fame.

A network of roads and trails criss-cross Mackinac Island. Because automobiles were banned from the village in 1898, and from the park in 1901, transit is generally by foot, horse, and bicycle. (Emergency vehicles, park maintenance equipment, residents' snowmobiles, and golf carts are granted temporary permits to operate for certain purposes.) The major roads to the interior of the island were in place by the early 1800s, most likely to provide access to farms. These include Garrison Road, Cadotte Avenue, Hoban Road, Annex Road, Scott's Road, British Landing Road, and parts of Huron Road. In the late nineteenth century additional roads and trails were constructed for the national and state parks, notably Leslie Avenue from Arch Rock to British Landing Road in 1889 and Lake Shore Road along the shoreline, started in 1896. (Mackinac National Park was established in 1875 and was transferred to the state in 1895.) Nearly all of the current roads and trails were in place by World War II.

The densest settlement on Mackinac Island is in the town on the south shore, curving around Haldimand Bay to Mission Point on the east. Fort Mackinac sits prominently on a bluff above the village. East of the fort, cottages on the East Bluff are clearly visible from the harbor. They are balanced by Grand Hotel and West Bluff cottages that dominate the view from the southwest. Recent residential

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development concentrated in Harrisonville and in the Woods Golf Course vicinity is mostly screened by trees.

Haldimand Bay has historically been the primary access point for Mackinac Island. Two rock breakwalls built in 1913 extend into the straits to protect the bay on each side. Five boat docks and a marina within the bay serve three commercial ferry boat lines and private boat traffic. The two longest docks, the Arnold dock and the nearby coal dock, date to the late nineteenth century and retain large frame warehouses that portray the utilitarian aspect of the waterfront's history. Historical and archaeological evidence suggests that the island's inhabitants have always clustered near Haldimand Bay. Patrick Sinclair's 1779 sketch of the island shows Indian huts on the west shore of the bay. An intact Native American camp (20MK169) from the Late Woodland period (AD 800-1000) was discovered in Marquette Park, with stone tools, pottery, and animal bones. Prehistoric burials were found at this site and at a second site in the vicinity (20MK172). Behind The Island House, remnants of a Middle to Late Woodland period camp (20MK357; 100 BC-1650 AD), though disturbed, provide additional evidence of Native American activity in the village area.

The village today curves around the shore of Haldimand Bay, divided into two halves by Marquette Park but connected by Huron Street, which follows the shore from one end of the village to the other. Marquette Park was created in 1905 on the site of the former soldiers' garden below the fort. A statue of Father Marquette was added in 1909 and the Daughters of the American Revolution (DAR) placed a monument in the park in 1931. The park was re-designed in the 1960s. The western half of the village retains the street plan laid out by the British around 1780. Market Street served as the town's main street. Three short cross streets, today Astor Street, Windsor Street, and French Lane, connected Market Street to Huron Street and the lakeshore. Fort Street separated the east end of town from the government grounds below the fort. This half of the village is the oldest and most densely developed. Most of the commercial buildings in town are on this section of Huron Street and its intersecting side streets, interspersed with hotels. A small city park was created between Huron and Market Streets in the 1930s. Market Street is a mixture of commercial, residential, and civic uses. The western edge of the village is predominantly residential.

The eastern half of the village was settled sparsely until the mid-nineteenth century. Huron Street is the only east-west thoroughfare on this side of town, with five perpendicular cross streets: Bogan Lane, Church Street, Truscott Street, Mission Street, and Ferry Avenue. This portion of the village is primarily residential, with houses and a few condominiums interspersed with larger boardinghouses and hotels.

With relatively few exceptions, the village on Mackinac Island is constructed of wood. Most of the buildings are of frame construction, but at least eleven are built of logs in the French tradition. Within the village, nearly all of the log buildings have clapboard siding, making them difficult to distinguish from buildings with wooden frames. There is an active history of moving buildings on the island, beginning with the 1780 move across the ice from Fort Michilimackinac on the mainland. The scale of the village's buildings is relatively modest. Homes are generally single family, one to two stories; commercial buildings range from one to three stories; the largest hotels are four stories tall. The town has been fairly densely developed since the nineteenth century, particularly in the business district on Huron Street and in the older residential areas, although more recently some of the remaining open spaces have been filled in. While the Huron Street business district has little green space, flower gardens

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are abundant in other parts of town. Mackinac Island's famous lilacs are much in evidence, especially when they bloom in the spring. Some lilac bushes are documented as well over one hundred years old.

In the early nineteenth century Market Street was the center of town, with mixed commercial and residential use. Today it is a mix of residential, commercial, and civic uses. Of particular note on Market Street are the two surviving buildings of Astor's American Fur Company. The Robert Stuart House, home of the company's resident manager, is a Federal style frame house built in 1817. It is an imposing seven bays on a raised stone basement, with a fanlight and sidelights decorating the front entrance. Next door is the large, L-plan fur company warehouse (1810), with loading doors on two floors and attic level and an overhanging eave for attaching hoists. Following the decline of the fur trade, the two buildings were converted to a hotel and in the late nineteenth century were joined by a long front porch. Both have been restored to their early nineteenth century appearance. The city operates the Stuart House as a museum and uses the warehouse as city offices and a community hall.

In 1839, the Mackinac County Courthouse was constructed on Market Street, a typical front-gabled courthouse with cupola that today houses the police department, jail, and old city council chambers. Another important government building, the Indian Dormitory (1838), was built on the eastern side of town (now Marquette Park), near where Indians camped along the bay. Intended as a residence for visiting Indians, the two story Federal style building was used primarily as the Indian agent's office and payment distribution center. It underwent a number of alterations during the period from 1867 to 1961 when it served as the island's public school. In the 1960s the state park restored the Indian Dormitory to its original appearance. In 1915, the federal government built the Coast Guard Lifesaving Station across Huron Street from Marquette Park. This two story, hipped roof building serves today as the state park's visitor center.

By the mid-nineteenth century, Huron Street had emerged as the island's business district, where it remains concentrated between Fort Street and French Lane. The business district is composed primarily of attached frame buildings one to three stories tall, forming a continuous facade along the sidewalk. A few buildings use concrete or brick veneer; two commercial blocks and the Chippewa Hotel have cast and galvanized iron fronts. Most of the buildings have the typical two part form with storefronts on the first floor and living, office, or storage space above. Many of the storefronts have awnings or covered walks in front. False fronts are common. Most are relatively plain, with decoration limited to a bracketed or dentillated cornice. Bromilion & Bates, dating to the mid-nineteenth century, and Fenton's Bazaar, ca. 1872, are noteworthy examples of the Italianate style. Bromilion & Bates has elaborate Italianate window hoods on the gable end. Although Fenton's Bazaar has lost the tower it had originally, it retains its pedimented pavilion with Palladian window, bracketed cornice, pilasters, and pedimented window hoods. The Huron Street business district retains much of its late nineteenth century fabric. Infill construction and alterations of historic buildings, particularly adding stories, have affected the integrity of the business district but the new buildings generally maintain the scale and proportions of the old. Overall, Huron Street still has the appearance and feeling of a busy turn of the century main street.

At least two houses survive from the establishment of the village in the late eighteenth century. Built ca. 1780, the McGulpin House is a one story log house of pièce-sur-pièce construction with a steeply pitched gable roof in the French Colonial style. In the 1980s, the McGulpin House was moved to Fort Street from its previous location behind Ste. Anne Church and restored to its appearance in the 1820s

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when it received clapboard siding. The Biddle House on Market Street is a similar French Colonial log house, it is of pièce-en-pièce construction as well, however, it also has an 1830s addition. The Biddle House has also been restored to its early nineteenth century appearance; both houses are operated by the state park as museums. The excavation of the Biddle privy (20MK402) provided evidence of the lifestyle of the Biddle household. A few other houses dating from the late eighteenth or early nineteenth century are recognizable by their small size and side-gabled form.

Not far from the Biddle House, on Astor Street, is a French Colonial commercial building (#183) of pièce-en-pièce construction dating from the late eighteenth or early nineteenth century. Possibly a fur trader's warehouse, the building (now a restaurant and bar) is distinctly different from the commercial buildings that survive from later in the nineteenth century. The building might also have been a rowhouse, a French Colonial type represented in the village by two other remnants. The Buisson House (ca. 1820) on Market Street is a double house and there is structural evidence of a third unit. A 1 ½ story log house (#199) on French Lane, now a front-gabled single family house, was earlier a longer building with an entrance on the long side and may have been a rowhouse as well.

The Stuart House is the only fully developed example of a Federal style house on the island. Other houses dating to the 1810s or 1820s were altered in the nineteenth century or later. With the notable exception of the Lafayette Davis House on Huron Street, the Greek Revival style is extant only in occasional details such as a wide band of trim, eaves returns, or transom and sidelights surrounding a doorway. The Lafayette Davis House, a log and frame house built ca. 1830 with a ca. 1847 addition, has a full height classical portico and eared architraves around the doorways.

Most of the homes in town date to the second half of the nineteenth or early twentieth century. The predominant form is front-gabled, sometimes with a wing, almost always with a front porch, usually with little or no decorative detail. Side-gabled and cross-gabled types are found as well and a few examples of the foursquare. The larger, more stylish homes tend to be along the lakeshore on Huron Street and Lake Shore Road. Queen Anne is the most common style, with a half dozen fully developed examples including the Truscott House (ca. 1900) on Market Street and George T. Arnold Cottage (1899) on Huron Street. The Cloghaun House (1884) on Market Street is Colonial Revival style with a modified Palladian window and front door with fanlight and sidelights; a house on Truscott Street (#75; late nineteenth--early twentieth century) is a gambrel roof example of the style. The Patrick Doud House (ca. 1900) on Lake Shore Road is an eye-catching example of the Shingle Style, 2 ½ stories with prominent dormer windows and arched openings in a full-width front porch.

A number of houses in town have outbuildings, including barns, small storage buildings, and smaller houses in the rear of the property. (Note: the term barn describes both horse barns and carriage houses as it is often impossible to distinguish between them.) While some houses have undergone insensitive remodeling and some others have been "improved" with added Victorian detail, the large majority of the historic houses in the village retain their integrity. A number of homes are used as bed and breakfast lodgings, generally without undue architectural modification.

There was little, if any, construction in the village between World War I and World War II. There are about thirty post-World War II houses and ten small apartment or condominium buildings that date from the late 1960s to the late 1990s. These houses range from ranch houses to recent Victorian Revival style

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homes and are concentrated on the east end of the village. They are easily distinguished from the houses of the historic period.

Most of the hotels on Mackinac Island are located in the village, a total of sixteen contributing and four non-contributing hotels and boarding houses, the latter indistinguishable from smaller hotels. The largest number of hotels is on Huron Street; others are on Lake Shore Road, Market Street, Windsor Street, and Bogan Lane. The hotels are distinguishable from houses and commercial buildings mainly by their size. The Chippewa (1902) and the Lilac Tree Hotels (#757; non-contributing) are the only four story buildings in the business district. Outside of the business district, the three story buildings with rambling additions look like overgrown houses and many of them are. On Windsor Street, the Twilight Hotel, a three story hotel with wraparound porch and four story corner tower, and the Grand Central Hotel, a three story hotel with full width front porch and balconies, are particularly intact examples of typical island hotels. Some, such as the Chateau Beaumont on Huron Street, fit into the Queen Anne style.

The oldest hotel built for that purpose is The Island House on Huron Street east of Marquette Park. Constructed in 1852 as a three story rectangular building, The Island House added a Queen Anne style west wing in 1895 and an east wing with a curved, full-height columned portico ca. 1900. Nearly as old is the Lake View House on the western end of the Huron Street business district, built ca. 1858 and substantially enlarged in the 1890s. Porches and towers identify the Lake View as a hotel, but down the street, the Murray Hotel (ca. 1870) blends in with adjoining commercial buildings. On the east end of the Huron Street business district, the Chippewa Hotel is an anomaly among Mackinac Island hotels, with neither porch nor balcony where guests may linger. The four story building has imitation concrete block metal siding on its facade and looks like a typical main street business block.

Mackinac Island's four churches are all located in the village. Mission Church is on the east end of town where Huron Street begins to curve around Mission Point. Built 1829-30, this Federal style church in the New England tradition has a tower on the front gable end surmounted by an octagonal belfry and spire. To the west on Huron Street, Ste. Anne Church was built in 1874, replacing the earlier church on that site. The tower and steeple were added in 1890. Ste. Anne combines Gothic Revival and Italianate details including pinnacles, Venetian windows, and a bracketed cornice. Trinity Episcopal Church (1882) on Fort Street below Fort Mackinac is a simple Gothic Revival church with corner tower and steeple. Little Stone Church (1905) on Cadotte Avenue is a Gothic Revival church with bell cote, unusual for Mackinac Island in its field stone construction.

Stables and barns, though few in numbers, are a distinctive part of the village landscape. In addition to the small barns and carriage houses on residential properties, five commercial barn complexes are scattered through the town. The barns usually have gable roofs, though hipped and gambrel roofs appear also, and often two barns are connected.

Although it is continuous with the east end of town, Mission Point is distinguished from the village by its non-residential character. The built-up village waterfront gives way to open space along the shoreline. Set back from the shore on a slight rise are the five large Modern buildings of the Moral Re-Armament (MRA) conference center and Mackinac College (now Mission Point Resort), united by their red roofs as well as their size. Tucked among the MRA buildings is the Mission House that gave the point its name. Built in 1825 as a missionary boarding school, the center section of the U-shaped

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building was raised to three stories in the 1840s when it was converted to a hotel. The state park acquired the Mission House in the late 1970s and has restored it to its 1840s appearance. At the far eastern end of Mission Point, the Sheeley House (1882), Mackinac Island's only Gothic Revival house, was moved to that location in the 1950s from the site of the MRA theater. Across Huron Street from the Sheeley House is the city's water filtration plant (non-contributing).

The focal point of the MRA ensemble is the Great Hall (1955-56) at the eastern end. Conference rooms, dining rooms, kitchens, and dormitory-residences were arrayed around the Great Hall, a large circular space with a conical roof supported by pine logs fifty-one feet long. Connected to the rear of the Great Hall is a Y-shaped dormitory building (ca. 1954-60). Just to the northwest of the Great Hall, the theater, built from 1954-55, features stone fireplaces and large pine log roof trusses. The large film studio addition (1959-60) included two major sound stages, numerous smaller rooms and studios for rehearsing, sound mixing, etc., and added a glass tower, 108 feet tall, to the skyline. The roof of the Clark Center for the Arts and Sciences forms a concrete plaza in front of the theater. The Clark Center was built from 1967-68, a series of connected gable roof units containing classrooms, laboratories, and offices. At the west end of the complex is the West Residence Hall (1956-57), a long three story building with brick and stone veneer, intentionally built one foot shorter than Grand Hotel's front porch. Although the MRA/Mackinac College buildings have been adaptively reused as a resort hotel, the exterior appearance of the buildings has been maintained. The landscape has been somewhat modified by the addition of resort amenities such as tennis courts and a swimming pool and by the demolition of the college library (1965-66) in the early 1990s.

Fort Mackinac stands above the village on a steep limestone bluff, its whitewashed stone walls visible from far out on the water. The fort walls form a modified triangle, surmounted by a wooden palisade on all sides but the south. Within the walls, buildings surround the parade ground, which was gravel during the military period but has been grass since the early twentieth century. Additional fort buildings are outside the walls on the east and west and to the north across Huron Road, where there is also a second parade ground. The construction of Fort Mackinac began in 1780 and the last building dates to 1890. Although some buildings burned or have been demolished, all of the extant buildings are original. Today, Mackinac State Historic Parks operates Fort Mackinac as a museum, restored and interpreted to the 1880s.

The British army began constructing the fort's limestone walls in 1780. The whitewashed walls of the fort and of the ramp leading from the south sally port down to the village are a prominent feature of the island landscape. The Officers' Stone Quarters, with walls up to three feet thick, was an integral part of the south fort wall when construction began in 1780. This hipped roof building with three stone chimneys and first and second story porches facing the water was left unfinished by the British and finally completed by the Americans in 1800. Shortly after the Americans took possession of the fort in 1796 they repaired the deteriorated fort walls and constructed three stone blockhouses with hewn timber overhangs. Beginning with the Officers' Wooden Quarters in 1816, the U.S. Army incrementally added buildings and replaced older ones that had deteriorated or burned down. The Officers' Wooden Quarters was the last log building built in the fort; all subsequent buildings were of frame construction. A new guardhouse and post hospital replaced older buildings in the late 1820s. The hospital walls have pieces of cedar logs for insulation in the spaces between the studs. The Officers' Hill Quarters (1835) was built as a double house partially outside the north fort wall. It is more stylish than most of the military

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buildings, with two Federal style front doorways, and bay windows and trim added during an 1875 remodeling.

In 1853 the post headquarters was erected on the east side of the parade ground and in 1859 the large, two story soldiers' barracks replaced the earlier barracks north of the parade ground. In 1860 a new, larger post hospital was the first fort building built completely outside of the walls, to the east of the fort. Inside, the quartermaster's storehouse was built in 1867 next to the post headquarters. The tempo of construction increased in the 1870s. Two large, spacious houses for officers to the east of the fort have bay windows, bracketed cornices, and porches facing the bay. Across Huron Road to the north is the more modest one story sergeants' quarters with saltbox roof and the even plainer married soldiers' housing. Inside the fort, a commissary and a schoolhouse were built. The 1885 post bathhouse was the last major building constructed inside the fort. (The 1889 water closet adjoining the bathhouse no longer stands.) The military building program wrapped up with the hospital steward's quarters (1887) and a morgue (1890) to the east of the fort near the hospital.

There was relatively little change in the appearance of Fort Mackinac following the army's departure in 1895. Some buildings were renovated for rental use and other buildings outside of the fort walls were demolished. The Beaumont Monument was erected near the Officers' Stone Quarters in 1900. In 1930 the state park reconstructed the wooden palisade atop the fort walls. (The original palisade had deteriorated and had been replaced by a picket fence in the late nineteenth century.) Extensive repairs were made to the fort buildings in the 1930s. But it was not until the 1960s that the state park initiated a comprehensive, methodical program to repair the fort's buildings and restore them to their late nineteenth century appearance. The park has aimed to minimize changes to the buildings: making the structures sound, preserving original fabric, removing post-1895 additions, and basing restoration on historic drawings and photographs. The wooden sentry boxes on the fort walls have been reconstructed and reproduction lamp posts installed based on such evidence. Recently, the fort's buildings were repainted brown on the sides facing into the fort as they were in the 1880s.

Since 1965 Fort Mackinac (20MK18) has been the site of ongoing test and salvage excavations designed to discover, preserve, and interpret artifacts and structural remains. The British well located south of the post commissary dates from the 1780s and is the subject of an interpretive display. Excavations have provided information on the original provision storehouse that was moved from Fort Michilimackinac and on three successive blacksmith shops. Two military dumps outside of the fort have provided information on military life. Just north of the fort, 20MK166 produced ceramics and military hardware dating to the early 1820s. The Custer Road Dump site (20MK17) is a stratified midden used by the Fort Mackinac garrison between 1876 and 1895. The dump contained a series of discrete layers of debris and ash that seemed to be associated with cleaning episodes related to changes in commanding officers. Artifacts recovered from the dump were primarily military—buttons, insignia, cartridge casings, USQMD ceramics—with some civilian items (especially toys) that may have been from military families.

West of Fort Mackinac, the Lawrence Young Cottage (1901-02) stands alone on the edge of the bluff at the intersection of Fort Street and Huron Road. This large Shingle Style cottage has been the governor's summer home since 1945. North of Fort Mackinac across Huron Road is a large grassy area bounded by Fort Service Road on the west and Garrison Road on the east. The sergeants' quarters, married soldiers' housing, and parade ground in this area were mentioned above. Clustered around Fort Service Road are

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state park support buildings dating to the 1900s-1910s and 1960s-90s. Of note from the historic period are the concrete, hipped roof horse barn (1915-20) and the sawmill (1915). On the opposite side, near Garrison Road, the Boy Scout Barracks (1933-34) is somewhat Colonial Revival in appearance with 6/6 windows and a row of dormers across the front.

After Fort Mackinac, Grand Hotel has the most commanding presence on the island landscape. Situated on a bluff northwest of the village, the five story white building with 627 foot long porch is visible from far out in the straits. The hotel was constructed in 1887 of Michigan white pine. Additions in 1897 and 1912 increased the length by half but the three story columned porch running the length of the facade continued to be the hotel's defining feature. In the 1920s the roof was raised to create a full fifth floor. Additions in the 1980s and 1990s did not alter the famous porch. Visitors approach Grand Hotel from tree-lined Cadotte Avenue. On the left, separating the hotel from the west edge of the village, is a park created in the late nineteenth century (though landscaped more recently) on the Borough Lot, formerly a squatters' settlement. Partially occupied by Grand Hotel's tennis courts, the park is separated by a wood lot from the gardens directly in front of the hotel. Though gardens have been an important part of Grand Hotel's landscape since its early years, the current gardens were designed in the 1980s. The hourglass-shaped swimming pool (1920s) is a notable feature of the grounds just below the hotel. On the right side of Cadotte Avenue is the hotel's golf course, built in 1917 on the site of the old fort pasture. Associated with the golf course are a restaurant (ca. 1920s) and golf house (ca. 1920s-30s). Behind the hotel is a complex of support buildings, contributing and non-contributing, including dormitories and a stable.

Extending westward from Grand Hotel are the cottages of the West Bluff, arranged in a line along West Bluff Road and Lake View Boulevard. By virtue of their location on a south-facing bluff, their large size and the white paint that has been customary for many years make these cottages prominent elements of the island landscape. The cottages are on large lots leased from the state park. Most have one or more outbuildings in the rear along Algonquin Road, typically a large horse and/or a carriage barn with architectural details corresponding to the main house. The cottages were built between 1886 and 1891 although a number were remodeled and enlarged within a few years of their completion. They have a high level of integrity, individually and as an ensemble: thirteen of the sixteen original cottages are extant and all are contributing. A large majority of the outbuildings are contributing as well. Seven of the cottages are Queen Anne style with the varied wall surfaces, irregular massing, towers, and porches indicative of that style. The John Cudahy Cottage is exemplary, with terraces and foundation of random stone, shingles of three different shapes, a wraparound porch, a round tower, a square tower, and a turret. Much quieter is the Shingle Style Susan Blodgett Lowe Cottage, with a uniformly shingled wall surface and cross gambrel roof. The Stockbridge/Pitkin/Hanna Cottage is a Classical Revival with a two story entrance portico. The William Gilbert Cottage is in the Carpenter Gothic style more commonly found in the Annex neighborhood. The remaining cottages are simpler in form and decoration but still have the large porches characteristic of the time and place.

Hubbard's Annex to the National Park is a private residential area that adjoins the West Bluff on the west side. Two of the primary Annex roads, Lake View Boulevard and Grand Avenue, form an irregular oval bisected on the northwest end by Park Avenue, the third primary road. The semicircular grassy area formed by the intersection of Park Avenue and Grand Avenue is the Annex Commons, part of the original 1882 layout of this cottage community. Minor roads in the Annex are Holt Street, in the center of the oval, and North Avenue, extending to the northwest. Below the Annex on Lake Shore Road is the Devil's Kitchen, a group of brecciated limestone sea caves. The Annex is more enclosed and private

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than the West Bluff. Only a few of the cottages are located on the bluff and have a view of the water. Most of the cottages are arranged around the oval with a number of them partially hidden by trees or tall cedar hedges. Most have barns or other outbuildings.

Two houses in the Annex pre-date the cottage community. The Ambrose Davenport Farmhouse is a highly intact, early nineteenth century house of *pièce en pièce* construction. As the house was never clad in clapboards, its log construction is visible. The Lilacs, ca. 1870, a 1 ½ story cross-gabled summer cottage, preceded Annex development. With the exception of four unobtrusive houses of recent construction, the remaining twenty cottages were built between 1883 and 1917, primarily in the 1880s. All are contributing resources. Only two of the original Annex buildings from the 1880s have been lost. The architecture of the Annex is more diverse than the West Bluff. While there are examples of Colonial Revival, Queen Anne, and Stick Style, most characteristic of the Annex is the Carpenter Gothic style. Usually cross gabled with a cross plan, these cottages have sawn trim based on Gothic Revival patterns as interpreted by local carpenters. The Otis Johnson Cottage, though larger than most with two front cross gables, illustrates the characteristically intricate trim. A number of plainer cottages in the Annex are clearly related to the Carpenter Gothic by their cross-gabled form.

Flanking Fort Mackinac on the east side, the cottages of the East Bluff balance those on the West Bluff. The layout is similar to the West Bluff, with cottages on state park leased land arrayed in a line along the bluff on Huron Road. About half of the cottages have barns or other outbuildings in the rear. All of the twenty original cottages, built between 1885 and 1900, are extant although three have lost their integrity through remodeling. A number of East Bluff cottages are of the cross gabled type with sawn trim or stick work in their gables. The V.W. Mather Cottage is Colonial Revival style with a gambrel roof. But the most distinctive cottages on the East Bluff are Shingle Style and Classical Revival. The four Shingle Style cottages are large, two story houses with one or more towers and raised basements that give them additional height. The 1885 John Atkinson Cottage, the first example of the Shingle Style on the island, has a three story octagonal porch and tower. In a very different idiom, in the 1890s C.C. Bowen linked two earlier cottages with a two story Ionic portico in the Classical Revival style. About 1900, Milton Tootle remodeled his cottage in the Classical Revival style, adding a two story pedimented entrance portico with Ionic columns, Ionic pilasters, classical cornice, and rooftop balustrade. The Tootle Cottage is also noteworthy for its Japanese garden, created ca. 1905.

The East Bluff has historically been a popular place for viewing the village and Lake Huron. The placement of two monuments in this area makes sense in this context. The Lewis Cass Memorial (bronze plaque, 1915) is located across Huron Road from the westernmost cottage on the bluff. Slightly further to the west in a grove of trees is Anne's Tablet (1916), a bronze relief sculpture on a rough stone base, encircled by three stone benches with a view through the trees to the bay. At the opposite end of the East Bluff is Robinson's Folly, a popular overlook on a limestone outcropping. An archaeological site (20MK66) at Robinson's Folly produced a scatter of prehistoric lithic material from the Archaic tradition.

Traveling west on Huron Road past Fort Mackinac and proceeding to the intersection of Huron with Annex and Hoban Roads, one comes to Surrey Hill, occupied primarily by the facilities of Mackinac Island Carriage Tours. Along Hoban and Carriage Roads are visitor exhibit and demonstration areas, multiple and single-family housing, a horse pasture, and, predominantly, metal pole barns. With the exception of a very few late nineteenth or early twentieth century houses and associated outbuildings, all

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the buildings in Surrey Hill are post-World War II and most of them were built within the last twenty-five years. Two log outbuildings (#439 and #438), probably dating to the nineteenth century, are associated with two of the houses on Hoban Road.

At Third Street the barns of Surrey Hill give way to Harrisonville and the homes of most of the island's year round residents. The street pattern of Harrisonville is orderly: five numbered streets, Third through Seventh Streets, intersect Hoban Road at regular intervals. The homes, however, are not necessarily lined up along these streets (with no cars and no driveways, street access is not required) and the overall pattern is of an irregular, elongated cluster along Hoban Road. Harrisonville is dominated by small one story houses, many of them ranch houses, built after World War II. In addition there are a number of recently constructed dormitory and apartment buildings housing employees of island hotels. Only nine of Harrisonville's numerous houses can be identified as nineteenth or early twentieth century, eight of which retain their integrity. These houses are of a variety of forms. One small house (#576) combines log and frame construction. Although Harrisonville constitutes a large non-contributing area—about one third of the non-contributing buildings in the district—it is up a hill and surrounded by trees and thus not visible until you are actually in the settlement.

Most of the remainder of the island is forested, broken by large cleared areas for features such as the airport and golf courses and by smaller clearings for houses. Northwest of Harrisonville is the Stonecliffe area, named for the Tudor Revival cottage at the end of Stonecliffe Road. Built in 1904 as the centerpiece of a 150 acre estate, Stonecliffe is a large 2 ½ story house with decorative half timbering. Also surviving from the Stonecliffe estate are the Tudor Revival amusement lounge with original one lane bowling alley (1915; now the Woods restaurant), a small house (#666), and a barn (#668). Chimney Rock, one of the island's noted limestone outcroppings, overlooks the lakeshore nearby. South of Stonecliffe on Hedgecliff Road are two large summer cottages: Tamarack Cottage (ca. 1893) and the Spanish Colonial Revival Hedgecliff (1903). The wastewater treatment plant (non-contributing) near the intersection of Stonecliffe and Annex Roads is well screened by trees.

In the 1970s seven condominium buildings with decorative half-timbering were built along Forest Way extending north from near Stonecliffe. In the 1980s and 1990s new construction continued north along Forest Way with large single family homes, some of them Victorian Revival in style. Just east of Forest Way the Stonecliffe Manor subdivision surrounds the Woods golf course built in the 1990s. Nearby is the island's airport. The first airport landing strip was built in 1934; the airport was rebuilt with a paved runway in 1965. West of Forest Way near the lakeshore is a smaller subdivision called Stonebrook, with similar large single family homes built in the 1990s. Except for a few Stonebrook houses that are visible from Lake Shore Road, all of these non-contributing resources, including the airport, are screened by trees and are unobtrusive in the context of the overall island landscape.

East of Harrisonville a number of significant resources are located in the area surrounding Fort Holmes. Between Harrisonville and Garrison Road is the large grassy clearing of Great Turtle Park, a recreational park of recent vintage. East of Garrison Road the area is heavily wooded except for the open space around Fort Holmes and a cleared linear path descending from Fort Holmes along Rifle Range Trail to the village. Originally used by Fort Mackinac soldiers as a rifle range, the range was cleared in 1913 for a fire break and more recently graveled for a hiking trail. Fort Holmes itself (20MK72) was a log blockhouse within log-walled earthworks constructed by the British in 1814. By the mid-nineteenth century the fort, long abandoned, was in ruins and the site was used for a series of observation towers. A

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partial reconstruction of the fort in 1907 burned in 1933 and was followed by a more accurate and complete reconstruction of the 1814 fort. In the 1960s the deteriorated fort was demolished, leaving the earthworks (and the view). A bronze plaque (ca. 1930s) commemorates Fort Holmes. North of the fort a concrete water reservoir (non-contributing) is covered with soil and rocks.

West of Fort Holmes at the intersection of Garrison and Custer Roads are the island's three cemeteries. The post cemetery is the oldest, used from the 1820s to about 1900. The rectangular burying ground is surrounded by a white picket fence and is entered through a simple wooden arch. Ste. Anne cemetery and the Protestant cemetery were both established in the 1850s and are both still in use. Ste. Anne cemetery is enclosed by a stone wall with an arched stone entrance; the Protestant cemetery is enclosed by a low wall of rock faced concrete block.

Just south of the cemeteries on Garrison Road is Skull Cave (20MK81), one of a group of limestone formations that, along with the views, attracts tourists to this area. Sugar Loaf, a limestone breccia stack, is located north of Fort Holmes and may be viewed from Lookout Point, the limestone bluff just to its east. East of Fort Holmes, Arch Rock can be accessed from a number of roads and trails or viewed from Lake Shore Road below. Just north of Arch Rock, the Nicolet Watch Tower marker (1915) indicates another overlook. South of Arch Rock on Lake Shore Road below is Dwightwood Spring, a wood and concrete arbor sheltering an enclosed spring (1909). Also associated with the island's limestone resources are a worked ledge from a limestone quarry (#838) and the crumbled remains of a lime kiln (#839; 20MK65). Two other lime kiln sites (20MK71 and 20MK75) are located in other parts of the island.

From Fort Holmes Road, Garrison Road continues in a northwest direction to a four way intersection in the middle of the island, where it becomes British Landing Road. Annex Road goes west, Crooked Tree Road goes east, and British Landing Road continues to British Landing on the island's northwest shore, not far from Point aux Pins at the island's northern tip. Garrison and British Landing Roads form the primary route through the island interior. State Road, Scott's Road, and Leslie Avenue are the other major interior roads in the island's northern half. Together with a network of trails, they provide scenic routes and access to natural features, including Crack-in-the-Island, a limestone fissure; Cave-in-the-Woods, a limestone sea cave; and Friendship's Altar, a brecciated limestone formation. Lake Shore Road follows the island shoreline.

Within the woodland that covers most of the island's northern half is a large open area on either side of British Landing Road. On the west side of the road is the Wawashkamo Golf Links. Nearly unchanged since it was laid out in 1898, the nine hole, eighteen tee golf links is less landscaped than a modern golf course, maintaining more of the natural terrain and vegetation. Associated with Wawashkamo are the ca. 1900 club house and an early twentieth century caddy shack. Four additional support buildings are non-contributing but non-obtrusive. Wawashkamo occupies part of the site of the 1814 battlefield, the remainder of which is found on the east side of British Landing Road. At the time of the battle the site was the Dousman farm. Archaeological testing in the vicinity of the farmhouse site (20MK70) produced features and lithic material from a prehistoric camp and early nineteenth century artifacts. Today a commemorative plaque (1925) marks the battlefield site, largely an area of grass and scrub. In addition to the golf links, part of the battlefield site is occupied by the island landfill. Associated with the landfill is a group of metal pole barns that constitute the island's resource recovery center (non-contributing).

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At British Landing on the island's northwest shore a reproduction cannon marks the site where British soldiers landed in 1812. Near the landing area are a nature center and concession stand (non-contributing) and a group of picnic tables serving this popular place for resting during rides around the island. Slightly north of British Landing, a concrete and metal landing dock built in the 1920s was rebuilt in the 1970s and is non-contributing. Most of the homes on the northern half of the island are located along Lake Shore Road. A majority of these date to the early twentieth century and, with the exception of Silver Birches, are modest in size compared to the cottages of the East and West Bluffs. Notable among these are a half dozen rustic cottages with exposed logs and stone chimneys. Silver Birches is an imposing example of this style: a long, 2 ½ story log and frame house with logs on the first story, shingles on the second, and first and second story porches on three sides.

**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Type all entries - complete applicable sections)

STATE:
Michigan

COUNTY:
Mackinac

FOR NPS USE ONLY

ENTRY NUMBER 71.4.26.0017	DATE 4/16/71
-------------------------------------	------------------------

1. NAME

COMMON:
The Robert Stuart House

AND/OR HISTORIC:
The Agency House of the American Fur Company

2. LOCATION

STREET AND NUMBER:
Market Street

CITY OR TOWN:
City of Mackinac Island

STATE Michigan	CODE 26	COUNTY: Mackinac	CODE 097
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3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO THE PUBLIC
<input type="checkbox"/> District <input checked="" type="checkbox"/> Building <input type="checkbox"/> Site <input type="checkbox"/> Structure <input type="checkbox"/> Object	<input checked="" type="checkbox"/> Public <input type="checkbox"/> Private <input type="checkbox"/> Both	Public Acquisition: <input type="checkbox"/> In Process <input type="checkbox"/> Being Considered	<input type="checkbox"/> Occupied <input checked="" type="checkbox"/> Unoccupied <input type="checkbox"/> Preservation work in progress
Yes: <input checked="" type="checkbox"/> Restricted <input type="checkbox"/> Unrestricted <input type="checkbox"/> No			

PRESENT USE (Check One or More as Appropriate)

<input type="checkbox"/> Agricultural	<input type="checkbox"/> Government	<input type="checkbox"/> Park	<input type="checkbox"/> Transportation	<input type="checkbox"/> Comments
<input type="checkbox"/> Commercial	<input type="checkbox"/> Industrial	<input type="checkbox"/> Private Residence	<input type="checkbox"/> Other (Specify)	
<input type="checkbox"/> Educational	<input type="checkbox"/> Military	<input type="checkbox"/> Religious		
<input type="checkbox"/> Entertainment	<input checked="" type="checkbox"/> Museum	<input type="checkbox"/> Scientific		

4. OWNER OF PROPERTY

OWNER'S NAME:
City of Mackinac Island

STREET AND NUMBER:

CITY OR TOWN:
Mackinac Island

STATE:
Michigan

CODE
26

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC:
Mackinac County Courthouse

STREET AND NUMBER:

CITY OR TOWN:
St. Ignace

STATE:
Michigan

CODE
26

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY:
Michigan Historical Commission Registered Hist. Bldg No. 46

DATE OF SURVEY: **3-23-65**

☐ Federal ☒ State ☐ County ☐ Local

DEPOSITORY FOR SURVEY RECORDS:
Michigan Historical Commission

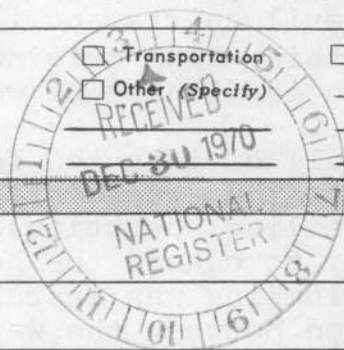
STREET AND NUMBER:
3405 N. Logan Street

CITY OR TOWN:
Lansing

STATE:
Michigan

CODE
26

SEE INSTRUCTIONS



STATE: **Michigan**

COUNTY: **Mackinac**

ENTRY NUMBER: **71.4.26.0017**

DATE: **4/16/71**

FOR NPS USE ONLY

7. DESCRIPTION

CONDITION	(Check One)					
	<input type="checkbox"/> Excellent	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
	(Check One)		(Check One)			
	<input checked="" type="checkbox"/> Altered		<input type="checkbox"/> Unaltered	<input type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site	

DESCRIBE THE PRESENT AND ORIGINAL (if known) PHYSICAL APPEARANCE

With the arrival of the American Fur Company on Mackinac Island during the decade following the War of 1812, four buildings formed the visual backdrop for an economic complex that would soon envelop the fur trade from the Rockies to the far north. Three of the buildings, the agency warehouse, the agent's house, and the clerks' quarters, were located near the center of the Market Street, connected by log palisades, with the fourth, the trading post, on the corner of the street, just below the fort. The entire complex cost John Jacob Astor, owner of the Fur Company, approximately fifty thousand dollars.

Cross + Bible doors

The agents resided in a two-story frame building, situated between the clerks' quarters and the fur warehouse. The house was spacious, with the lower floor divided into four large rooms. Many of the original window panes remain today, along with the solid wooden doors, complete with square-headed nails and handmade hinges. The panels on the outside doors supposedly reflect voyager superstition. The upper panel forms a cross, with the lower panel forming the pages of an open Bible. These decorations were believed to keep evil spirits and ill tidings away from those who lived within. The original fanlight is above the main entry-way which is flanked by wooden pilasters.

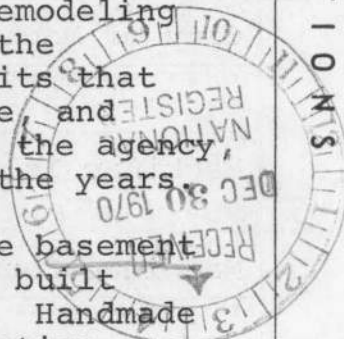
A main hall divides the four rooms on the lower floor. Leading to the second story is a wide stairway with a solid walnut railing, beautifully grained. During the remodeling necessary to change the house into a hotel during the 1870s, plumbing was installed in the connecting units that were added between the warehouse, the agent's house, and the clerks' quarters. Therefore, the structure of the agency, or Robert Stuart House, has not been changed over the years.

A narrow stairwell in the Stuart House leads to the basement kitchen and storage rooms. A huge open hearth was built to accomodate the residents and their many quests. Handmade iron bars cover the basement windows, giving protection from unwanted intruders and adding a deeper note to the like effect created by the log palisades.

The upper floor housed many of the agency clerks. Thirteen small rooms fill the upper story with six of the rooms facing Market Street. Above the second story is the attic loft, complete with several gables. Stone chimneys flank both ends of the house, providing the major source of heat for warmth and for cooking.

(cont'd.)

SEE INSTRUCTIONS



**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 71,426,0017	DATE 4/16/71

(Number all entries)

6. Representation in Existing Surveys (cont'd)

Historic American Building Survey
1937 Federal
Library of Congress
Washington Dist. of Columbia 00

7. Physical Appearance (cont'd)

This building, along with the warehouse and the clerks' quarters, were bought by James F. Cable in 1871 to be converted into a summer hotel which Cable called the John Jacob Astor House. The buildings remained a hotel until the early twentieth century.

In 1930 the John Jacob Astor House was sold to the Mackinac Island Community House, a corporation devoted to community unity. The buildings were used for various purposes until the early 1940s. Restoration was begun on the warehouse and the Stuart House. The section of the warehouse fronting on Market Street was refurbished to serve as the Mackinac Island Community Hall, with the hillside wing historically restored for public viewing. The clerks' quarters were never restored and, due to severe deterioration, the building was demolished.

The Robert Stuart House became the project of the Mackinac Island Historical Society which took full responsibility for its restoration. The connecting units between the three fur company buildings were removed, and period furnishings were located to fill the rooms. Many of the items found on the first floor of the house were placed on loan by the Mackinac Island State Park Commission. Of particular interest is a huge bed dating from the mid-eighteenth century which had been used by the fort's commandant during that period. A great many of the furnishings on both floors have been received from private collections.

Several pieces were originally owned by the American Fur Company. On display are fur company ledgers, weighing scales, and the agent's desk, complete with lettered pigeon-holes. The safe placed near the desk was removed from the New York offices and is similar to the one originally placed in the house. The furnishings on the second floor reflect

(cont'd)

**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 714,26,0017	DATE 4/16/71

(Number all entries)

7.2 Physical Appearance (cont'd)

the period 1871-1900, when the Stuart House was part of the John Jacob Astor House and flourishing as a summer hotel.

The Stuart House, the Agency Warehouse, and the atmosphere they created, give mute testimony to Astor's vast plan to capture the nation's fur trade. The iron-barred windows of the Stuart House and the voluminous detail of the company ledgers found within amply illustrate the economic power wielded by the American Fur Company and the determination of the men who built it. Ramsay Crooks and Robert Stuart, who lived and worked on the island, directed the huge volume of trade from their quarters in the agency house, with the economic genius of John Jacob Astor standing behind them, jealously guarding his interests in the Great Lakes.

8. Significance (cont'd)

for Astor. Stuart joined Crooks at Mackinac in 1819, arriving with his family on June 27. Working as Crooks' assistant for several years, Stuart became the head of the American Fur Company operations in the upper Great Lakes region when Crooks was transferred permanently to the New York offices in 1820.

Crooks and Stuart established Mackinac Island as the center of the fur trade for all the Northwest, from the Rocky Mountains to the far reaches of Canada. Trading posts were set up at every important point in the territory with a knowledgeable trader in charge to ward off any attempts at infiltration from either foreign or domestic companies.

Four buildings on Mackinac Island formed the main fur trading center. Three of these buildings were located side by side. When Astor brought clerks in from Montreal they were housed in the two-story clerks quarters. Next to this buildings was the agent's dwelling, whose second story also housed many of the company clerks. The house became a gracious oasis at Mackinac due mostly to the entertaining talents of the Stuarts. The agency warehouse, next door to the Stuart residence, was an L-shaped building that extended behind the Stuart home. Scene of the most activity, the warehouse received yearly over 90 per cent of the island's trade in furs. Whiskey, money, and ammunition, three major factors in the fur trade, were stored in three vaults

(cont'd)

8. SIGNIFICANCE

PERIOD (Check One or More as Appropriate)

☐ Pre-Columbian☐ 16th Century☐ 18th Century☐ 20th Century☐ 15th Century☐ 17th Century☒ 19th Century

SPECIFIC DATE(S) (If Applicable and Known)

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

Aboriginal

☐ Prehistoric☐ Historic☐ Agriculture☐ Architecture☐ Art☒ Commerce☐ Communications☐ Conservation☐ Education☐ Engineering☐ Industry☐ Invention☐ Landscape☐ Architecture☐ Literature☐ Military☐ Music☐ Political☐ Religion/Phi-

losophy

☐ Science☐ Sculpture☐ Social/Human-

itarian

☐ Theater☐ Transportation☐ Urban Planning☐ Other (Specify)

STATEMENT OF SIGNIFICANCE

The American Fur Company was organized by John Jacob Astor and incorporated by the state of New York in April, 1808. Astor had been attempting for some years to monopolize the fur trade in the United States. With the establishment of this company and the organization of the Pacific Fur Company in June of 1810, Astor was close to accomplishing his goal. A major setback to his plans was the complete destruction of the Pacific Fur Company by his rivals during the War of 1812. Astor then concentrated his efforts in the Great Lakes region. The threat of British domination in the area was completely removed with the passage of a bill by Congress during the winter of 1815-16 which prohibited trade with the Indians by any individuals other than United States citizens.

Astor sent two of his most trusted agents northward to handle the extensive fur trade operations in the Great Lakes region--Robert Stuart and Ramsay Crooks. Ramsay Crooks, who had begun his fur-trading career on the upper Missouri, had been a partner in the disastrous Pacific Fur Company and the disappointing Astoria venture. Following the dissolution of the Pacific company, Crooks had spent most of his time investigating the fur trade around the Great Lakes. In 1816 the American Fur Company bought out the Northwest Company and began to concentrate on the fur trade centered at Mackinac Island. Crooks became a partner in this new organization early in 1817 and was appointed general manager of the American Fur Company in that same year. Crooks made the long journey to Mackinac every year, many times traveling on to the Western Department offices, established in St. Louis in 1822.

Robert Stuart, born in the county of Perth, Scotland, left his homeland in 1807 for Canada. He joined his uncle, David Stuart, an agent of the North West Fur Company, and with his uncle became a partner in the newly organized Pacific Fur Company. The two men were active in the establishment and direction of the Astoria venture. After the loss of Astoria, Robert Stuart worked for several years as a traveling agent

(cont'd)

9. MAJOR BIBLIOGRAPHICAL REFERENCES

(see continuation sheet)

10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY				O R	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES			
CORNER	LATITUDE		LONGITUDE		LATITUDE		LONGITUDE	
	Degrees	Minutes	Seconds		Degrees	Minutes	Seconds	
NW	°	'	"	°	'	"	45° 51' 16"	84° 37' 10"
NE	°	'	"	°	'	"		
SE	°	'	"	°	'	"		
SW	°	'	"	°	'	"		

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: **approx. one acre**

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE

11. FORM PREPARED BY

NAME AND TITLE:
Miss Donna L. Stiffler, Assistant Historian

ORGANIZATION
Michigan Historical Commission

DATE
9-29-70

STREET AND NUMBER:
3405 North Logan

CITY OR TOWN:
Lansing

STATE
Michigan

CODE
26

12. STATE LIAISON OFFICER CERTIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National ☒ State ☐ Local ☐

Name

Director

Title

Dept. of Natural Resources

Date

12/22/70

NATIONAL REGISTER VERIFICATION

I hereby certify that this property is included in the National Register.

Ernest A. Cunningham
Chief, Office of Archeology and Historic Preservation

APR 16 1971

Date

ATTEST:

William J. Huntz
Keeper of The National Register

Date

SEE INSTRUCTIONS

16/684890/5079900
3-03-71
UTM 22-T-11

**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 71-4,26,0017	DATE 4/16/71

(Number all entries)

8.3 Significance (cont'd)

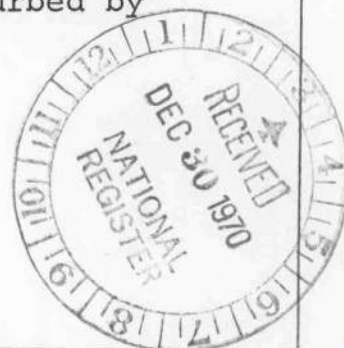
built into the hillside behind the Stuart home. The three buildings were connected by log palisades and presented the appearance of an impregnable, self-sustaining fortress. The fur company store was located further down the street and completed the Astor complex on the island.

One of Astor's greatest competitors was the United States government. In 1793 George Washington, troubled over Indian unrest, had urged Congress to achieve lasting peace with the Indians by establishing economic and diplomatic ties of interest between the whites and the Indians. The following year Washington reiterated his plea for the "improvement of Harmony with all the Inidans...by the fixing and conducting of trading houses." Congress established a system of government trading posts on April 18, 1796. These posts were successful for the first few years but with more pressure from private traders following the War of 1812, particularly the powerful American Fur Company, the government houses began to fail.

Astor put a great deal of effort into crushing the government posts. In Michigan he was given an added boost by Governor Lewis Cass's vehement opposition to the factory system. The system did have its advocates, notably Indian agent Thomas L. McKenny, whose attacks grew weaker as returns from the factories diminished and the original capital could no longer be maintained. The American Fur Company enlisted the oratorical aid of Senator Thomas Hart Benton who attacked the government posts on the floor of the Senate. In May of 1822 an act was passed, backed by the major fur interests and several dominant figures in Congress, that ended the factory system and left the American Fur Company in complete control of the greater portion of the fur trade in the United States.

Trade continued to pour through Mackinac, spurred by the business talents of Robert Stuart and an easy flow of liquor. Indian agents complained about serious incidents involving debauchery and drunkenness due to the lavish use of liquor as a trade measure. The flow, nonetheless, continued, undisturbed by periodic governmental checks.

(cont'd)



NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 714260017	DATE 4/16/71

(Number all entries)

8.4 Significance (cont'd)

The American Fur Company provided the major economic impetus for Mackinac Island and dominated the lives of the residents. Robert Stuart became a well-known figure on the island. Variouslly described as a severe, even violent, man, Stuart became well acquainted with Reverend William Ferry, the Presbyterian minister at the Mission Church. Ferry often visited the Stuart home, the Agency House, and frequently had long discussions concerning religion with Stuart, whose indifference to this subject was well-known. During the winter of 1828-1829, the island experienced a major religious upheaval, during which time Stuart seemed to undergo a change of heart and subsequently became an influential elder in the Presbyterian church, both at Mackinac and later in Detroit.

In 1834 Astor retired from active participation in the company affairs, and Crooks assumed the presidency of the reorganized company. Stuart left Mackinac Island on October 6, 1834, and moved to the Detroit area, from which he was appointed Superintendent of Indian Affairs for Michigan in 1841 and filled the vacancy of State Treasurer in 1840. Crooks remained in the fur trade until his death in 1859.

With the decrease in volume, fur trade operations were shut down on Mackinac Island. The fur company buildings wer purchased by members of the McLeod family in the late 1850s. In August of 1871 James F. Cable bought all three buildings, built connecting units between them, and opened the John Jacob Astor House. The hotel remained in operation until the early twentieth century when the entire unit was sold to the Mackinac Island Community House Corporation and later to the City of Mackinac Island.

The clerks quarters were destroyed in the 1950s due to excessive deterioration. What had once been the fur-packed warehouse became the Community Hall for the city. The portion of the warehouse that extends into the hillside behind the Stuart House is now a permanent exhibit, directed by the Mackinac Island Historical Society.

The Robert Stuart House, once the connecting units were removed in 1941, was restored and was opened to the public as a museum by the Mackinac Island Historical Society. A few original items were placed in the house, with the remainder of the period

(cont'd)

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE Michigan	
COUNTY Mackinac	
FOR NPS USE ONLY	
ENTRY NUMBER 71/4,26,0017	DATE 4/16/71

(Number all entries)

8.5 Significance (cont'd)

furnishings being loaned from private collections and the Mackinac Island State Park Commission. The Stuart, or Agency House, along with the rambling warehouse, remain as permanent reminders of the strong economic hold of the American Fur Company during the formative years of the Michigan Territory.

9. Major Bibliographical References cont'd

Abstract of Title to Lot of Private Claim No. 293, Island of Michilimackinac, Mackinac County, Michigan. Copy in files of Michigan Historical Commission.

Liber N, 314-315; Liber 80, 374; Liber 75, 489; Mackinac County Register of Deeds, St. Ignace, Michigan.

Emil Lorch Papers, Boxes 2 and 3, University of Michigan Historical Collections, Ann Arbor.

Marlatt, Helen Stuart Mackay-Smith. (ed.) Stuart Letters of Robert and Elizabeth Sullivan Stuart. Privately printed, 1961.

Porter, Kenneth Wiggins. John Jacob Astor: Business Man. Cambridge, Massachusetts: Harvard University Press, 1931.

Prucha, Francis Paul. American Indian Policy in the Formative Years. Cambridge, Massachusetts: Harvard University Press, 1962.

Terrell, John Upton. Furs by Astor. New York: William Morrow and Company, 1963.



NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM
FOR FEDERAL PROPERTIES

(Type all entries - complete applicable sections)

STATE:

Michigan

COUNTY:

Mackinac

FOR NPS USE ONLY

ENTRY DATE

AUG 21 1974

1. NAME

COMMON:

Round Island Lighthouse

AND/OR HISTORIC:

Round Island Light Station

2. LOCATION

STREET AND NUMBER:

Section 25, T40N, R3W

CITY OR TOWN:

Mackinac Island vicinity
4 miles ESE St. Ignace National Forest. 11

On the Hiawatha

CONGRESSIONAL DISTRICT:

STATE:

Michigan

CODE

026

COUNTY:

Mackinac

CODE

097

3. CLASSIFICATION

CATEGORY
(Check One)

- ☐ District ☒ Building
☐ Site ☐ Structure
☐ Object

OWNERSHIP

- ☒ Public
☐ Private
☐ Both
- Public Acquisition:
☐ In Process
☐ Being Considered

STATUS

- ☐ Occupied
☒ Unoccupied
☐ Preservation work
in progress

ACCESSIBLE
TO THE PUBLIC

- Yes:
☒ Restricted
☐ Unrestricted
☐ No

PRESENT USE (Check One or More as Appropriate)

- ☐ Agricultural ☐ Government ☐ Park ☐ Transportation ☐ Comments
☐ Commercial ☐ Industrial ☐ Private Residence ☒ Other (Specify)
☐ Educational ☐ Military ☐ Religious Historical
☐ Entertainment ☐ Museum ☐ Scientific

4. AGENCY

U.S.D.A. - Forest Service Hiawatha National Forest

REGIONAL HEADQUARTERS: (If applicable)

Region Nine

STREET AND NUMBER:

633 West Wisconsin Ave.

CITY OR TOWN:

Milwaukee

STATE:

Wisconsin

CODE

055

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC:

National Archives

STREET AND NUMBER:

CITY OR TOWN:

Washington

STATE:

D.C.

CODE

011

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY:

Michigan History Division Registered Local Site No. 107

DATE OF SURVEY:

April 1971

☐ Federal☒ State☐ County

DEPOSITORY FOR SURVEY RECORDS:

Michigan History Division, Department of State

STREET AND NUMBER:

208 N. Capitol

CITY OR TOWN:

Lansing

STATE:

Michigan

CODE

026

SEE INSTRUCTIONS

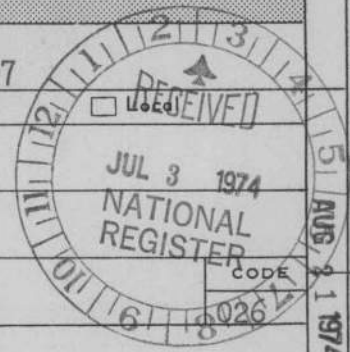
STATE:

COUNTY:

ENTRY NUMBER

DATE

FOR NPS USE ONLY



7. DESCRIPTION

CONDITION	(Check One)					
	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
	(Check One)			(Check One)		
	<input type="checkbox"/> Altered	<input checked="" type="checkbox"/> Unaltered	<input type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site		

DESCRIBE THE PRESENT AND ORIGINAL (if known) PHYSICAL APPEARANCE

The Round Island Lighthouse, established in 1895, is a three-story square structure measuring thirty-one by thirty feet. On the northeast corner of the building there is a twelve foot square tower which rises to a height of over fifty-three feet. The building rests on a forty foot square pier built of concrete faced up to a height of nine feet with red brick. The same is used throughout the lighthouse in both the interior and exterior, except for the third floor and dormer which are frame. The frame portion of the upper story and the roof are covered with wood shingles. In later years the red brick exterior was painted white. The windows, except for those in the tower, are one by one double hung sash and are outlined with stone in the brick portion of the structure. In addition, there are two narrow one by one double hung windows in the north side of the tower and one more in the east side. On the fourth floor of the tower on both the north and east sides, there are narrow one by one double hung sash windows with rounded tops. All are outlined in stone. Small lancet windows are under the eaves on the north and south sides of the main building. There is a double door with a stone lintel on the north side of the building; the lintel has the date 1895 carved on its surface. There is also a single door with a stone lintel on the east side.

The interior of the lighthouse provided living quarters for the keeper and his family. There were three bedrooms on the third floor, kitchen, dining room and living room on the second floor and a boiler room on the first floor. The interior of the tower was also utilized for living space with a bedroom on the second floor. Access to the tower was provided only from a stairwell in the dwelling. The third floor of the tower served as a service room and the fourth a watch room with access to the light cubicle above. On the lantern deck there was a fourth order light showing a fixed white light varied every twenty seconds by a red flash.

Since 1947 the absence of personnel living in the lighthouse has made it a target for vandals and much needed maintenance has been neglected. The gutted interior with its crumbling staircase is a safety hazard. High water levels of Lake Huron, ice floes resulting from winter shipping activities, and a storm on October 20, 1972 resulted in extensive damage to the southwest corner of the breakwater, pier and part of the lighthouse. Repair of the breakwater is urgently needed to protect the structure from further wave action.



SEE INSTRUCTIONS

8. SIGNIFICANCE

PERIOD (Check One or More as Appropriate)

- | | | | |
|--|---------------------------------------|--|---------------------------------------|
| <input type="checkbox"/> Pre-Columbian | <input type="checkbox"/> 16th Century | <input type="checkbox"/> 18th Century | <input type="checkbox"/> 20th Century |
| <input type="checkbox"/> 15th Century | <input type="checkbox"/> 17th Century | <input checked="" type="checkbox"/> 19th Century | |

SPECIFIC DATE(S) (If Applicable and Known)

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

- | | | | |
|--|--------------------------------------|--|--|
| <input type="checkbox"/> Aboriginal | <input type="checkbox"/> Education | <input type="checkbox"/> Political | <input type="checkbox"/> Urban Planning |
| <input type="checkbox"/> Prehistoric | <input type="checkbox"/> Engineering | <input type="checkbox"/> Religion/Philosophy | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Historic | <input type="checkbox"/> Industry | <input type="checkbox"/> Science | _____ |
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Invention | <input type="checkbox"/> Sculpture | _____ |
| <input type="checkbox"/> Architecture | <input type="checkbox"/> Landscape | <input type="checkbox"/> Social/Humanitarian | _____ |
| <input type="checkbox"/> Art | <input type="checkbox"/> Literature | <input type="checkbox"/> Theater | _____ |
| <input checked="" type="checkbox"/> Commerce | <input type="checkbox"/> Military | <input checked="" type="checkbox"/> Transportation | _____ |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Music | | |
| <input type="checkbox"/> Conservation | | | |

STATEMENT OF SIGNIFICANCE

In sailing between Lake Huron and Lake Michigan one must pass through the Straits of Mackinac. In the early days a ship captain, in order to use the north channel, had to cope with a number of navigational difficulties ranging from frequent foggy days to several off-shore shoals in traversing the narrow passage between Mackinac and Round Island. While none of these difficulties were insurmountable, collectively they were enough to deflect most shipping into the longer southern channel. For this reason, as far back as 1874 steps were taken to reserve land on Round Island for a lighthouse. There was consideration given to an alternate location on Mackinac Island, but due to the cost involved, Round Island was finally chosen. Preliminary work began on the station in 1894 and construction completed in 1895. With the lighthouse in service the northern channel of the Straits of Mackinac was at last open to shipping.

The beacon was operated by three men working in shifts until 1924 when an automatic light was installed. From 1924 to 1947 the station was occupied and operated by a single caretaker. After 1947 the lighthouse was unoccupied following the installation of alternate navigation aids for ships using the north channel. Until 1957 a single gasoline lantern was lighted and hung outside the tower to guide ships at night and when rain and stormy weather made sailing hazardous.

In 1958 the lighthouse and the 8.24 acre reservation was transferred to the Forest Service, U.S. Department of Agriculture and was added to the Round Island Scenic Area. In its present form the lighthouse serves as a sentinel of the past to be reviewed by some six to seven hundred thousand tourists ferrying to and from Mackinac Island. Since the shipping channel between the islands is only a thousand feet from the lighthouse, it also serves as a daytime reference point for the many freighters and other vessels sailing between the Straits of Mackinac and the St. Mary's River. The Round Island Lighthouse is clearly visible from the historic fort and from other observation points on Mackinac Island, Mackinac Bridge and St. Ignace. It plays an important role in the historic theme of the whole area.

The Mackinac Island Park Commission, the Michigan Society of Architects, the Michigan History Division of the Department of State and other organizations have shown an active interest in preserving this structure as a National Historic Site. The Mackinac Island Historical Society is now soliciting contributions from various sources for the funds needed to accomplish the repair and restoration work.

SEE INSTRUCTIONS

9. MAJOR BIBLIOGRAPHICAL REFERENCES

Mackinac Island and Town Crier xx (Dec. 1973), Sec. 2, pp. 17-18-19.
 Construction Plans for Round Island Light Station May, 1895.
 Personal letter (xeroxed) from C. Delano, Sec. of Interior to B.H. Bristow, Sec. of Treasury, Washington, D.C., Oct. 27, 1874.
 Personal letter (xeroxed) from K.S. Harrison, Chief Counsel U.S. Coast Guard to Francis R. Maugham, Dis. of Plant and Operation, Department of Agriculture, Washington D.C.

Nov. 17, 1958.

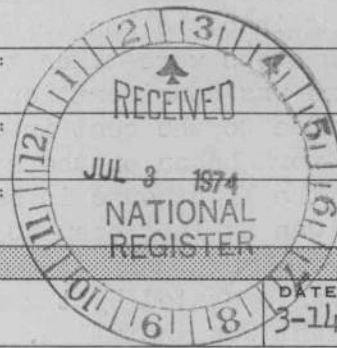
10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY			LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES		
CORNER	LATITUDE	LONGITUDE			
	Degrees Minutes Seconds	Degrees Minutes Seconds	Degrees	Minutes	Seconds
NW	° ' "	° ' "	45°	50'	14"
NE	° ' "	° ' "	84°	37'	00"
SE	° ' "	° ' "			
SW	° ' "	° ' "			

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: less than one acre

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE



11. FORM PREPARED BY

NAME AND TITLE: Robert L. Clayton, Historian		DATE: 3-14-74
BUSINESS ADDRESS: U.S.D.A. Forest Service		4062
STREET AND NUMBER: P.O. Box 316		PHONE: 906-786- FTS: 6422 or 23
CITY OR TOWN: Escanaba	STATE Michigan	CODE

12. CERTIFICATION OF NOMINATION

NATIONAL REGISTER VERIFICATION

State Liaison Officer recommendation:

- ☒ Yes
☐ No
☐ None

State Liaison Officer Signature

In compliance with Executive Order 11593, I hereby nominate this property to the National Register, certifying that the State Liaison Officer has been allowed 90 days in which to present the nomination to the State Review Board and to evaluate its significance. The recommended level of significance is ☐ National ☒ State ☐ Local

Federal Representative Signature

Date

Acting Director of Recreation

Title

I hereby certify that this property is included in the National Register.

Director, Office of Archeology and Historic Preservation

Date

ATTEST:

Keeper of The National Register

Date

SEE INSTRUCTIONS

Round Island Lighthouse --- Michigan

WORKING NUMBER

7. 3. 74. 1102

74000994

TECH REVIEW

Photos

2

Maps

1

Mackinnon

CONTROL REVIEW

#12 Need letter of authorization.

im.

7.5

74

HISTORIAN

otherwise

OK

Accept
W. R. Luce
8/6/74

ARCHITECTURAL HISTORIAN

Should be nominated in area of transportation
A handsome bldg....

ACCEPT
H. and L.
8/6/74

ARCHEOLOGIST

to KRAER

Accept.
End
8/6/74

384

REVIEW UNIT CHIEF

BRANCH CHIEF

KEEPER

Accept
Frank
J. McIntosh
8-12-74

National Register write-up

Oct 7

Send-back

Federal Register entry

Oct. 1, 1974

Re-submit

Entered

AUG 21 1974

Historical Marker - HB36 - Early Missionary Bark Chapel (Marker ID#:HB36)



NO PHOTO AVAILABLE

Front - Title/Description

Early Missionary Bark Chapel

According to descriptions by Jesuit missionaries, the bark chapels which they built among the Indians of the Great Lakes looked like this. In such primitive huts, far from civilization, the courageous French "blackrobes" lived and sought to turn the minds of the savages to Christianity. One of this illustrious company, Father Claude Dablon, from the mission of Sault Ste. Marie, and later superior general of the Jesuits in Canada, wintered on Mackinac Island in 1670-71 and carried on missionary work here. It is to the memory of these heroic pioneer priests that this reconstruction of a bark chapel is dedicated.

Significant Date:

Native People and the French (< 1760)

Registry Year: 1959 **Erected Date:** 1959

Marker Location

Address: Fort Street

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.85079600 / **Long:** -84.61713900

Web URL:

Back - Title/Description

Historical Marker - S188 - Battlefield of 1814 (Marker ID#:S188)



Front - Title/Description

Battlefield of 1814

Here in this area on August 4, 1814, an American force battled the British in a vain attempt to recapture the island which the British had seized at the outbreak of the War of 1812. Coming ashore at what is known as British Landing, the Americans under Colonel George Croghan soon ran into strong resistance as they advanced inland. An attempt to outflank the British line was repulsed by Indians hidden in thick woods and resulted in the death of Major Andrew Holmes. Croghan withdrew when he found that he could not defeat the British.

Significant Date:

Revolution and War (1760-1815)

Registry Year: 1958 ***Erected Date:*** 1958

Marker Location

Address: British Landing Road

City: Mackinac Island

State: MI ***ZipCode:***

County: Mackinac

Township:

Lat: 45.87351700 / ***Long:*** -84.63420800

Web URL:

Back - Title/Description



Significant Date:

Revolution and War (1760-1815)

Registry Year: 1956 **Erected Date:** 1960

Marker Location

Address: Market Street

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.85058700 / **Long:** -84.61794300

Web URL:

Front - Title/Description

Biddle House

This house is probably the oldest on the island. Parts of it may date from 1780. A deed to the property, upon which a one hundred dollar down payment was made in 1822 by Edward Biddle, was obtained by him in 1827 from the then owner. Biddle was a cousin of the Biddles of Philadelphia and a leading trader and citizen. For years he lived here with his Indian wife. The house is an example of the Quebec rural style. It is listed in the Historic American Buildings Survey and was restored by the Michigan Society of Architects and the building industry in 1959.

Back - Title/Description

Historical Marker - L2 - British Cannon (Marker ID#:L2)



Front - Title/Description

British Cannon

Early on the morning of July 17, 1812, British troops set up a cannon on this height overlooking Fort Mackinac. This move, coupled with the size of the British forces, resulted in the American garrison's surrender.

Back - Title/Description

Significant Date:

Revolution and War (1760-1815)

Registry Year: 1959 **Erected Date:** 1959

Marker Location

Address: Rear of Ford Mackinac

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.85821600 / **Long:** -84.61702000

Web URL:

Historical Marker - S187 - British Landing (Marker ID#:S187)



Front - Title/Description

British Landing

Here during the night of July 16-17, 1812, a small force of British regulars and several hundred voyageurs and Indian allies from St. Joseph Island landed. They occupied a height that overlooks Fort Mackinac and demanded its surrender. Lieutenant Porter Hanks, commander of the American garrison of fifty-seven soldiers, had not known that war had been declared. Realizing that resistance was hopeless and might provoke an Indian massacre, Hanks capitulated without a fight.

Significant Date:

.00000000

Registry Year: 1958 **Erected Date:** 1958

Back - Title/Description

Marker Location

Address: British Landing Road at Lakeshore

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.87743100 / **Long:** -84.64509100

Web URL:

Historical Marker - S79 - Fort Holmes (Marker ID#:S79)



Front - Title/Description

Fort Holmes

Here in 1812, on the island's highest point, a blockhouse and stockade were built by the British and named Fort George. It was the bulwark of British defenses in 1814 when the American attack was repulsed. After the war the Americans renamed the post in honor of Major Holmes, who was killed during the American assault in 1814. The fort was not maintained by the Americans, however. The present blockhouse is not the original building.

Significant Date:

Registry Year: 1956 **Erected Date:** 1959

Back - Title/Description

Marker Location

Address: Fort Holmes Rd

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.85800700 / **Long:** -84.61654900

Web URL:

**Historical Marker - S19 - American Fur Company Store / American Fur Company Store
(Marker ID#:S19)**



Front - Title/Description

American Fur Company Store

On June 6, 1822, Alexis St. Martin (1804-1880), a French Canadian voyageur, was accidentally shot in the American Fur Company Store located on this site. Dr. William Beaumont (1786-1853), the Fort Mackinac post surgeon, nursed St. Martin's wound healed leaving a permanent opening in to his stomach. Through this opening Beaumont compared the digestibility of foods, recorded the temperature of the stomach under different conditions, and extracted and analyzed gastric juice. Beaumont conducted the first of 250 experiments with St. Martin in 1825 in the Officers' Stone Quarters at Fort Mackinac. Eight years later he published a groundbreaking book on his discovery of the digestive process.

Significant Date:

Registry Year: 1956 **Erected Date:** 2004

Marker Location

Address: Corner of Fort & Market Sts.

City: Mackinac Island

State: MI **ZipCode:** 49757

County: Mackinac

Township:

Lat: 45.85061300 / **Long:** -84.61758400

Web URL:

Back - Title/Description

American Fur Company Store

same text as Front

Historical Marker - HB10 - Grand Hotel (Marker ID#:HB10)



Front - Title/Description

Grand Hotel

Opened on July 10, 1887, the Grand Hotel was built by the Grand Rapids and Indiana and the Michigan Central Railroads and the Detroit and Cleveland Navigation Company through the efforts of Senator Francis B. Stockbridge. It is built of Michigan white pine. With its magnificent colonial porch, longest in the world, it is a classic example of gracious living in Victorian days. One of the outstanding landmarks on the Great Lakes, it is the world's largest summer hotel.

Back - Title/Description

Significant Date:

Industry and Invention (1875-1915)

Registry Year: 1957 **Erected Date:** 1958

Marker Location

Address: West Bluff

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.85067800 / **Long:** -84.62478800

Web URL:

Historical Marker - S189 - Historic Fort Mackinac (Marker ID#:S189)



Front - Title/Description

Historic Fort Mackinac

Mackinac Island has been called the most historic spot in the Middle West. Fort Mackinac was first built by the British in 1780-81. It was not until 1796, thirteen years after the end of the Revolutionary War, that the British relinquished this fort to the Americans. At the outbreak of the War of 1812 the British seized the island and built Fort George. This fort, which you see to the north beyond the Rifle Range, was renamed Fort Holmes by the Americans who reoccupied the island in 1815. Troops garrisoned Fort Mackinac until 1895.

Significant Date:

.00000000

Registry Year: 1958 **Erected Date:** 1958

Back - Title/Description

Marker Location

Address: Fort Street

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.85252200 / **Long:** -84.61809300

Web URL:

Historical Marker - L4 - Home of the Ancestors / Home of the Ancestors (Marker ID#:L4)



Significant Date:

Revolution and War (1760-1815)

Registry Year: 1959 Erected Date: 2021

Marker Location

Address: Garrison Road

City: Mackinac Island

State: MI ZipCode:

County: Mackinac

Township:

Lat: 45.85726000 / Long: -84.61899500

Web URL:

Front - Title/Description

Home of the Ancestors

Mackinac Island has long been a burial location for the Anishnaabek (Odawa, Ojibway and Potawatomi). Some of the burials on the island are more than one thousand years old. It is a common practice for the Anishnaabek to bury their dead near water and their villages. Once their kin are interred, the Anishnaabek remember them in special ceremonies, often called "feasts of the dead" or "ghost suppers." Michigan Odawa, Ojibway and Potawatomi communities hold these feasts in autumn.

Back - Title/Description

Home of the Ancestors

As part of respecting the dead, the Little Traverse Bay Bands of Odawa Indians and the Sault Ste. Marie Tribe of Chippewa Indians have worked with Mackinac State Historic Parks to repatriate ancestral human remains from Mackinac Island and Mackinaw City. The 1990 federal Native American Graves Protection and Repatriation Act governs this work. Mackinac Island is a special place for many native people. Manidook (spirits), events and the burials of the ancestors all contribute to the sacred nature of the island.

Historical Marker - Hubbard's Annex to the National Park/ (Marker ID#:L2253)



Front - Title/Description

Hubbard's Annex to the National Park

Gurdon Hubbard (1802-1886) came to Mackinac Island from New England in 1818 to work in the fur trade. His expanding businesses centered on Chicago, where in 1834 he was elected as a town trustee. In 1855 Hubbard purchased this property, building a cottage in 1870. In 1882, Hubbard divided his land into parcels for a summer cottage community. At the time, much of the island was the nation's second National Park.

Significant Date:

Statehood Era (1815-1860)

Registry Year: 2013 ***Erected Date:*** 2014

Marker Location

Address: Park Ave at Grand Ave

City: Mackinac Island

State: MI ***ZipCode:*** 49757

County: Mackinac

Township:

Lat: 45.85478877 / ***Long:*** -84.63628202

Web URL:

Back - Title/Description

Hubbard's Annex to the National Park

Inspired by the City Beautiful Movement and the 1880s trend to create summer homes for wealthy urbanites eager to escape industrial cities, the Annex was among the first planned summer communities in Michigan. The cottages were built in a variety of styles along winding avenues that surrounded open private parks. Many of the early cottages in the Carpenter Gothic style were constructed by Charles W. Caskey.



Significant Date:

Statehood Era (1815-1860)

Registry Year: 1965 **Erected Date:** 2011

Marker Location

Address: Huron Street

City: Mackinac Island

State: MI **ZipCode:** 49757

County: Mackinac

Township:

Lat: 45.85089700 / **Long:** -84.61539500

Web URL:

Front - Title/Description

Indian Dormitory

The Treaty of 1836 transferred 15 million acres of Ojibway (Chippewa) and Odawa (Ottawa) land in Michigan Territory to the federal government. It also required improvements to the Mackinac Island Indian Agency, including “a dormitory for Indians visiting the post.” This building, designed by Indian Agent Henry Rowe Schoolcraft, was completed in 1838. It was the agency’s administrative headquarters for eight years and occasionally housed Native Americans who came to the island to receive their annual treaty payments. From 1846 to 1867 the building was used for a variety of purposes, including as a U.S. Customs House. In 1867 it became the Mackinac Island Public School, serving in this capacity until 1960. The Mackinac Island State Park Commission purchased it in 1964 and renovated it in 1966.

Back - Title/Description

Henry R. Schoolcraft

Given the choice, Indian Agent Henry Schoolcraft (1793-1864) moved from the “wild magnificence of nature” at Sault Ste. Marie “back one step into the area of the noisy world” on Mackinac Island in 1833. From the Agency House next door to this site, he continued his life’s work documenting “the history, manners and customs, languages and general ethnology” of Michigan Indians. He first came to Michigan in 1820 as the geologist with the Lewis Cass expedition. In 1822 he became the Indian agent at the Sault. Named commissioner for treating with the Indians in 1836, he insisted on broad tribal involvement in the negotiations. After Schoolcraft left Mackinac for his native New York in 1841, he continued to write and publish research on Michigan Indians that scholars still use today.

Historical Marker - L217 - Island House (Marker ID#:L217)



Front - Title/Description

Island House

Constructed for Charles O'Malley about 1852, this building was one of the first summer hotels on Mackinac Island. Captain Henry Van Allen, a Great Lakes skipper, purchased the hotel in 1865. He later moved it from the beach to its present location. By the 1880s the Island House was known as "The best family hotel on the island." Following the death of her parents, Mrs. Rose Van Allen Webster became proprietor about 1892. She was the wife of Colonel John Webster, whom she had met during the 1870s when he was stationed at Fort Mackinac. Mrs. Webster added the large wings in 1895 and 1912, retaining ownership until her death in 1938. The Island House still serves as a resort hotel.

Significant Date:

Statehood Era (1815-1860)

Registry Year: 1973 **Erected Date:** 1973

Marker Location

Address: Huron Street

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.85072100 / **Long:** -84.61411300

Web URL:

Back - Title/Description

Historical Marker - L982A - Lake View Hotel (Marker ID#:L982A)



NO PHOTO AVAILABLE

Front - Title/Description

Lake View Hotel

Originally known as the Lake View House, this is one of the oldest continuously operated hotels on Mackinac Island. Reuben Chapman built the structure in 1858. After his death in 1860, the hotel was operated by his wife, Maria. In 1880 the Chapmans' daughter Jeannie and son-in-law Claude C. Cable purchased the structure. They later changed the name to the Lake View Hotel. In the 1890s, as Mackinac Island became a midwestern tourist mecca, the hotel was enlarged and the two large towers were added. The restaurant and bar were built in 1969 and expanded in 1975. The original portion of the hotel is a well-preserved example of vernacular resort architecture. The handsome building is accented by an open, wood-columned porch with a modified hipped roof and a raised basement.

Significant Date:

Statehood Era (1815-1860)

Registry Year: 1982 **Erected Date:** 1985

Marker Location

Address: SW end of Huron Street

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.84754500 / **Long:** -84.61858700

Web URL:

Back - Title/Description

Historical Marker - L644A - Little Stone Church (Marker ID#:L644A)



Front - Title/Description

Little Stone Church

The Union Congregational Church, affectionately called Little Stone Church, was established in 1900 by eleven charter members. Local residents and summer visitors donated funds for its construction. The cornerstone was laid on August 2, 1904. This structure was built of Mackinac Island stones in an eclectic Gothic style. Its handsome stained glass windows, installed in 1914, tell the story of the Protestant movement on the island. Open only during the summer, this church has been a landmark to visitors and a popular wedding site.

Significant Date:

Industry and Invention (1875-1915)

Registry Year: 1979 **Erected Date:** 1979

Marker Location

Address: Cadott Street

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.84867700 / **Long:** -84.62204200

Web URL:

Back - Title/Description

Historical Marker - S468 - Mackinac Conference (Marker ID#:S468)



Front - Title/Description

Mackinac Conference

On September 6, 1943, Michigan's Republican United States senator, Arthur H. Vandenberg, chaired the meeting of the Post War Advisory Council. Republican National Committee chairman Harrison Spangler created the council to draw up a foreign policy plank for the 1944 party platform. Fearing a split between isolationists and internationalists, Spangler wanted a unified policy statement on treaty ratification and the proposed world peace organization. The resulting plank cleared the way for later Republican congressional support of the United Nations and ultimately the North Atlantic Treaty Organization. Among those attending the public sessions were Governors Warren of California, Dewey of New York, Kelly of Michigan, Green of Illinois, and Senator Robert A. Taft of Ohio.

Significant Date:

Two World Wars and the Depression (1915-1945)

Registry Year: 1975 ***Erected Date:*** 1975

Marker Location

Address: Grand Hotel

City: Mackinac Island

State: MI ***ZipCode:***

County: Mackinac

Township:

Lat: 45.85062400 / ***Long:*** -84.62502400

Web URL:

Back - Title/Description

Historical Marker - S34 - Mackinac Island (Marker ID#:S34)



Front - Title/Description

Mackinac Island

In 1670 a Jesuit priest, Father Claude Dablon, wintered here. The British in 1781 made it a center of their military and fur-trade activity. The island was occupied by the Americans in 1796. Held by the British during the War of 1812, it became the hub of Astor's fur empire after 1817. Mackinac was already becoming a popular resort when fur trading declined during the 1830s.

Back - Title/Description

Significant Date:

Native People and the French (< 1760)

Registry Year: 1956 ***Erected Date:*** 1956

Marker Location

Address: Market Street

City: Mackinac Island

State: MI ***ZipCode:***

County: Mackinac

Township:

Lat: 45.84960000 / ***Long:*** -84.61847400

Web URL:

Historical Marker - S40 - Market Street (Marker ID#:S40)



Front - Title/Description

Market Street

During the peak of the fur trade this street bustled with activity. Each July and August Indians, traders, and trappers by the thousands came here with furs from throughout the Northwest. In 1817 John Jacob Astor's American Fur Company located its headquarters here. Furs valued at \$3 million went through the Market Street offices in 1822. After 1834 the trade moved westward.

Back - Title/Description

Significant Date:

Statehood Era (1815-1860)

Registry Year: 1956 **Erected Date:** 1956

Marker Location

Address: Market Street

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.84967300 / **Long:** -84.61878200

Web URL:

Historical Marker - HB3 - Mission Church (Marker ID#:HB3)



Front - Title/Description

Mission Church

This is one of Michigan's oldest Protestant churches. It was built in 1829-30 by the Presbyterian flock of Reverend William M. Ferry, founder in 1823 of a nearby Indian mission. Robert Stuart and Henry Schoolcraft were lay leaders. About 1838 private owners bought the building. It is judged Michigan's best example of the New England Colonial church style.

Back - Title/Description

Significant Date:

Statehood Era (1815-1860)

Registry Year: 1956 **Erected Date:** 1957

Marker Location

Address: Huron Street at Truscott

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.84972700 / **Long:** -84.60876700

Web URL:

Historical Marker - S313 - Mission House (Marker ID#:S313)



Front - Title/Description

Mission House

In 1823 the Reverend William Ferry founded a mission on Mackinac Island on land now known as Mission Point. Two years later he and his wife, Amanda, erected this building as a boarding school for Indian children. In 1827, 112 students attended the school. The majority of the resident pupils were metis, children of Indian and Euro-American parents. The mission closed in 1837. In 1849 Edward A. Franks opened the Mission House Hotel after adding a third story to the structure. The Franks family operated the hotel until 1939 when it was sold and converted to a rooming house. In 1946 Miles and Margaret Phillimore bought the property, which provided a base for the Moral Re-Armament movement. Around 1971 the Cathedral of Tomorrow purchased the site. Six years later the Mission House became part of the Mackinac Island State Park.

Significant Date:

Statehood Era (1815-1860)

Registry Year: 1970 **Erected Date:** 1993

Marker Location

Address: East end of Huron St.

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.85053400 / **Long:** -84.60755800

Web URL:

Back - Title/Description

Historical Marker - L3 - Old Agency House (Marker ID#:L3)



Front - Title/Description

Old Agency House

Here stood the federal Indian agent's home. The most famous of the Indian agents is Henry R. Schoolcraft, student of Indian ways whose work inspired the poem "Hiawatha." In the early 1870s the house burned.

Back - Title/Description

Significant Date:

Statehood Era (1815-1860)

Registry Year: 1959 **Erected Date:** 1959

Marker Location

Address: Huron Street

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.84951800 / **Long:** -84.61800800

Web URL:

Historical Marker - L107 - Round Island Lighthouse (Marker ID#:L107)



Front - Title/Description

Round Island Lighthouse

The Round Island Lighthouse, seen south of this site, was completed in 1895. Operating under the auspices of the United States government, this facility was in continuous use for fifty-two years. It was manned by a crew of three until its beacon was replaced by an automatic light in 1924. A sole caretaker occupied and operated the station from 1924 to 1947. Following the construction of a new automatic beacon near the breakwater off the south shore of Mackinac Island, the lighthouse was abandoned. The United States Forest Service now supervises the structure, which is located in the Hiawatha National Forest. The lighthouse serves as a sentinel for the past, reminding visitors of the often precarious sailing and rich history of the Straits of Mackinac.

Significant Date:

Industry and Invention (1875-1915)

Registry Year: 1971 **Erected Date:** 1978

Marker Location

Address: Main Street

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.84656400 / **Long:** -84.61900400

Web URL:

Back - Title/Description

Historical Marker - S622 - Sainte Anne Church (Marker ID#:S622)



Front - Title/Description

Sainte Anne Church

In 1670 Jesuit Father Charles Dablon founded a birchbark mission chapel on Mackinac Island. The following year, Father Jacques Marquette relocated the mission at Saint Ignace. Abandoned in 1706 and reestablished at Fort Michilimackinac around 1715, the new church was named Sainte Anne de Michilimackinac. During the winter of 1780-81, British troops relocated to the island and moved the church building across the ice. The parish is the nation's oldest dedicated to Saint Anne, and maintains baptismal records dating from April 1695.

Significant Date:

Native People and the French (< 1760)

Registry Year: 1990 **Erected Date:** 1992

Marker Location

Address: Huron St.

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.85011900 / **Long:** -84.61168000

Web URL:

Back - Title/Description

Historical Marker - L2266 - Scout Barracks / Parade Ground (Marker ID#:L2266)



Front - Title/Description

Scout Barracks

In 1929, Park Commissioner Roger Andrews invited eight Eagle Scouts, including future President Gerald Ford, to serve as the "Governor's Honor Guard" and tour guides at Fort Mackinac. Scouts raised and lowered the colors daily and fired the sunset gun. They stayed in the Fort Commissary until moving into these barracks, built in 1934. The building was constructed by the Mackinac Island Civilian Conservation Corps unit, many of whom were World War I veterans. In 1938, the program began to include Boy Scouts at all levels. Additions to the barracks were completed in 1961 and in 1975. They followed the style of the original building. At the urging of Michigan First Lady Helen Milliken, Girl Scouts joined the scout service program in 1975.

Significant Date:

Two World Wars and the Depression (1915-1945)

Registry Year: 2014 **Erected Date:** 2015

Marker Location

Address: 6998 Huron Road

City: Mackinac Island

State: MI **ZipCode:** 49757

County: Mackinac

Township:

Lat: 45.85321000 / **Long:** -84.61697000

Web URL:

Back - Title/Description

Parade Ground

In the nineteenth century, this area served as a parade ground for soldiers stationed at Fort Mackinac. Here, soldiers practiced marching, the manual of arms, bayonet skills and other military drills. By 1843, the parade ground was formally developed and fenced. In the 1870s, several buildings were erected on the edge of the parade ground, including horse stables and housing for non-commissioned officers. The parade ground also served as home field for the Fort Mackinac Base Ball Club. Founded in 1885, the club played games against other teams from Northern Michigan. In 1887, the team built a grandstand with seating for 500 spectators. An admission to a baseball game cost twenty-five cents, and grandstand seats cost an extra ten cents.

Historical Marker - L73 - Trinity Church (Marker ID#:L73)



Front - Title/Description

Trinity Church

Episcopal services on Mackinac Island date from 1837, when a bishop preached in the Mission Church. For many years the congregation met in the post chapel at Fort Mackinac and in the courthouse. In 1873 a parish was organized, and in 1882 this church building was constructed. Its furnishings include an altar of hand-carved walnut, and two chancel chairs made by soldiers at the fort.

Significant Date:

Industry and Invention (1875-1915)

Registry Year: 1968 **Erected Date:** 1968

Back - Title/Description

Marker Location

Address: Fort Street at Market

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.85060200 / **Long:** -84.61821100

Web URL:

Historical Marker - S550A - Wawashkamo (Marker ID#:S550A)



Front - Title/Description

Wawashkamo

In 1898 Chicago cottagers founded the Wawashkamo Golf Club. By 1900 the club had been incorporated and the clubhouse had been built on the site of the 1814 Battle of Mackinac Island. Wawashkamo is Indian for "Crooked Trail." Golf course architect Alex B. Smith left the natural features of the site unaltered in his design for these true nine-hole Scottish links. Wawashkamo Golf Club is Michigan's oldest unchanged private nine-hole golf links.

Back - Title/Description

Significant Date:

Industry and Invention (1875-1915)

Registry Year: 1982 **Erected Date:** 1983

Marker Location

Address: British Landing Road

City: Mackinac Island

State: MI **ZipCode:**

County: Mackinac

Township:

Lat: 45.87028900 / **Long:** -84.63206200

Web URL:

Appendix 2

8.0 RECOMMENDED IMPROVEMENTS

Recommended improvements to the system are presented in this section. Where applicable, construction cost estimates are provided. Distribution system improvements are depicted on Figures 7 and 8. Each distribution improvement is labeled with the location, size, and costs in Tables 16 and 17.

8.1 WATER PLANT AND SYSTEM CAPACITY IMPROVEMENTS

The MDEQ recommends that if the MDD of the system exceeds 80% of the plant's firm capacity, then the provider should begin planning an upgrade to that capacity. The projected demands for 2021 and 2036 exceed this requirement. The City should begin planning to upgrade the capacity of the plant to meet these increased demands. The current membrane filters are the limiting factor for the plant, with a firm capacity of 2.16 mgd. If another filter were added to the plant, the membranes would have a firm capacity of 2.88 mgd; this would give the plant the firm capacity to meet the expected increases in demand in the future.

Calculations were made to confirm that the chlorine dose in the clearwell could meet the CT requirements for the plant with the projected demands, given the current low water level in the clearwell is maintained. The current low water level was determined to allow sufficient contact time during a 2036 peak hour demand.

8.2 PLANT AND RESERVOIR IMPROVEMENT COSTS

As part of the Reliability Study, FTCH performed an inspection of the Water Treatment Plant and other water utility structures. The condition and recommendations for improvement based on that inspection are included in Section 6.4 of this report. Table 16 summarizes and estimates the costs of those improvements. It should be noted that these costs are estimates based on the FTCH's past project experiences and may change due to the unique situation of the island. These costs are only intended as a guide, and any project should have more complete study and a new budgetary estimate before proceeding with the project. Costs have not been included for a capacity expansion of the plant, as this item is expected to require further discussion.

Table 16 - Plant Improvement Costs

General Plant Improvements		
Item	Cost	Notes
Replace Lighting throughout Plant	\$ 60,000	The lighting was installed in 1984 and is at the end of its useful life.
Replacing some Exterior Doors	\$ 5,000	The exterior doors to both the Laboratory and Chlorine room are badly corroded and should be replaced with FRP doors.
Replace the AC unit	\$ 60,000	The existing Air Conditioning unit at the Plant uses R-22 refrigerant, which is a greenhouse gas and is no longer in use. A new unit should be purchased with a more widely accepted and environmentally-friendly refrigerant.
Repair or Replace Louvers throughout Plant	\$ 30,000	Louvers throughout the Plant are boarded up every winter. They should be repaired or replaced and put in service year-round to achieve the designed number of air changes in the Plant.
Removal of Old Electrical Equipment throughout the Plant	\$ 10,000	There are a number of old control panels and electrical equipment which can be demolished throughout the Plant.
Repaint Piping	\$ 10,000	The raw water piping to the arrays and the piping in the access area around the clearwell.
Replace or Resurface Laboratory Countertops	\$ 20,000	The Laboratory Countertops are pitted and stained from years of use. They should be resurfaced or replaced.
Replace Laboratory Windows	\$ 20,000	The windows in the Laboratory are single-pane and should be replaced with double-pane windows to improve energy efficiency in the Laboratory.
Shorewell Improvements		
Item	Cost	Notes
Install a Chlorine Line out to the Intake	\$ 30,000	Zebra Mussels have moved into the area and are clogging the Plant's Intake. Running a chlorine line out to the intake would keep the zebra mussels off the intake.
Repair the Strainer at the Discharge of the Shorewell Pump	\$ 5,000	One of the strainers at the discharge of the shore well pumps is corroded and leaking badly. It should be repaired and repainted.
Install Pipe Coupling for Pre-Chlorination Feed	\$ 5,000	Chlorine is added to the shore well through a small diameter plastic line that is affixed with duct tape to a pipe that leads down into the shore well. A pipe coupling should be installed in lieu of the duct tape.

Table 16 - Plant Improvement Costs

Array Improvements		
Item	Cost	Notes
Reprogram the Arrays	\$ 25,000	There have been a high number of fiber breaks which cause Plant staff to take modules on each array out of service. However, this causes automatic locks on the entire array as Log Removal Value (LRV) calculation does not take the out of service modules into account. It is recommended that the software should be reprogrammed to allow for modules out of service in the LRV calculation.
Rework the Piping on the Backwash Discharge	\$ 10,000	The discharge of the backwash from the arrays has a downturned elbow which was failing due to the surge in backwash flow. Plant staff replaced it with a flex hose and two couplings which can better handle the surge, but this arrangement leaks badly. A better arrangement should be installed.
Remove the CIP Tank	\$ 2,000	The CIP tank that was originally installed is no longer used. It should be removed.
Rework Controls for Backwash Discharge to the Sewer	\$ 5,000	The CIP backwash discharge is only allowed to the sewer and not to the lake. This is controlled by the limit switch on the lake discharge valve, allowing flow when the lake discharge valve is not fully open. It should be moved to the limit switch on the sewer side of the valve, so that flow is only allowed when the sewer is fully open.
Seal the Transition between the Containment Trench and the Equipment Pads	\$ 10,000	The transition between the trench and the equipment pads should be sealed to prevent water and chemicals beneath the pads.
Install new supports for the Grating over the Containment Trench	\$ 1,000	The grating over the containment trench is not well-supported and will move out from under Plant staff. New supports should be installed to improve the safety of the grating.
Replace Compressors providing Process Air to the Arrays	\$ 40,000	The compressors providing process air to the arrays are unreliable and difficult to repair; these should be replaced with more reliable compressors.
Repair Backwash Connection to Sewer	\$ 5,000	The backwash discharge pipe to the sewer passes through the floor of the garage. The pipe was leaking at its connection to the floor; plant staff covered the leaking pipe with a repair clamp and caulk, which resolved the issue temporarily. The leak should be repaired with a more permanent solution.

Table 16 - Plant Improvement Costs

<i>Clearwell Improvements</i>		
Item	Cost	Notes
Investigate and Repair Cracking in Access Area Around Clearwells	\$ 5,000	There is some horizontal cracking down in the access area around the clearwell that is effervescing. This should be investigated and possibly repaired.
Replace Access Hatch Latches to Clearwell	\$ 1,000	The latches on the Access Hatches to the Clearwell are broken and should be replaced.
<i>High Service Pump Improvements</i>		
Item	Cost	Notes
Install VFDs on HSPs	\$ 64,000	The High Service Pumps are throttled using butterfly valves on their discharge. Installing VFDs on these pumps will save on energy costs for the City.
Remove Surge Suppressors on HSP's	\$ 5,000	The surge suppressors on the HSP's are no longer used and should be removed.
Repair or Replace the Butterfly Valve on HSP No. 1	\$ 10,000	The butterfly valve on the discharge of HSP No. 1 has seized up and can no longer be turned by hand. This valve should be repaired or replaced.
<i>Chlorine Room Improvements</i>		
Item	Cost	Notes
Replace Ductwork in Chlorine Room	\$ 5,000	A chlorine gas leak caused corrosion to the ductwork in the chlorine room. The ductwork should be replaced.
Replace Exhaust Fan in Chlorine Room	\$ 6,000	A chlorine gas leak caused corrosion to the exhaust fan in the chlorine room. The exhaust fan should be replaced.
<i>Controls Improvements</i>		
Item	Cost	Notes
Create a Virtual Machine Environment for System	\$ 25,000	Plant staff have one backup computer which can run the SCADA system. Plant staff would like to move to a virtual machine environment, which will allow for more backups and offsite storage of the system.
Move to an Ethernet Based System for Controls	\$ 25,000	The Programmable Logic Controllers (PLCs) in the plant do not have reliable backups; plant staff would like to move to an Ethernet based system for more reliability.

Table 16 - Plant Improvement Costs

Reservoir Improvements		
Inspect Lower and Upper Reservoir	\$ 10,000	The Lower Reservoir had a leak recently repaired which needs inspection. The Upper Reservoir has not been inspected since it was installed and needs inspection.
Replace Exterior Door on both the Lower and Upper Reservoir	\$ 2,000	Both exterior doors are corroded and past the end of their useful life. They should be replaced.
Repair Stairs at Upper Reservoir	\$ 2,000	The Upper Reservoir site has settled significantly since its installation, damaging the stairs. These should be repaired.
Repair Building at Upper Reservoir	\$ 15,000	The Upper Reservoir site has settled significantly since its installation, damaging the building, exposing wires. The building should be repaired and the exposed wiring removed.
Repaint Piping in Upper Reservoir Vault	\$ 2,000	The piping down in the Upper Reservoir valve vault needs to be repainted.
Total Cost of Plant Upgrades	\$ 595,000	

8.3 5-YEAR WATER DISTRIBUTION SYSTEM IMPROVEMENTS

The following are recommended improvements to water mains in the distribution system with corresponding construction cost estimates to be done within the next 5 years. The difference in main unit costs is due to the size of the main being installed. The difference in Road/Additional Utility Unit Cost is due to some main being replaced where no road or addition utilities exist. The location of each improvement is illustrated on Figure 7 and listed in Table 17, along with the estimated costs of each improvement.

Table 17 - 5-Year Water Main Improvements Estimated Costs

Project No.	Project Description/Location	Main Length (feet)	Main Unit Cost (\$/foot)	Water Main Cost	Road/Additional Utility Cost per L.F.	Total Estimated Cost
1	Replace 4-inch PVC main near Stonecliffe Development (6-inch)	1,624	\$150	\$240,000	\$435	\$ 950,000
2	Replace main along Cadotte Avenue from 5 th Street to Huron Road (12-inch)	1,771	\$258	\$460,000	\$435	\$1,230,000
3	Replace 2-inch PVC main on Lesley Court (6-inch)	613	\$150	\$ 90,000	\$435	\$360,000
Cost of 5-Year Water Main Improvements				\$790,000	-	\$2,540,000

8.4 20-YEAR WATER DISTRIBUTION SYSTEM IMPROVEMENTS

The following are recommended improvements to water mains in the distribution system with corresponding construction cost estimates to be done within the next 20 years. The location of each improvement is illustrated on Figure 8 and listed in Table 18, along with the estimated costs of each improvement.

Table 18 - 20-Year Water Main Improvements Estimated Costs

Project No.	Project Description/Location	Main Length (feet)	Main Unit Cost (\$/foot)	Water Main Cost	Road/Additional Utility Cost per L.F.	Total Estimated Cost
1	Replace main along Cadotte Avenue from 5th Street to Forest Drive (12-inch)	5,648	\$258	\$1,460,000	\$131	\$2,190,000
2	Replace main along Forest Drive/Lakeshore Drive from Fir Court to British Landing Road (8-inch)	3,587	\$198	\$710,000	\$435	\$2,270,000
3	Install new main from the east end of Marshall Street to the end of Trillium Drive (6-inch)	326	\$150	\$50,000	\$215	\$120,000
4	Install new main from Trillium Drive to the end of Park Road (6-inch)	80	\$150	\$10,000	\$215	\$30,000
5	Replace main along Scott Cave Road to north of island (8-inch)	2,637	\$198	\$520,000	\$435	\$1,670,000
6	Install new main along Butterfly Drive to 3rd Street (6-inch)	541	\$150	\$80,000	\$435	\$320,000
Total Cost of 20-Year Improvements				\$2,830,000	-	\$6,600,000

8.5 SUMMARY OF COST ESTIMATION

The planning, engineering, and construction required to implement the recommended improvements could take from several months up to many years. It is therefore recommended the City begin planning and budgeting efforts as soon as practical in conjunction with the asset management plan development.

Opinions of cost for distribution system improvements represent total project costs, including engineering and contingencies, for replacement of the water main and restoration of the driving surface directly above

the main. Costs for replacement of adjacent utilities and road reconstruction are included separately. Improvements should be coordinated with other utility and road replacement projects wherever feasible to maximize the benefit for the investment. Additional costs were added for the transportation of materials, equipment, and labor to Mackinac Island, transportation of the same from the docks by use of horse-drawn drays, and permitting required for use of vehicles and equipment on the Island.

The construction cost estimates presented in this report reflect August 2016 costs. These opinions of cost were prepared to determine approximate project costs. There are a number of factors that could cause the actual project costs to deviate from these estimates. These include the competitive bidding climate at the time the construction bids are received, inflation, and additions to or changes in the scope of the project that may occur during the design process. The City should update estimated costs prior to proceeding with any future work, and make necessary adjustments to determine the bidding climate in the year the work is proposed to be completed.

Appendix 3

Present Worth Analysis

Community Name:

City of Mackinac Island

Federal Discount Rate for Water Resources Planning (Interest Rate) i =

-0.005

Number of Years, n =

20 years

Water Main Installation Between 6th and 7th

Initial Capital Costs = \$644,000

Annual Operations
& Maintenance Costs = \$1,000

Future Salvage Value = \$354,000

Present Worth
of 20 years of O & M = \$22,000

$$PW = \text{Annual OM} * \frac{(1+i)^n - 1}{i * (1+i)^n}$$

Present Worth
of 20 yr Salvage Value = \$ (391,000)

$$PW = FSV * \frac{1}{(1+i)^n}$$

Total Present Worth = \$275,000

Appendix 4

Present Worth Analysis

Community Name:

City of Mackinac Island

Federal Discount Rate for Water Resources Planning (Interest Rate) $i =$

-0.005

Number of Years, $n =$

20 years

UST Closure and Above-Grade Fuel Tank

Initial Capital Costs = \$149,000

Annual Operations
& Maintenance Costs = \$5,000

Future Salvage Value = \$38,000

Present Worth
of 20 years of O & M = \$106,000

$$PW = \text{Annual OM} \frac{(1+i)^n - 1}{i(1+i)^n}$$

Present Worth
of 20 yr Salvage Value = \$ (42,000)

$$PW = FSV \frac{1}{(1+i)^n}$$

Total Present Worth = \$213,000

Appendix 5

Present Worth Analysis

Community Name:

City of Mackinac Island

Federal Discount Rate for Water Resources Planning (Interest Rate) $i =$

-0.005

Number of Years, $n =$

20 years

Equipment Replacement and Electrical Improvements

Initial Capital Costs = \$347,000

Annual Operations
& Maintenance Costs = \$25,000

Future Salvage Value = \$63,000

Present Worth
of 20 years of O & M = \$528,000

$$PW = \text{Annual OM} \frac{(1+i)^n - 1}{i(1+i)^n}$$

Present Worth
of 20 yr Salvage Value = \$ (70,000)

$$PW = FSV \frac{1}{(1+i)^n}$$

Total Present Worth = \$805,000

Appendix 6

Present Worth Analysis

Community Name:

City of Mackinac Island

Federal Discount Rate for Water Resources Planning (Interest Rate) $i =$

-0.005

Number of Years, $n =$

20 years

Disinfection System Improvements

Initial Capital Costs = \$964,000

Annual Operations
& Maintenance Costs = \$25,000

Future Salvage Value = \$418,000

Present Worth
of 20 years of O & M = \$528,000

$$PW = \text{Annual OM} \frac{(1+i)^n - 1}{i(1+i)^n}$$

Present Worth
of 20 yr Salvage Value = \$ (462,000)

$$PW = FSV \frac{1}{(1+i)^n}$$

Total Present Worth = \$1,030,000

Appendix 7

Present Worth Analysis

Community Name:

City of Mackinac Island

Federal Discount Rate for Water Resources Planning (Interest Rate) $i =$

-0.005

Number of Years, $n =$

20 years

Garage Expansion

Initial Capital Costs = \$417,000

Annual Operations
& Maintenance Costs = \$5,000

Future Salvage Value = \$236,000

Present Worth
of 20 years of O & M = \$106,000

$$PW = \text{Annual OM} \frac{(1+i)^n - 1}{i(1+i)^n}$$

Present Worth
of 20 yr Salvage Value = \$ (261,000)

$$PW = FSV \frac{1}{(1+i)^n}$$

Total Present Worth = \$262,000

Appendix 8

Present Worth Analysis

Community Name:

City of Mackinac Island

Federal Discount Rate for Water Resources Planning (Interest Rate) $i =$

-0.005

Number of Years, $n =$

20 years

Treatment Capacity Expansion

Initial Capital Costs = \$10,091,000

Annual Operations
& Maintenance Costs = \$680,000

Future Salvage Value = \$1,509,000

Present Worth
of 20 years of O & M = \$14,341,000

$$PW = \text{Annual OM} \frac{(1+i)^n - 1}{i(1+i)^n}$$

Present Worth
of 20 yr Salvage Value = \$ (1,668,000)

$$PW = \text{FSV} \frac{1}{(1+i)^n}$$

Replacement Costs= \$815,000

Total Present Worth = \$23,579,000

Appendix 9

Present Worth Analysis

Community Name:

City of Mackinac Island

Federal Discount Rate for Water Resources Planning (Interest Rate) $i =$

-0.005

Number of Years, $n =$

20 years

Upper Reservoir Leak Inseption and Repair

Initial Capital Costs = \$83,000

Annual Operations
& Maintenance Costs = \$4,000

Future Salvage Value = \$30,000

Present Worth
of 20 years of O & M = \$85,000

$$PW = \text{Annual OM} \frac{(1+i)^n - 1}{i(1+i)^n}$$

Present Worth
of 20 yr Salvage Value = \$ (33,000)

$$PW = \text{FSV} \frac{1}{(1+i)^n}$$

Total Present Worth = \$135,000

Appendix 10

Michigan Natural Features Inventory

MSU Extension

County Element Data

The lists include all elements (species and natural communities) for which locations have been recorded in MNFI's database for each county. Information from the database cannot provide a definitive statement on the presence, absence, or condition of the natural features in any given locality, since much of the state has not been specifically or thoroughly surveyed for their occurrence and the conditions at previously surveyed sites are constantly changing. The County Elements Lists should be used as a reference of which natural features currently or historically were recorded in the county and should be considered when developing land use plans. Included in the list is scientific name, common name, element type, federal status, and state status for each element.

Choose a county Mackinac ▼

Mackinac County

[Code Definitions](#)

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Occurrences in County	Last Observed in County
Accipiter gentilis	Northern goshawk		S C	G 5	S 3	13	2016
Acipenser fulvescens	Lake sturgeon		I.	G 3 G 4	S 2	3	1994
Adlumia fungosa	Climbing fumitory		S C	G 4	S 3	4	2014
Alasmidonta marginata	Elktoe		S C	G 4	S 3?	1	1941
Alasmidonta viridis	Slippershell		I.	G 4 G 5	S 2 S 3	2	2007
Alces americanus	Moose		S C	G 5	S 4	3	1981
Arnoglossum plantagineum	Prairie indian-plantain		S C	G 4 G 5	S 3	2	1997
Asio otus	Long-eared owl		I.	G 5	S 1	1	2004
Asplenium rhizophyllum	Walking fern		I.	G 5	S 2 S 3	20	2014
Asplenium scolopendrium var. americanum	Hart's-tongue fern	I .I.	E	G 4T3	S 1	9	2016
Asplenium viride	Green spleenwort		S C	G 5	S 3	18	2014
Barbarea orthoceras	Northern Winter Cress		S C	G 5	S NR	5	2012
Beckmannia syzigachne	Slough grass		I.	G 5	S 2	1	2000
Bombus borealis	Northern amber bumble bee		S C	G 4 G 5	S 3	10	2020
Bombus sandersoni	Sanderson's bumble bee		S C	G 5	S 2 S 3	1	2020
Bombus terricola	Yellow banded bumble bee		S C	G 3 G 4	S 2 S 3	23	2020
Botaurus lentiginosus	American bittern		S C	G 5	S 3	4	2013
Botrychium mormo	Goblin moonwort		I.	G 2 G 3	S 2	1	1952
Botrychium spathulatum	Spatulate moonwort		I.	G 3	S 2	2	1999

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Occurrences in County	Last Observed in County
<i>Buteo lineatus</i>	Red-shouldered hawk		I.	G5	S4	59	2017
<i>Callitriche hermaphroditica</i>	Autumnal water-starwort		SC	G5	S2	1	1892
<i>Calypso bulbosa</i>	Calypso or fairy-slipper		I.	G5	S2	18	2016
<i>Carex richardsonii</i>	Richardson's sedge		SC	G5	S3S4	1	1997
<i>Carex scirpoidea</i>	Bulrush sedge		I.	G5	S2	4	2016
<i>Carex wiegandii</i>	Wiegand's sedge		SC	G4G5	S3	1	1995
<i>Catinella exile</i>	Pleistocene catinella		I.	G2	S1	1	1998
<i>Charadrius melodus</i>	Piping plover	LE	E	G3	S2	2	2015
<i>Chlidonias niger</i>	Black tern		SC	G4G5	S2	3	1996
<i>Circus hudsonius</i>	Northern harrier		SC	G5	S4	1	2001
<i>Cirsium pitcheri</i>	Pitcher's thistle	LT	I.	G3	S3	20	2019
<i>Cistothorus palustris</i>	Marsh wren		SC	G5	S3	4	2018
<i>Coptidium lapponicum</i>	Lapland buttercup		I.	G5	S1S2	1	2016
<i>Coregonus artedii</i>	Lake herring or Cisco		I.	GNR	S3	10	2018
<i>Coregonus kiyi</i>	Kiyi		SC	G3G4	S2S3	1	2000
<i>Corispermum pallasii</i>	Pallas' bugseed		SC	G4?	SNR	1	1995
<i>Cottus ricei</i>	Spoonhead sculpin		SC	G5	S1S2	1	1936
<i>Coturnicops noveboracensis</i>	Yellow rail		I.	G4	S2	2	2004
<i>Crataegus douglasii</i>	Douglas's hawthorn		SC	G5	S3S4	1	1913
<i>Cypripedium arietinum</i>	Ram's head lady's-slipper		SC	G3	S3	10	2016
<i>Cystopteris laurentiana</i>	Laurentian fragile fern		SC	G3	S1S2	1	1994
<i>Draba arabisans</i>	Rock whitlow grass		SC	G4G5	S3	5	2013
<i>Draba cana</i>	Ashy whitlow grass		I.	G5	S1	1	1959
<i>Dryopteris filix-mas</i>	Male fern		SC	G5	S3	3	2008
<i>Eleocharis compressa</i>	Flattened spike rush		I.	G4	S2	1	1998
<i>Elliptio complanata</i>	Eastern elliptio		SC	G5	S2	1	1941
<i>Empetrum nigrum</i>	Black crowberry		I.	G5	S2	4	2016
<i>Emydoidea blandingii</i>	Blanding's turtle		SC	G4	S2S3	1	2005
<i>Erigeron hyssopifolius</i>	Hyssop-leaved fleabane		I.	G5	S1	3	2016
<i>Euconulus alderi</i>	A land snail (no common name)		I.	G5	S2	11	2009
<i>Falciennnis canadensis</i>	Spruce grouse		SC	G5	S2	1	2007
<i>Falco columbarius</i>	Merlin		I.	G5	S3	1	2018

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Occurrences in County	Last Observed in County
Falco peregrinus	Peregrine falcon		E	G4	S3	1	2018
Flexamia huroni	Huron River leafhopper		I	GNR	S1	1	
Gavia immer	Common loon		I	G5	S3	21	2006
Graphephorum melicoides	Purple false oats		SC	G4G5	SNR	2	1949
Gymnocarpium robertianum	Limestone oak fern		I	G5	S2	4	2011
Haliaeetus leucocephalus	Bald eagle		SC	G5	S4	44	2018
Houstonia caerulea	Azure bluet		X	G5	SX	1	2019
Huperzia selago	Fir clubmoss		SC	G5	S3	4	1998
Hydroprogne caspia	Caspian tern		I	G5	S2	5	2014
Iris lacustris	Dwarf lake iris	I.T.	I	G3	S3	22	2020
Juncus stygius	Moor rush		I	G5	S1S2	2	2014
Lasmigona compressa	Creek heelsplitter		SC	G5	S3	1	1941
Lasmigona costata	Flutedshell		SC	G5	SNR	2	1942
Ligumia recta	Black sandshell		E	G4G5	S1?	1	1942
Lithobates palustris	Pickerel frog		SC	G5	S3S4	1	2017
Lycopodiella subappressa	Northern appressed clubmoss		SC	G2	S2	1	1990
Lynx canadensis	Lynx	I.T.	E	G5	S1	2	2003
Mimulus michiganensis	Michigan monkey flower	I.E	E	G5T1	S1	5	2012
Muhlenbergia richardsonis	Mat muhly		I	G5	S2	1	2016
Myotis lucifugus	Little brown bat		SC	G3	S1	4	2010
Myotis septentrionalis	Northern long-eared bat	I.T.	SC	G1G2	S1	3	2012
Nycticorax nycticorax	Black-crowned night-heron		SC	G5	S3	5	2008
Opheodrys vernalis	Smooth green snake		SC	G5	S3	2	2018
Pandion haliaetus	Osprey		SC	G5	S4	42	2001
Petasites sagittatus	Sweet coltsfoot		I	G5	S1S2	1	2000
Physella magnalacustris	Great Lakes physa		SC	G5	SNR	1	
Picoides arcticus	Black-backed woodpecker		SC	G5	S2	1	2009
Pinguicula vulgaris	Butterwort		SC	G5	S3	17	2019
Planogyra asteriscus	Eastern flat-whorl		SC	G4G5	S2S3	16	2013
Platanthera unalascensis	Alaska orchid		SC	G5	S2S3	4	1993
Potamogeton confervoides	Alga pondweed		SC	G5	S3	2	1994

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Occurrences in County	Last Observed in County
Potamogeton hillii	Hill's pondweed		I.	G3	S2	1	1993
Pterospora andromedea	Pine-drops		I.	G5	S2	5	2012
Pupilla muscorum	Widespread column		SC	G5	S2	4	2009
Rorippa aquatica	Lake cress		I.	G4?	S2	1	1975
Ruppia cirrhosa	Widgeon grass		I.	G5	S1	1	1980
Sander canadensis	Sauger		I.	G5	S1	1	1943
Sarracenia purpurea f. heterophylla	Yellow pitcher plant		I.	G5T1T2Q	S1	1	1999
Sistrurus catenatus	Eastern massasauga	I.T.	SC	G3	S3	1	2015
Solidago houghtonii	Houghton's goldenrod	I.T.	I.	G3	S3	32	2019
Somatochlora hineana	Hine's emerald dragonfly	LE	E	G2G3	S1	11	2015
Somatochlora incurvata	Incurvate emerald		SC	G5	S3S4	7	2014
Sporobolus heterolepis	Prairie dropseed		SC	G5	S3	1	1984
Stellaria longipes	Stitchwort		SC	G5	S2	8	2019
Sterna forsteri	Forster's tern		I.	G5	S2	1	1985
Sterna hirundo	Common tern		I.	G5	S2	11	2007
Striatura meridionalis	Median striate		SC	G5	SNR	1	2013
Stylurus amnicola	Riverine snaketail		SC	G4	S2S3	1	1915
Tanacetum huronense	Lake Huron tansy		I.	G5T4T5	S3	27	2019
Tetraneuris herbacea	Lakeside daisy	I.T.	E	G3	S1	2	2019
Trimerotropis huroniana	Lake Huron locust		I.	G2G3	S2S3	16	2006
Typanuchus phasianellus	Sharp-tailed grouse		SC	G5	S3S4	5	2013
Vallonia gracilicosta albula	A land snail (no common name)		E	G4Q	S2	1	1998
Vertigo bollesiana	Delicate vertigo		I.	G4G5	S2	10	2010
Vertigo cristata	Crested vertigo		SC	G5	S3	11	2009
Vertigo elatior	Tapered vertigo		SC	G5	S3	14	2009
Vertigo morsei	Six-whorl vertigo		E	G3	S1?	4	2009
Vertigo nylanderi	Deep-throat vertigo		E	G3G4	S1?	3	2009
Vertigo paradoxa	Mystery vertigo		SC	G4G5Q	S3S4	7	2008
Vertigo pygmaea	Crested vertigo		SC	G5	S1S2	3	
Vertigo tridentata	Honey vertigo		SC	G5	SNR	1	2013
Zizia aptera	Prairie golden alexanders		I.	G5	S1S2	1	1986



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