

# LAPOINTE LIGHT TOWER

## Chronology of Alterations and Use

### *Original Construction*

In 1858, the first LaPointe Lighthouse was put into service. This early version of the LaPointe Tower remained active for almost 40 years. (Historic Image LI-01) The opening of the iron mines resulted in changing water traffic patterns and in 1895, funds were appropriated for the construction of a larger tower further east of the original tower and a new tower on the western tip of the island. The LaPointe Light Tower is 67' tall, a cast iron cylinder within a cast iron skeletal framework, and was manufactured by Chamblin S. Scott of Richmond, Virginia.

Historic drawings from the construction of the Tower in 1895 show that the original concrete plinth was stepped (three risers, the two upper risers were 9" high each), and 4'7 1/4" from grade to the finished floor. Today, the plinth is in disrepair as the concrete has cracked and weathered badly and the steps have mostly disappeared, covered by the shifting sand. (Historic Drawing LI-01)

The Tower's early years are captured in two photos circa 1900 and 1910, and two 1940s images of the Tower and Fog Signal Building. (Historic Images LI-01 and LI-02, Historic Images LI-08 and LI-09)

### *Significant Alterations / Current condition*

Alterations to the LaPointe Light Tower were minor and have consisted primarily of changes in light technology. Wick lamps were replaced by incandescent oil vapor lamps in 1914. A battery-operated winter light was installed in 1934 and a radio system was added in 1936. In 1937, the Tower was converted to electricity and in 1964, the fourth order Fresnel lens was replaced by a 300mm optic on the outside of the lantern. Most recently, a LED beacon was installed (May 2009) inside the lantern. It is powered by three 12-volt batteries charged by a photovoltaic array.<sup>33</sup>

The only mechanical components in the Tower are the passive air vents at the top of the Tower.

Presently, the alternating current power systems in the Tower have been disconnected.

The Tower and braces are currently in fair condition, but the foundation is in poor condition.

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<sup>33</sup> N. Howk, January 2010

## 1 Summary of Documented Work on the Building

| Date                  | Work Described   | Source of Information  |
|-----------------------|--|--|
| 1897                  | <p>Aug 31: "Worked all day on the large tower [LaPointe] hoisting...Got 2 of the lantern deck plats [plates] on each piece weighed 11 hundred pounds. It was a heavy hoist."</p> <p>Sept 8: "...the working men has got the hoisting all done and the roof on the tower."</p> <p>Sept 10: "Helped to put the plate glass in the high tower at signal."</p> <p>Sept 19: "Landed planks for walks and some lime and tin Rifs [roofs?]."</p> <p>Oct 11: "Lit light in both tower October 11<sup>th</sup> 1897..."</p> <p>Oct 25: "Boated iron to the signal and boated shingles from signal to house." Easier to transport materials via water than land.</p> <p>Nov 8: "Built a storm shed in front of the tower."</p> | Joseph Sexton, LI (LaPointe) Log, 1872-1943  |
| Annual Report of 1897 | "La Pointe, Lake Superior, Wisconsin...A 60-foot skeleton metal tower was purchased under contract. Concrete foundations were placed, and the tower was erected as far as the level of the main deck."   | "1897 Annual Report of the Lighthouse Board," La Pointe Light Station in Lighthouse Establishment Annual Reports 1850-1920 |
| 1898, Oct 7           | "Put up storm house in front of tower."  | Joseph Sexton, LI (LaPointe) Log, 1872-1943  |
| 1899, Aug 30          | "Put up the storm house in front of the tower at signal."  | Joseph Sexton, LI (LaPointe) Log, 1872-1943  |
| 1900                  | <p>Sept 29: "Puttied the storm house today with putty &amp; red lead."</p> <p>Oct 2: "Painted the storm house in front of the tower outside."</p>  | Joseph Sexton, LI (LaPointe) Log, 1872-1943  |
| 1901                  | <p>May 3: "Painted storm house inside and out white."</p> <p>June 27: "Worked at fog &amp; tower putting on collar on one of the cracked legs."</p>  | Joseph Sexton, LI (LaPointe) Log, 1872-1943  |
| 1909                  | <p>May 7: "Lightning struck the tower at the fog signal &amp; put out the light 9:10 P.M. &amp; tore up the slab walk some for about 300 feet and run around the signal."</p> <p>Oct 24: "Steamer 'Amaranth' arrived 8:30 A.M. &amp; landed lightning rod for tower."</p> <p>Nov 20: "Worked at the lightning rod putting in the pipes in the ground."</p> <p>Nov 22: "Worked at the white light putting on the lightning rod on the tower. Sunk in 8 feet in the sand."</p>   | Joseph Sexton, LI (LaPointe) Log, 1872-1943  |
| 1914                  | Wick lamps replaced by incandescent vapor oil lamps  | J. Williams, 1995  |
| 1923, June 13         | "Received door for tower, white light [LaPointe Tower], P.M."  | Keeper, LI (LaPointe) Log, 1872-1943   |
| 1928, November 12     | "Drilling holes in trapdoor, white light lantern [LaPointe Tower], etc."   | Keeper, LI (LaPointe) Log, 1872-1943   |
| 1930, August 12       | "Fitting window sash in tower, white light [LaPointe Tower]; removed clockwork from the Seth Thomas clock, [used for] radio beacon, ready for shipment."   | Keeper, LI (LaPointe) Log, 1872-1943   |
| 1932, September       | Sept 6: "Removed one plate glass in lantern in the white light and red light, replaced new plate glass,  | Keeper, LI (LaPointe) Log, 1872-1943   |

| Date      | Work Described   | Source of Information                                   |
|-----------|--|---|
|           | P.M.”<br>Sept 30: “Removed a broken plate glass from the lantern, white light [LaPointe Tower] and put in a new plate glass.”  |   |
| 1934      | Battery-operated winter light installed,<br>Sept 20: “Received from the Keeper of Devils Island Lightstation, parts for the winter light to be installed at this station.” Installed in LaPointe Tower.  | Keeper, LI (LaPointe) Log, 1872-1943                    |
| 1936      | Radio system installed<br>Nov 20: “In cleaning up the lens after the smoke up on the 17, it was noted that all to [the?] prism (4) in the top row were cracked, three in the second row and one in the third row—from top.” Smoke up occurred in LaPointe Tower. | J. Williams, 1995; Keeper, LI (LaPointe) Log, 1872-1943 |
| 1937      | Converted to electricity,<br>Aug 3: “The electric lights at La Pointe & Chequamegon Point in commission at sunset this evening.”   | Keeper, LI (LaPointe) Log, 1872-1943                    |
| 1964      | Fourth-order Fresnel lens replaced with 300mm optic airport beacon   | J. Busch, 2008  |
| 2009, May | LED beacon installed in Tower  | NPS Records, 2009                                       |

### General Physical Description

The Tower has a cylindrical cast iron core with an exterior cast iron frame and a metal stair within the core. It is bolted to poured concrete pads and has a metal door on the north elevation.

### Physical Description -- Architecture

#### Architecture – Roof

The roof is made of cast iron, painted red, with a finial vent at the apex. The cast iron panels are 5/8” thick. (LI-LT-16)

#### Architecture – Walls and Wall Finishes

Cast iron exterior and interior walls, both painted white, with bolts on the interior. The walls are original to the structure. The watch room, where the ship's ladder is located to access the lantern room, has 3 ½” beadboard, painted white, as the wall finish. The beadboard is original to the Tower.

A sample of the paint taken at the interior wall indicates that the oldest layer of paint is a charcoal color, possibly a factory-applied prime finish, with an orange-red layer that was typical for red lead prime paint used on metals.

#### Architecture – Windows

**Slider Window.** This window is a retrofit and is a single wood sash with a Plexiglas or similar product glazing. The window glazing slides up and down in the original steel frame. This window has no finish and is not original to the building.

#### 1 *Architecture – Doors*

2 **Lantern Walk Access Doors.** These are a paired, built-up steel plate doors and are original to the Tower.  
 3 Each door has a turn latch and two coach hinges (steel hinges without holes). The dimension for each panel  
 4 is 1'-2" x 2'-8" x 3 1/2". (LI-LT-09)

6 **Hatch Door to Lantern Level.** This hatch opening is steel plate and is original to the Tower. The hatch has  
 7 a metal catch and two heavy-duty hinges. The dimensions of the hatch are 2'-0" x 2'-4". (LI-LT-12)

9 **Watch Room Storage Door.** This door is a wood, raised, five-panel and is original to the Tower. The door  
 10 has a ceramic knob and two ball-tipped hinges. There is also wood trim with a bead that is 3/4" x 3". The  
 11 dimensions for the door are 2'-0" x 7'-0" x 1 3/8". (LI-LT-08)

13 **Watch Walk Access Doors.** These two panels are made of 1/8" plate metal and are original to the Tower.  
 14 Each door has two strap hinges, and a handle throw that controls the top thrust and bottom thrust bolts  
 15 simultaneously. There is an interior wood trim with bead that is 3/4" x 3". The dimension for each panel is  
 16 1'-1" x 6'-5" x 5/16". (LI-LT-09)

18 **Entry Doors.** These double doors are made of 1/8" metal plate and are original to the Tower. Each door  
 19 has two strap hinges, one 6" porthole-style lite, and a padlock with an original strap and catch. The door  
 20 surrounds are Italianate in character. There is also a concrete stoop at the eastern face. The dimensions for  
 21 each door are 1'-1" x 6'-9" x 5/16". (LI-LT-04)

#### 24 *Architecture – Walk and Railing*

25 **Lantern Level.** The diamond plate metal deck is 2'-8" wide. Metal rails are located at 6 1/2", 2'-5", and 3'-  
 26 2" above the deck. The lower two rails are 1/2" x 2" bar stocks, while the upper rail's bar stock is capped by  
 27 a shaped 2 1/2" metal rail piece. Metal posts are 1 3/4" diameter with ball finials at +/- 4'-10" on center. All  
 28 metal is painted and original to the structure. (LI-LT-19)

30 **Watch Room.** The diamond plate metal deck is 2'-8" wide. Metal rails are located at 6 1/2", 2'-5", and 3'-3"  
 31 above the deck. The lower two rails are 1/2" x 2" bar stocks, while the upper rail's bar stock is capped by a  
 32 shaped 2 1/2" metal rail piece. Metal posts are 1 3/4" diameter with ball finials at +/- 5'-10" on center and  
 33 metal pickets are 3/4" diameter at 5 1/2" on center. All metal is painted and original. (LI-LT-10)

#### 36 *Architecture – Lantern*

37 The lantern has an octagonal cast iron plate structure with bolted attachments. The height of the plate  
 38 structure is 3'-7" A.F.F. The glazing is 2'-11" high with 2'-8" wide sections. The frame is 1 1/4" x 3 1/4".  
 39 There are also four intake air vents that are controlled by revolving brass dampers. There is an exhaust vent  
 40 located in the ceiling with about a 1' diameter. (LI-LT-13 and 14)

#### 43 *Architecture – Ceiling Finish*

44 The interior of the cast iron roof is the ceiling in the lantern room. The octagonal roof shape is visible as the  
 45 metal structural members are exposed. The ceiling is painted gray over white. (LI-LT-15)

47 The watch room's ceiling is the underside of the cast iron floor for the lantern room. It is painted white.

#### 50 *Architecture – Floor*

51 The Tower is supported by poured concrete pads. These are original to the Tower. The watch room and  
 52 lantern room floors are cast iron.

### *Architecture – Stairs*

This spiral staircase is cast iron and painted gray. The stair's treads are 4" deep at their shallowest and 11" deep at their deepest. The treads are 2'-0" wide and the rise is 8". The metal pipe railing (painted gray) is 3'-0" above nosing and has a 1" diameter. The brackets supporting the railing are located about 6'-0" on center. (LI-LT-05) The ships ladder located at the top of the stairs has a 7/8" pipe rail at the lantern level. The ladder treads are 2'-0" wide and 1/2" thick and 2 1/2" deep. The ladder risers are 9". Both stairs and ships ladder are original to the tower. (LI-LT-11)

### *Architecture – Accessibility*

The building is currently not accessible due to the 2'-2" wide double door opening and the greater than 12" elevation change from grade to the concrete foundation floor.

## ***Physical Description -- Structural***

### *Structural – Foundation*

The foundation system consists of concrete footings under each leg of the tower bracing and the center cylinder.

### *Structural – Floor Framing*

The floor of the center cylinder is the center concrete footing.

The floors of the Tower watch room and lantern are constructed of cast iron plates that are bolted together. The plates of the lantern floor are supported on the walls of the watch room. The plates of the watch room floor are supported on the center cylinder and the exterior braces. The watch room and lantern are accessed via a spiral cast iron stair in the center cylinder.

### *Structural – Roof Framing*

The roof of the lantern is constructed of cast iron panels that are bolted together. The panels are supported on the walls of the lantern.

### *Structural – Wall Framing*

The walls of the center cylinder, watch room and lantern are cast iron panels that are bolted together. The walls of the lantern are supported on the lantern floor. The walls of the center cylinder are supported on the center concrete footing.

### *Structural – Lateral System*

Lateral stability for the tower is provided by four sets of exterior cast iron braces that are interconnected with horizontal bracing and x-bracing. The braces are attached to the concrete footings.

### *Structural – Load Requirements*

The required floor load capacity of the lantern is 100 psf, the required floor load capacity watch room is 40 psf and the required roof snow load capacity is 32 psf.

***Physical Description -- Mechanical***

*Mechanical – Plumbing Systems*

None in the building.

*Mechanical – HVAC*

There are passive air vents at the top of the Tower.

*Mechanical – Fire Suppression*

There is no fire suppression system in the building.

***Physical Description -- Electrical***

*Electrical – System Configuration*

The alternating current power systems in the Tower have been disconnected. The remnants of a feed to the Tower enter the Tower near the base and extend up the Tower stair tube to a junction box near the top. It is unknown what purpose these circuits fed in the past, however it appears as though they fed lighting and some automated equipment.

Other electrical equipment in the Tower consists of the USCG (United States Coast Guard) Light Beacon system. This consists of 3-12 volt dc batteries that feed power to a LED powered beacon. The system employs a small flat panel PV array located at the top of the Tower.

*Electrical – Conductor Insulation*

Abandoned conductors in the Tower are rubber insulated copper.

*Electrical – Overcurrent Protection*

Overcurrent protection is disconnected.

*Electrical – Lighting Systems*

None in the Tower.

*Electrical – Telecommunications*

None in the Tower.

*Electrical – Fire Alarm System*

None in the Tower.

*Electrical – Lightning Protection*

LaPointe Light Tower has a single air terminal on top of the Tower. No grounding conductors were observed. Two of the four legs of the Tower had metallic straps bonded to the structure which appeared to be connected to an underground grounding rod or perhaps to the reinforcing in the concrete base. No bonding jumpers were observed between the Tower leg structural members.

## ***Physical Description -- Hazardous Materials***

Landmark Environmental collected seven bulk samples from a total of seven different types of suspected asbestos containing materials (ACMs) at Long Island. Of the seven suspect ACMs that were sampled and analyzed, none resulted in concentrations of greater than one percent (positive for asbestos).

### ***Hazardous Materials – Asbestos***

The following suspected ACMs were not sampled due to inaccessibility or park limitations or concerns regarding potential for damage to structure. Asbestos is assumed to be present at the following locations:

1. Caulk (Caulking may be present at window and door penetrations, which can also include gasket applications between the window assembly and the structure).

Suspect ACMs within the LaPointe Light Tower were observed to be in good condition.

### ***Hazardous Materials – Lead Containing Paint (LCP)***

LCP is identified at the Long Island LaPointe Light Tower in an interior paint sample, in the “Red Lead” Prime Coat. LCP is assumed to be present at the following locations:

1. Interior Painted Surfaces, and,
2. Exterior Painted Surfaces.

Based on the estimated dates of construction of the various structures and the available testing data LCP is assumed to be present throughout the structure. The confirmed LCP was observed to be in fair to poor condition and the assumed LCP was observed to be in poor condition.

In some areas corrosion is observed to have contributed to loose/flaking LCP on the exterior painted surfaces of the structure. Paint chip debris was observed on the ground surface in the vicinity of the Tower.

### ***Hazardous Materials – Lead Dust***

Wipe sampling for lead dust analysis was not conducted in the LaPointe Light Tower because it is a noninhabited structure.

### ***Hazardous Materials – Lead in Soils***

Historical paint maintenance activities such as manual scraping, power-washing, sanding, abrasive blasting or the general poor and peeling condition of exterior LCP may have created the potential to impact the surrounding soil. Areas of the surface soils adjacent to the structure were observed to have LCP debris and additional areas may exhibit LCP debris or lead-contaminated soils, but are not observable due to vegetative cover surrounding the structure. Preliminary lead-in-soil sampling was performed to assess whether these near-structure soils contain lead concentrations above applicable soil standards.

One four aliquot soil sample was collected from ground surface inside the Tower braces. One four aliquot soil sample was collected from ground surface outside the Tower braces.

1. Analysis of the composite sample from inside Tower braces resulted lead concentrations below the reporting limit of 17 milligrams of lead per kilogram of soil (mg/kg).
2. Analysis of the composite from outside the Tower braces resulted in 3,002.6 mg lead/kg of soil.

### ***Hazardous Materials – Mold***

Inspections of the structure were performed to identify the readily ascertainable visual extent of the mold growth. Moisture testing in building materials was not performed nor was sampling of building materials performed for microbial analysis. Mold was not visually identified in the LaPointe Tower.

## Character Defining Features

**Mass/Form.** Exterior braced conical cast iron tower with double service deck.

**Exterior Materials.** Cast iron all painted white except the lantern roof panels which are red.

**Openings.** Double entrance doors and surround; rectangular sheet glass at the lantern.

**Interior Materials.** Exposed cast iron panels and bead board paneling – all painted white.

## General Condition Assessment

In general, the LaPointe Light Tower is in fair condition with the exception of a few elements. The retrofit window is in poor condition as the Plexiglas (or similar product) that is used as its glazing is hazy and its wood frame is brittle. The spiral metal stairs, the metal walls and railing, the metal ships ladder, the metal lantern members, and the metal doors all are experiencing rusting issues. Other than these above mentioned elements, the LaPointe Light Tower is in fair condition.

Structurally, the Tower is in fair condition. There is cracking of the footings, cracks in the leg segments of the braces and delaminations on the cast iron wall panels. All of the cracks in the leg segments of the Tower are located in the enlarged ends (bells) of the leg segments. The cracks may be due to the prying action of the joint elements that are inside the belled ends.

Mechanically, the only attributes are passive air vents at the top of the Tower that are in fair condition.

Electrically, alternating current equipment in the Tower has been disconnected from any source of power. Raceways and wiring remaining in the Tower are in poor condition.

The following section is a discipline-by-discipline, component-by-component condition assessment of the Tower. Refer to Volume I, Chapter 2: Methodology for definitions of the condition ratings.

### *Condition Assessment -- Architecture*

#### *Architecture – Roof*

Condition:      *Good*

The cast iron roof is in good condition with minor patches of rust.

#### *Architecture – Walls and Wall Finishes*

Condition:      *Fair to Poor*

Metal walls have some rust and alligatored paint throughout. A gap exists at the joint at the top of the wall to the lantern. Also, there is delamination on one cast panel at the west quadrant lower member. The next panel over has a smaller delamination patch. The interior room with the painted beadboard as the wall finish is in fair condition with several holes for previous conduit/equipment.

#### *Architecture – Window*

Condition:      *Poor*

**Slider Window.** This window is in poor condition as the wood is brittle, the Plexiglas product is hazy, and it is not operable. The original window function was most likely spring pin catch.



*Architecture – Doors*

Condition: *Fair to Poor*

**Lantern Walk Access Doors.** These paired doors have stiff hinges and one of the latches is inoperable. The other latch is sluggish.

**Hatch Door to Lantern Level.** This hatch opening is in poor condition as the top portion is rusting and very deteriorated.

**Watch Room Storage Door.** This door is in fair condition as the paint is peeling, the hinges are rusting, and the knob operates sluggishly.

**Watch Walk Access Doors.** These doors are rusted, the lever does not throw the top and bottom throw bolts, and the hinges are sluggish.

**Entry Doors.** The bases of these entry doors are rusted. Overall, they are in fair condition.

*Architecture – Walk and Railing*

Condition: *Good to Fair*

**Lantern Level.** There is minor rusting on the upper walk.

**Watch Room.** The walk and railing are in good condition.

*Architecture – Lantern*

Condition: *Fair*

The lantern members are in fair condition as there is alligatored and peeling paint, all cast iron members are rusting, one pane of glass is cracked, and there is a bullet hole. The glazing seals are loose and damaged.

*Architecture – Ceiling Finish*

Condition: *Fair*

The interior of the metal roof's gray paint is failing and the white paint beneath it is badly alligatored. The structural members show areas of rust, though it does not appear to be a structural concern. The watch room's cast iron ceiling (the underside of the lantern room's floor) similarly has areas of rust and flaking paint. Overall, the ceilings in the lantern and watch rooms are in fair condition.

*Architecture – Floor*

Condition: *Fair to Poor*

The concrete pads have some cracks from stress. Refer to the structural assessment for the foundation below for the condition assessment. The watch and lantern rooms' cast iron floors are in fair condition with some rust visible and flaking paint.

*Architecture – Stairs*

Condition: *Fair*

The spiral stair and railing are in fair condition as the surface is badly rusted (not a structural issue) and the paint is failing throughout. The ships ladder also has rusting metal and alligatored paint.

*Architecture – Accessibility*

Condition: *Poor*

This building is not accessible.

***Condition Assessment -- Structural***

*Structural – Foundation*

Condition: *Unknown*

The visible portions of the concrete footings are in poor condition. The footings are severely cracked and several have surface deterioration and vegetation growing in the cracks (LI-LT-20 and 21).

*Structural – Floor Framing*

Condition: *Good*

The floors of the center cylinder, watch room and lantern are in good condition.

*Structural – Roof Framing*

Condition: *Good*

The roof framing is in good condition.

*Structural – Wall Framing*

Condition: *Good*

The walls of the center cylinder and watch room are in good condition. However, small areas of delamination were observed (LI-LT-22 and 23). The walls of the lantern are in good condition.

*Structural – Lateral System*

Condition: *Fair*

The exterior braces are in fair condition. Cracks were observed in the belled ends of several of the leg segments. The cause of the cracks could not be determined. The cracks could be due to corrosion of the braces, corrosion of hidden structural elements within the belled ends or binding of the joined elements due to differential movement. Some of the cracks had been drilled to relieve the stresses at the tip of the crack (LI-LT-24 and 25).

*Structural – Load Requirements*

Condition: *Good*

The roof and floor framing have adequate capacity to support the required loads.

***Condition Assessment -- Mechanical***

*Mechanical – Plumbing Systems and Fire Suppression*

Condition: *N/A*

*Mechanical – HVAC*

Condition: *Fair*

The passive air vents at the top of the Tower are in fair condition, but do not provide adequate ventilation to prevent condensation.

**Condition Assessment -- Electrical**

*Electrical – System Configuration*

Condition:      *Poor and Good*

Alternating current equipment in the Tower has been disconnected from any source of power. Raceways and wiring remaining in the Tower are in poor condition.

The USCG Beacon systems, including photovoltaic collector, batteries, and beacon assembly, appear to be in good condition.

*Electrical – Conductor Insulation*

Condition:      *Poor*

Conductors are abandoned.

*Electrical – Overcurrent Protection*

Condition:      *Poor*

Overcurrent protection for the Tower does not exist. It may have been disconnected and removed when the feed from Madeline Island was removed.

*Electrical – Lighting Systems, Telecommunications, and Fire Alarm System*

Condition:      *N/A*

*Electrical – Lightning Protection*

Condition:      *Poor*

Lightning protection is old and inadequate. The absence of grounding conductors and bonding conductors indicates that the system is not adequate. The history of the Tower indicates past lightning strikes have done significant damage to the Tower and to the concrete sidewalks adjacent to the structure. This indicates improper bonding to earth at the Tower.

**Condition Assessment -- Hazardous Materials**

Refer to ‘Physical Description -- Hazardous Materials’ for detailed descriptions of locations and conditions of hazardous materials.

## Ultimate Treatment and Use

The Tower began construction in 1896 simultaneously with the Chequamegon Point Tower but both came to a halt due to lack of funding. The towers were restarted in early 1897 to be completed by June of that year. The LaPointe Light Tower's Fresnel lens was replaced with a 300mm optic in 1964, and by 1965, the Tower was no longer manned.

The Tower is currently not open to the public and maintains a functioning light. The proposed use for the Tower is for guided visitor access with an emphasis on preserving the structure.

Rehabilitation is the recommended treatment for the building.

## Requirements for Treatment

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS and listed in Volume I, Administrative Data section of this report.

The recommended treatments are tailored to the Preferred Alternative as the outcome of the Value Analysis/CBA for the project. As individual buildings are rehabilitated, specific alternatives will present themselves during design and construction. The following section is a discipline-by-discipline, component-by-component description of the treatments proposed for the rehabilitation of the building. Refer to Volume I, Chapter 2: Methodology for the priority rating definitions.

### *Treatment Recommendations -- Architecture*

#### *Architecture – Roof*

Priority:            *Moderate*

Repair areas of rust, prepare and repaint roof, fascia and cornice.

#### *Architecture – Walls and Wall Finishes*

Priority:            *Moderate (Exterior); Low (Interior)*

**Exterior.** Patch areas of rust and delamination, prepare and repaint exterior walls.

**Interior.** Patch holes at beadboard, paint.

#### *Architecture – Window*

Priority:            *Moderate*

Remove and replace the existing window with a new wood casement window with single pane glass.

Prepare, paint and ensure smooth operation. Having an operable window will help facilitate ventilation and mitigate moisture issues on the interior of the tower.

#### *Architecture – Doors*

Priority:            *Moderate*

Remove rust and patch as necessary to maintain surface integrity. Prepare and repaint all doors. Repair hinges, latches and levers to ensure smooth operation. Operable doors will be required if the public is to access the Tower and will facilitate ventilation and mitigate moisture issues of the Tower's interior.

*Architecture – Walk and Railing*

Priority: Low; Severe (Railing)

Remove rust and patch as necessary to fill resultant gaps. Prepare and repaint. Investigate alternatives to discretely upgrade the existing railing to become a code compliant guardrail.

*Architecture – Lantern*

Priority: Severe

Scrape, prep and repaint all cast members. Replace cracked and otherwise damaged panes. Verify tight seals for all lantern glazing. Verify proper operation of all ventilation components.

*Architecture – Ceiling Finish*

Priority: Low

Scrape, prepare and repaint ceilings. Coordinate with Lantern work. Monitor rust at structural members.

*Architecture – Floor*

Priority: Low

Refer to Structural foundation section below. Scrape, patch areas of rust, prepare and repaint cast floors.

*Architecture – Stairs*

Priority: Moderate

Scrape, remove rust and patch surfaces as necessary. Prepare and repaint stairs and ships ladder.

*Architecture – Accessibility*

Priority: Low

Provide program access through interpretive exhibits and waysides at the Visitor Center.

***Treatment Recommendations -- Structural***

*Structural – Foundation*

Priority: Low

Surface cracking of the footings indicates that the concrete mat may be deteriorating. The cracking may also be leading to corrosion or loss of uplift capacity of the anchor bolts. The condition of the concrete and the anchor bolts should be evaluated further.

*Structural – Floor Framing*

Priority: Low

No recommendations at this time.

*Structural – Roof Framing*

Priority: Low

No recommendations at this time.

*Structural – Wall Framing*

Priority:            *Low*

The small areas of delamination on the walls of the center cylinder and lantern room should be investigated further.

*Structural – Lateral System*

Priority:            *Unknown*

The cracks in the belled ends of several of the leg segments should be investigated further.

***Treatment Recommendations -- Mechanical***

*Mechanical – Plumbing Systems and Fire Suppression*

Priority:            *N/A*

*Mechanical – HVAC*

Priority:            *Moderate*

The existing passive air vents at the top of the Tower do not provide sufficient ventilation to prevent condensation and moisture damage inside the Tower. Additional passive ventilation is recommended.

***Treatment Recommendations -- Electrical***

*Electrical – System Configuration*

Priority:            *Low*

No recommendations at this time.

*Electrical – Conductor Insulation*

Priority:            *Low*

No recommendations at this time.

*Electrical – Overcurrent Protection*

Priority:            *Low*

No recommendations at this time.

*Electrical – Lighting Systems, Telecommunications, and Fire Alarm System*

Priority:            *N/A*

*Electrical – Lightning Protection*

Priority:            *Moderate*

Existing lightning protection is old and its effectiveness has not been established. It is recommended that a LPI (Lightning Protection Institute) certified inspector perform an inspection of the lightning system and provide findings and recommendations in accordance with LPI-175.

***Treatment Recommendations -- Hazardous Materials***

*Hazardous Materials – Asbestos*

Priority:            *Low*

Recommend sampling of suspect asbestos containing materials, including adhesives.

*Hazardous Materials – Lead-Containing Paint and Lead Dusts*

Priority:            *Moderate*

Recommend stabilization or abatement of Lead-Containing Paint. Sampling for lead dust is not recommended.

*Hazardous Materials – Lead In Soils*

Priority:            *Moderate*

Recommend further soils characterization to confirm applicable regulatory requirements.

*Hazardous Materials – Mold/Biological*

Priority:            *Low*

No recommendations at this time.

*Hazardous Materials – Petroleum Hydrocarbons*

Priority:            *Low*

No recommendations at this time.

## Alternatives for Treatment

The following are several considerations of alternatives for the proposed treatments:

1. If it is decided to allow public access to the catwalk, careful study will be needed for introducing a code compliant guard rail at the Tower walk that will not be visually disruptive to the historic character nor be a long term maintenance burden for park staff.
2. Further investigation of the structural components may result in a more critical set of treatment recommendations once more data is available.

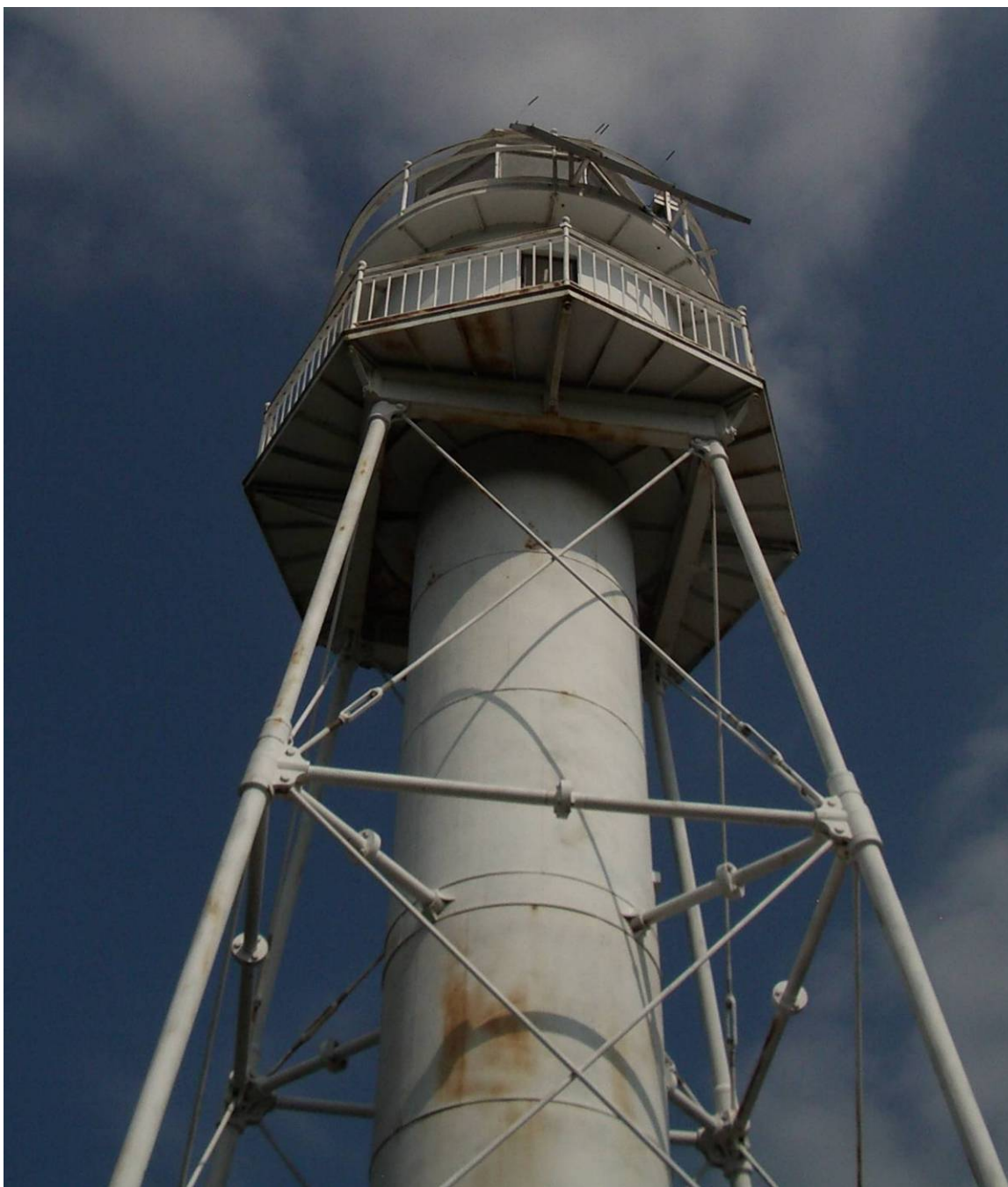
## Assessment of Effects for Recommended Treatments

The following table includes an analysis of the major treatment recommendations which affect Section 106 Compliance:

| Recommended Treatment   | Potential Effects   | Mitigating Measures  | Beneficial Effects   |
|---|---|--|--|
| 1. Add new ventilation elements (i.e. replace sash with secure louvers) | Removal of character defining feature (sash) and replacing with a modern material | Verify operation and efficiency of existing ventilation elements prior to introduction of new.                       | - Increased ventilation will aid in the preservation/ longevity of the historic fabric   |
| 2. Additional Hazardous Testing and Mitigation                          | Mitigation of hazardous material may require removal of historic materials.       | Any mitigation will need to be evaluated for benefit and implemented sensitively to minimize damage to the resource. | - Improves safety for visitors and staff<br>- Removes hazards from the cultural resource |



1 **LaPointe Light Tower Photographs, 2009**



LI-LT-01: View from ground, 2009 (Source: A&A IMGP2998)



LI-LT-02: Lantern, 2009 (Source: A&A IMGP3005)





LI-LT-03: Exterior structure detail (Source: A&A IMGP3026)



LI-LT-04: North entry door (Source: A&A 100\_9810)



LI-LT-05: Stair and railing (Source: A&A 100\_9814)



LI-LT-06: Stair railing detail (Source: A&A 100\_9815)



*LI-LT-07: Watch room interior walkway and railing (Source: A&A 100\_9807)*



*LI-LT-08: Watch room storage door (Source: A&A 100\_9806)*





LI-LT-09: Watch walk access door, walkway and railing (Source: A&A 100\_9808)



LI-LT-10: Watch walk walkway and railing (Source: A&A 100\_9804)



LI-LT-11: Watch room interior ladder to lantern (Source: A&A 100\_9805)



LI-LT-12: Lantern hatch (Source: A&A 100\_9801)





LI-LT-13: Lantern glazing (Source: A&A 100\_9800)



LI-LT-14: Lantern detail and vent (Source: A&A 100\_9799)





LI-LT-15: Lantern ceiling (Source: A&A 100\_9798)



LI-LT-16: Lantern roof (Source: A&A IMGP2997-A)



LI-LT-17: Lantern level roof trim and glazing detail (Source: A&A IMGP2996)



LI-LT-18: Lantern level door, walkway and railing (Source: A&A 100\_9796)





LI-LT-19: Lantern level walkway and railing (Source: A&A IMGP2993)



LI-LT-20: Deteriorated footing (Source: Martin/Martin)



LI-LT-21: Deteriorated footing (Source: Martin/Martin)



LI-LT-22: Surface delamination (Source: Martin/Martin)





LI-LT-23: Surface delamination (Source: Martin/Martin)



LI-LT-24: Cracked brace (Source: Martin/Martin)



*LI-LT-25: Cracked brace (Source: Martin/Martin)*

# CHEQUAMEGON POINT TOWER

## Chronology of Alterations and Use

### *Original Construction*

The Chequamegon Point Tower was constructed in 1896. It is a pyramidal skeletal tower of iron and steel, 42' tall, and was manufactured by Fulton Iron and Engine Works in Detroit, Michigan. When the original LaPointe Tower and lantern were removed, the lantern was reused at the Chequamegon Point Tower. The Tower also included a fog bell that was run by clockwork.<sup>34</sup> In 1911, 32' long log cribs were installed to protect the Tower's footings.

In August of 1937, both towers on Long Island were converted to electricity. In 1987, the Chequamegon Point Tower light was deactivated and replaced by a navigational beacon mounted on a metal cylinder. That same year, the United States Coast Guard (USCG) moved the Tower approximately 100' back from the water's edge due to threatening wave action that was a concern for the concrete footings.

Original construction drawings from 1896 show a metal ladder as the method of accessing the Tower's watch room (labeled "Clock Room" on the drawing) and a metal bell acting as the fog signal. The watch room is noted as having 1 1/4" corrugated iron siding. The height from grade to the service level entrance hatch is 20'10 3/8". A detailed drawing shows the fog bell and how it was attached to the Tower as well as the lantern deck dimensions. (Historic Drawing LI-02 and 03)

### *Significant Alterations / Current condition*

Significant alterations to the Chequamegon Point Tower consist of the deactivation of the light and movement of the tower by the USCG in 1987. Between 1998 and 2009, the Historic Structure Preservation Team of the NPS rehabilitated the Chequamegon Point Tower by installing a concrete foundation, straightening the bent support leg, replacing the broken cast iron upper deck plates, and installing glazing in the lamp room. Most of these repairs were needed after the damage inflicted on the Tower by the 1986 move.

The Tower does not contain any mechanical systems.

There are no alternating current electrical systems inside the Tower.

The Tower is still in poor condition as it is in a partially-reconstructed state. The lantern level is inaccessible as the ladders have been removed and stored for the current rehabilitation work. The structure appears to be presently stable (see structural assessment).

<sup>34</sup> Busch, Jane, "People and Places: A Human History of the Apostle Islands," 2008

## 1 Summary of Documented Work on the Building

| Date   | Work Described   | Source of Information   |
|--|--|---|
| Annual Report of 1890<br>(Chequamegon Point) | <p><i>“Chequamegon light and fog-signal. Lake Superior, Wisconsin. – A light on the east side of the entrance to Chequamegon Bay has been in service since 1858, and the act of October 1, 1888, authorized a fog-signal at a cost of \$5,000, and on March 2, 1889, an appropriation was made therefor. This additional aid is much needed. In order, however, to fully meet the requirements of this situation, further improvements are needed. The present light is not clear enough to the inner point to serve as a good guide to clear it, and it is too far from the course of vessels outside to be of the best advantage. The fog-signal should be on the outer beach, about 1-mile east of the present light, and if so established the light also should be moved to the same location. To mark the inner point towards Houghton a small harbor light and fog bell struck by machinery will met all requirements. The expenditures necessary are estimated as follows:<br/>For removing and rebuilding the main light = \$7,500<br/>For the harbor light and bell = 2,500<br/>Total estimated cost = 10,000<br/>The Board recommends that an appropriation of \$10,000 be made therefor.”</i></p> <p>Request repeated for the next two annual reports.</p> | <p>“1890 Annual Report of the Lighthouse Board,” La Pointe Light Station in Lighthouse Establishment Annual Reports 1850-1920</p> |
| Annual Report of 1893<br>(Chequamegon Point) | <p><i>“Chequamegon Light and Fog Signal, Lake Superior, Wisconsin. - The removing and rebuilding of the main light and the establishment of a harbor light and bell, at a cost not to exceed \$10,000, were authorized by the act approved February 15, 1893, but no appropriation therefor has yet been made. The Board recommends that the amount named be appropriated.”</i> Repeated in 1894</p>   | <p>“1893 Annual Report of the Lighthouse Board,” La Pointe Light Station in Lighthouse Establishment Annual Reports 1850-1920</p> |
| Annual Report of 1896<br>(Chequamegon Point) | <p><i>“Chequamegon Point, Lake Superior, Wisconsin. – Negotiations for the purchase of a light-house site were opened in July and finished on March 18, 1896, requests to be made for the consent of the State to the purchase. Plans and estimates were</i></p>   | <p>“1896 Annual Report of the Lighthouse Board,” La Pointe Light Station in Lighthouse Establishment Annual Reports 1850-1920</p> |



| Date                                      | Work Described   | Source of Information  |
|---|--|--|
|   | <p>made for the work of moving and rebuilding the main light at La Pointe, Wis., and establishing a light and fog bell at Chequamegon Point. Contracts were made for the construction and delivery of the metal work for the Lapointe light tower, Wisconsin, and for the construction and delivery of the metal work for an iron beacon at Chequamegon Point. Bids were obtained for furnishing the material for the construction of this light, and the material was ordered. The matter of obtaining the consent of the State to the purchase of the site required at this point was in the hands of the governor.</p> <p>It has not been found practicable to complete the important improvements at this station as directed by the act approved March 2, 1895, within the limits of the appropriation made for the purpose. It is therefore recommended that an additional appropriation of \$1,500 be made for completing the work and moving and rebuilding the main Lapointe light and establishing a harbor bell and light at or near Chequamegon Point, Lake Superior, Michigan."</p> |  |
| 1897                                      | <p>Sept 9: "Putting lining in the small tower."</p> <p>Sept 19: "Landed planks for walks and some lime and tin Rifs [roofs?]."</p> <p>Oct 7: "Cleaned bell works at point and put up curtains crossways."</p> <p>Oct 10: Moved lens from "house to point tower," "The lens is badly scratched with emery paper the plate glass is the same."</p> <p>Oct 11: "Lit light in both tower October 11<sup>th</sup> 1897..."</p> <p>Oct 25: "Boated iron to the signal and boated shingles from signal to house." Easier to transport materials via water than land.</p>  | Joseph Sexton, LI (LaPointe) Log, 1872-1943  |
| Annual Report of 1897 (Chequamegon Point) | "Chequamegon Point, Lake Superior, Wisconsin. – The title papers to the site and right of way were recorded, the abstract of title was completed, and a certificate was obtained showing the consent of the legislature to the purchase. Concrete piers for the metal beacon were put in, the  | "1897 Annual Report of the Lighthouse Board," La Pointe Light Station in Lighthouse Establishment Annual Reports 1850-1920 |

| Date                                      | Work Described  | Source of Information  |
|---|---|--|
|   | frame was raised, and studding, joists, and sheathing of the clock room of the tower were put up, the deck plate, railing, and the outside iron work of the lantern were placed, and storm panes set. Work was closed on October 30, 1896, for lack of funds. The sundry civil appropriation act approved June 14, 1897, appropriated \$1,500 for completing the work of moving and rebuilding the main La Pointe light and establishing a harbor bell and light at or near Chequamegon Point, Lake Superior, Wisconsin. Work will be undertaken at an early date. NOTE – This light was established October 11, 1897.” |  |
| Annual Report of 1898                     | “La Pointe, Lake Superior, Wisconsin. – In October the light was moved from the old tower to the new one at Chequamegon Point. The old lantern and tower were taken down and the roof was boarded and shingled where the tower was removed.... The fourth-order light shown from the tower of the keeper’s dwelling, was discontinued on October 11, 1897, and the light was established in the skeleton iron structure built near the fog signal house.”   | “1898 Annual Report of the Lighthouse Board,” La Pointe Light Station in Lighthouse Establishment Annual Reports 1850-1920 |
| 1899, October 19                          | “Fixed up the storm house in front of the coa[s]t light [Chequamegon Point] today.”   | Joseph Sexton, LI (LaPointe) Log, 1872-1943  |
| Annual Report of 1899 (Chequamegon Point) | “ <i>Chequamegon Point, Lake Superior.</i> – The work of moving and rebuilding the main La Pointe tower, and establishing a harbor light and fog bell at Chequamegon Point was finished. A fixed red fourth-order light as a fog bell were on October 11, 1897, established in the structure erected at the extreme end of Chequamegon Point.”  | “1899 Annual Report of the Lighthouse Board,” La Pointe Light Station in Lighthouse Establishment Annual Reports 1850-1920 |
| Annual Report of 1904 (Chequamegon Point) | “ <i>Chequamegon Point, Lake Superior, Wisconsin.</i> – Three cribs 12 feet wide and 32 feet long, placed 100 feet between centers and rising 3 feet above water level, were built on the northwest side of the point to protect the site of the beacon from further erosion. The cribs were built of logs filled with stone and decked with 3-inch plank.”   | “1904 Annual Report of the Lighthouse Board,” La Pointe Light Station in Lighthouse Establishment Annual Reports 1850-1920 |
|   | “Put in a new glass in the red light  | Joseph Sexton, LI (LaPointe)   |

| Date               | Work Described   | Source of Information                  |
|--------------------|--|--|
| 1907, September 23 | [Chequamegon Point].”  | Log, 1872-1943                         |
| 1918, July 27      | “There has been landed today a fog bell outfit to be installed soon.” This is an electric bell, as seen in references made in September and November in regards to making space for its equipment in the Fog Signal Building as well as “stringing” wires for electrician. | Keeper, LI (LaPointe) Log, 1872-1943   |
| 1927, September 8  | “One lens prism dropped out, when cleaning the lens at Chequamegon Point Lightstation.”  | Keeper, LI (LaPointe) Log, 1872-1943   |
| 1928, May 7        | “Repaired lens prism, red light [Chequamegon Point]...”  | Keeper, LI (LaPointe) Log, 1872-1943   |
| 1929, July 5       | “... filling in sand at bottom, Chequamegon Point Light Tower.”  | Keeper, LI (LaPointe) Log, 1872-1943   |
| 1932, September 6  | “Removed one plate glass in lantern in the white light and red light, replaced new plate glass, P.M.”  | Keeper, LI (LaPointe) Log, 1872-1943   |
| 1937               | Converted to electricity, Aug 3: “The electric lights at La Pointe & Chequamegon Point in commission at sunset this evening.”  | Keeper, LI (LaPointe) Log, 1872-1943   |
| 1986               | Light replaced by navigational beacon, fog signal bell removed   | J. Busch, 2008                         |
| 1986               | USCG moved Tower approx. 100’ from original site   | J. Busch, 2008                         |
| 2006               | Installed new footings, straightened bent leg support  | HSPT Reports, 2009, D. Pratt, Jan 2010 |
| 2007               | Replaced broken cast iron upper deck plates with new cast iron plates  | HSPT Reports, 2009                     |
| 2008               | Lamp room glazing replaced   | HSPT Reports, 2009                     |

### Notable Actions with Unknown Dates

| Date Range   | Work Described  |
|--------------|---|
| c. 1910-2009 | Gallery railing at lantern deck missing (Historic Photos) |

### General Physical Description

The Tower has a rectangular metal base on a metal frame with an enclosed watch room and lantern room. The roof is pyramidal and is made of metal. A metal ladder (currently removed and in storage on-site) reached the watch room from grade.

The Tower underwent rehabilitation beginning in 2006 to 2008. The project had been on hold for one year when these observations were made. The exterior wall (with interior paneling) had been reconstructed, but windows and floor had not been rebuilt. The watch room was observed from scaffolding.

***Physical Description -- Architecture***

***Architecture – Roof***

Neither the lantern room nor the roof was accessible.

***Architecture – Walls and Wall Finishes***

The metal skeleton tower with corrugated iron siding at the watch room and metal casing at the lantern level are all original to the Tower. At the watch room, there is interior 3 1/4" vertical bead board paneling. The framing for the wall finish is 2x4 (actual) at 24" on center. The interior and exterior were partially reconstructed in 2008 and work is currently continuing. (LI-CLS-02)

***Architecture – Windows***

**Double-Hung Windows.** There are two of these types of windows in the Tower, both with original and modern attributes. Original construction drawings indicate eight-lite casement windows. (Historic Drawing LI-02) Both existing double-hung windows have pulleys as the window system was designed for two pulleys (for upper and lower sash). The trim for both windows is 1"x 3" wood with a bead edge. (LI-CLS-04 and 05)

***Architecture – Doors***

There is a pie-shaped hatch between the watch room and lantern level that was not accessed during the site observations. (LI-CLS-06)

***Architecture – Walk and Railing***

The walk was inaccessible. There was no railing in-situ at the time of the site investigation. Historic photos show a simple metal pipe railing.

***Architecture – Lantern***

Inaccessible. Currently, the interior ladder and railing used to access the lantern from the watch room are being stored by the NPS Preservation Team. The large exterior ladder to access the watch room is currently located at the site.

***Architecture – Ceiling Finish***

The ceiling finish for the watch room is cast iron with ribs, painted white. The ceiling is original to the Tower.

***Architecture – Floor***

The top layer flooring of watch room (which was removed at start of the rehabilitation) was maple tongue and groove, but it was deteriorated. It is unknown if this flooring was original to the Tower. The floor of the lantern was inaccessible. Refer to the structural condition assessment.

***Architecture – Stairs***

None in-situ. Historic photos show a metal ladder from grade up to the watch room. Park personnel indicated the ladder was stored on site, however it was not observed at the time of the site investigation.

*Architecture – Accessibility*

This building is currently not accessible as the only way to reach the watch room is by scaffolding.

***Physical Description -- Structural***

*Structural – Foundation*

The foundation system consists of a new concrete footing under each of the four legs.

*Structural – Floor Framing*

The floor of the watch room is in the process of being replaced.

The floor of the lantern is constructed of cast iron plates that are bolted together. The plates are supported on the four legs of the Tower.

*Structural – Roof Framing*

The roof of the lantern is constructed of cast iron panels that are bolted together. The panels are supported on the walls of the lantern.

*Structural – Wall Framing*

The walls of the lantern are metal panels that are bolted together. The walls are supported on the lantern floor. The walls of the watch room were measured to be FS 2x4 studs, spaced up to 20” on center. The studs bear on horizontal framing members between the legs of the Tower. Attachments between the studs and the Tower framing could not be observed. The studs are sheathed with 1x solid wood siding.

*Structural – Lateral System*

Lateral stability for the Tower is provided by the four exterior legs that are interconnected with horizontal bracing and x-bracing. The legs are attached to the concrete footings.

*Structural – Load Requirements*

The required floor load capacity of the lantern is 100 psf, the required floor load capacity of the watch room is 40 psf and the required roof snow load capacity is 32 psf.

***Physical Description -- Mechanical***

*Mechanical – Plumbing Systems*

None in the Tower.

*Mechanical – HVAC*

None in the Tower.

*Mechanical – Fire Suppression*

None in the Tower.

***Physical Description -- Electrical***

*Electrical – System Configuration*

There are no alternating current electrical systems inside the Tower. There is evidence that the adjacent overhead power line was once terminated on the Tower, but insulators have been removed leaving the bare metallic insulator support.

*Electrical – Conductor Insulation*

None in the Tower.

*Electrical – Overcurrent Protection*

None in the Tower.

*Electrical – Lighting Systems*

None in the Tower.

*Electrical – Telecommunications*

None in the Tower.

*Electrical – Fire Alarm System*

None in the Tower.

*Electrical – Lightning Protection*

Chequamegon Point Tower has a single air terminal on top of the Tower. No grounding conductors were observed. No grounding connections were observed at the base of the Tower, and no bonding jumpers were observed between Tower leg structural members.

***Physical Description -- Hazardous Materials***

Landmark Environmental collected seven bulk samples from a total of seven different types of suspected asbestos containing materials (ACMs) at Long Island. Of the seven suspect ACMs that were sampled and analyzed, none resulted in concentrations of greater than one percent (positive for asbestos).

*Hazardous Materials – Asbestos*

No Suspect ACMs were readily observable at the Light Station structure. Asbestos is assumed to be present in any material that is not metal or wood.

Asbestos is assumed to be present in:

1. Caulk - Caulking may be present at window and door penetrations, which can also include gasket applications between the window assembly and the structure.
2. During the site assessment access to the Chequamegon Point Tower was not possible due to fall protection concerns as unverified scaffolding was the only means of entry to the Tower.

*Hazardous Materials – Lead Containing Paint*

Detectable lead is assumed to be present at the following locations:

1. Interior Painted Surfaces, and,
2. Exterior Painted Surfaces.

*Hazardous Materials – Lead Dust*

Wipe sampling for lead dust analysis was not conducted in the Tower because this is a noninhabited structure and because of the limited accessibility.

*Hazardous Materials – Lead in Soils*

One three aliquot soil sample was collected from ground surface at approximately 3' from the Tower braces. One aliquot was collected from each of three sides and composited for analysis.

1. Analysis of the composite drip line soil sample resulted in 1,743.5 mg lead/kg of soil.

A discarded lead-acid battery was observed in the vicinity of the Chequamegon Point Tower. The NPS reported that numerous discarded batteries had historically been observed in an approximate two acre area in the vicinity where the remnant battery was observed and that collection efforts and battery removal had previously been undertaken. There is a potential that these discarded batteries may have also contributed to lead-in soils contamination in the area.

*Hazardous Materials – Mold*

Inspections of the structure were not performed to identify the readily ascertainable visual extent of the mold growth. Moisture testing in building materials was not performed nor was sampling of building materials performed for microbial analysis.

## Character Defining Features

**Mass/Form.** A simple steel supported rectangular service room with octagonal lantern above.

**Exterior Materials.** Steel supports, corrugated metal panels, cast iron lantern all painted white except the lantern roof panels which are red.

**Openings.** Wood double-hung windows (missing) at service level; rectangular sheet glass at lantern level.

**Interior Materials.** Exposed wood framing.

## General Condition Assessment

In general, the Chequamegon Point Tower condition is currently unknown/fair due to the limited access into the watch room and lantern levels. It appears to be mostly in fair condition on the exterior and on the interior with the exception of a few elements. The park is currently in progress to complete this rehabilitation.

Structurally, the Chequamegon Point Tower is currently being rehabilitated and is in good condition.

There are no mechanical or electrical systems in the Tower.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building. Refer to Volume I, Chapter 2: Methodology for definitions of the condition ratings.

### Condition Assessment -- Architecture

#### *Architecture – Roof*

Condition:      *Good*

The roof of the lantern appears to be in good condition. This assessment is based on photos from the ground and the structural assessment. The roof of the watch room was not observed.

#### *Architecture – Walls and Wall Finishes*

Condition:      *Fair to Poor*

The metal skeleton tower with corrugated metal exterior paneling and metal casing is in fair condition as the metal is rusting with visible rust stains. The interior at the watch room level has beadboard in poor condition since it is partially missing in the room and the paint is alligatored. The exposed wood framing is in fair condition.

#### *Architecture – Windows*

Condition:      *Fair*

**Double-Hung Windows.** These two windows are in fair condition as they are a composite of modern and original elements. One window does not have a sash and one window has a nonhistoric wood and Plexiglas product sash.

#### *Architecture – Doors*

Condition:      *Unknown*

Inaccessible.



1 *Architecture – Walk and Railing*

2 Condition: *Unknown*

3 Inaccessible.

6 *Architecture – Lantern*

7 Condition: *Unknown*

8 Inaccessible.

11 *Architecture – Ceiling Finish*

12 Condition: *Fair*

13 The ceiling finish for the watch room is in fair condition as there is rusting along the ceiling and the ribs.

16 *Architecture – Floor*

17 Condition: *Unknown*

18 The watch room floor was removed for rehabilitation activities by the park. The lantern floor was not  
19 observed. Refer to the structural assessment.

22 *Architecture – Stairs*

23 Condition: *Unknown*

24 None. The ladder was not in-situ and not observed.

27 *Architecture – Accessibility*

28 Condition: *Poor*

29 This building is currently not accessible.

32 ***Condition Assessment -- Structural***

33 *Structural – Foundation*

34 Condition: *Good*

35 The visible portions of the concrete footings are in good condition.

38 *Structural – Floor Framing*

39 Condition: *Under Construction and Good*

40 The floor of the watch room is in the process of being replaced. The floor of the lantern is in good  
41 condition.

44 *Structural – Roof Framing*

45 Condition: *Good*

46 The roof of the lantern is in good condition.

49 *Structural – Wall Framing*

50 Condition: *Good*

51 The walls of the watch room and lantern are in good condition.

*Structural – Lateral System*

Condition:       *Good*

Lateral stability of the Tower is good.

*Structural – Load Requirements*

Condition:       *Good*

The roof and floor framing have adequate capacity to support the required loads.

***Condition Assessment -- Mechanical***

N/A

***Condition Assessment -- Electrical***

*Electrical – System Configuration, Conductor Insulation, Overcurrent Protection, Lighting Systems, Telecommunications, and Fire Alarm System*

Condition:       N/A

*Electrical – Lightning Protection*

Condition:       *Poor*

Lightning protection is old and is in poor condition. The absence of grounding conductors and bonding conductors indicates that the system is not adequate.

***Condition Assessment -- Hazardous Materials***

Refer to ‘Physical Description -- Hazardous Materials’ for detailed descriptions of locations and conditions of hazardous materials.

## Ultimate Treatment and Use

Construction of the Tower began in 1896 simultaneously with the LaPointe Light Tower, but both came to a halt due to lack of funding. The towers were restarted in early 1897 to be completed by June of that year.

In 1987, the USCG moved the Tower approximately 100' from its original site due to concerns about erosion. The move caused damage to the Tower's structure.

The park is currently in the midst of a rehabilitation of the Tower. At the time of the site visit in September of 2009 the structure was open to the elements. The timeframe for completion is unknown due to funding. All treatment recommendations defer to the park's current rehabilitation work.

The Tower is currently not open to the public and is to remain as such in the future. The park is interested in working with the USCG to reinstall the existing modern optic back into the Tower.

Rehabilitation is the recommended treatment for the Tower.

## Requirements for Treatment

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS and listed in Volume I, Administrative Data section of this report.

The recommended treatments are tailored to the Preferred Alternative as the outcome of the Value Analysis/CBA for the project. As individual buildings are rehabilitated, specific alternatives will present themselves during design and construction. The following section is a discipline-by-discipline, component-by-component description of the treatments proposed for the rehabilitation of the building. Refer to Volume I, Chapter 2: Methodology for the priority rating definitions.

### *Treatment Recommendations -- Architecture*

#### *Architecture – Roof*

Priority: Low

The roof was not accessible but there do not appear to be any recommendations at this time beyond that the park is completing their current rehabilitation project.

#### *Architecture – Walls and Wall Finishes*

Priority: Low

Scrape, prepare and paint the exterior corrugated siding and lantern. (The lantern walls were not accessible.) The park shall complete their current rehabilitation project.

#### *Architecture – Windows*

Priority: Severe

Reconstruct the missing window sash, scrape, sand and paint. Remove and replace the Plexiglas with glass. Verify operability of all sash. The park shall complete their current rehabilitation project. If not addressed, the opening at the missing sash will contribute to the degradation of the building's interiors and current rehabilitation efforts.

*Architecture – Doors*

Priority:            *Unknown*

Inaccessible.

*Architecture – Walk and Railing*

Priority:            *Unknown*

The walk and railing were not accessible. The park will address both features in the current rehabilitation project.

*Architecture – Lantern*

Priority:            *Unknown*

The lantern was not accessible. The park will address the lantern in the current rehabilitation project.

*Architecture – Ceiling Finish*

Priority:            *Low*

Scrape, prep and paint the ceiling.

*Architecture – Floor*

Priority:            *Unknown*

Inaccessible.

*Architecture – Stairs*

Priority:            *Unknown*

Inaccessible.

*Architecture – Accessibility*

Priority:            *Low*

Provide program access through interpretive exhibits and waysides at the Visitor Center.

***Treatment Recommendations -- Structural***

*Structural – Foundation*

Priority:            *Low*

No recommendations at this time.

*Structural – Floor Framing*

Priority:            *Low*

No recommendations at this time.

*Structural – Roof Framing*

Priority:            *Low*

No recommendations at this time.

*Structural – Wall Framing*

Priority: Low

No recommendations at this time.

*Structural – Lateral System*

Priority: Low

No recommendations at this time.

***Treatment Recommendations -- Mechanical***

N/A

***Treatment Recommendations -- Electrical***

*Electrical – System Configuration*

Priority: Low

The historic Tower has been disconnected from power line extending to the vicinity of the LaPointe Tower. There is no power source available for the historic Tower. An existing USCG culvert tower resides in close proximity to the historic Tower. It is recommended to move the USCG light and power equipment from the culvert tower to the historic Tower and remove the culvert tower.

*Electrical – Conductor Insulation, Overcurrent Protection, Lighting Systems, Telecommunications, and Fire Alarm System*

Priority: N/A

*Electrical – Lightning Protection*

Priority: Moderate

Existing lightning protection is old and its effectiveness has not been established. It is recommended that a LPI (Lightning Protection Institute) certified inspector perform an inspection of the lightning system and provide findings and recommendations in accordance with LPI-175.

***Treatment Recommendations -- Hazardous Materials***

*Hazardous Materials – Asbestos*

Priority: Low

Recommend sampling of suspect asbestos containing materials, including caulking.

*Hazardous Materials – Lead-Containing Paint and Lead Dusts*

Priority: Low

Recommend stabilization or abatement of Lead Containing Paint. Lead dust wipe sampling not recommended.

*Hazardous Materials – Lead In Soils*

Priority: Moderate

Recommend further soils characterization to confirm applicable regulatory requirements.

1 *Hazardous Materials – Mold/Biological*  
2 Priority: *Low*  
3 No recommendations at this time.  
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5  
6 *Hazardous Materials – Petroleum Hydrocarbons*  
7 Priority: *Low*  
8 No recommendations at this time.  
9  
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11

## Alternatives for Treatment

The following are several considerations of alternatives for the proposed treatments:

1. Relocation of the Tower to its original location could be an alternative but due to the recent outlay of material and rehabilitation, it is not currently recommended.
2. Opening the Tower to the public was considered and dismissed given the ladder access and potential risk that would be incurred to the NPS.

## Assessment of Effects for Recommended Treatments

The following table includes an analysis of the major treatment recommendations which affect Section 106 Compliance:

| Recommended Treatment  | Potential Effects   | Mitigating Measures  | Beneficial Effects   |
|--|---|--|--|
| 1. Removal of modern structure and relocation of modern optic into Tower | Coordination with USCG on removal and potential code upgrades which may conflict with the historic Tower. This may include providing an alternate means of access (i.e. not by ladder) and a code compliant guard rail at the walk. | Any decision to remove modern structure and relocate optic in historic Tower will need to be evaluated for benefit by the NPS and USCG and if agreed upon, implemented sensitively to minimize damage to the resource. | - Removes modern structure from the historic landscape<br>-Restores cultural resource to its original function as an operating light tower |

1 *Chequamegon Point Tower Photographs, 2009*

2



LI-CLS-01: View of Tower, 2009 (Source: A&A IMG3013)





LI-CLS-02: Service level, scaffolding and lantern (Source: A&A IMGP3014)



LI-CLS-03: Tower's 2009 scaffolding system (Source: A&A 100\_9826)



LI-CLS-04: Service level window 1 and beadboard wall finish (Source: A&A IMGP3020)



LI-CLS-05: Window 2, interior (Source: A&A 100\_9822)



*LI-CLS-06: Service level hatch to lantern level (Source: A&A 100\_9823)*

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