FLORIDA LIGHTHOUSE STUDY
APRIL 30, 2002

FOR
THE STATE OF FLORIDA
DEPARTMENT OF STATE,
DIVISION OF HISTORICAL RESOURCES AND
DEPARTMENT OF COMMUNITY AFFAIRS,
FLORIDA COASTAL MANAGEMENT PROGRAM

Submitted by

KENNETH SMITH ARCHITECTS, INC.
and
BENDER & ASSOCIATES, ARCHITECTS, P.A.
Associate Architects
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### PREVIOUS LIGHTHOUSES

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and

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Associate Architects
INTRODUCTION

This report summarizes a study of Florida Lighthouses to determine:

- Locations,
- Ownership,
- Dates built,
- Owner and operators,
- Facilities,
- Current and potential uses,
- Conditions,
- Restoration needs, and
- Funding required for restoration.

The study also included preparation of a statewide multiple property submission nomination for listing historically significant lighthouses in the *National Register of Historic Places* and a National Register nomination for the Amelia Island Lighthouse.

The study was commissioned by the State of Florida, Department of State, Division of Historical Resources and Department of Community Affairs, and was administered by Frederick P. Gaske, Deputy SHPO and Chief, Bureau of Historic Preservation, and L. Christine McCay, Environmental Administrator, Florida Coastal Management Program.

Work on the study commenced in December 2001 and was completed in April 2002. The report is based upon visual observations completed at readily accessible areas of lighthouses and was completed by Kenneth Smith Architects, Inc. and Bender & Associates, P.A., Associate Architects. All historic Florida Lighthouses were visited, reviewed, and photographed for this report.

The following individuals contributed to the report:

KENNETH SMITH ARCHITECTS, INC.

- Kenneth R. Smith, FAIA
- David J. Luke, AIA
- Jennifer M. Kelly
- M. Todd Osburn
- Alma D. Hanscom
- Lorraine Y. Smith

BENDER & ASSOCIATES, ARCHITECTS, P.A.

- Bert Bender
- David Salay
- Jason Van Nest
- Matthew Stratton
- Daina Katubi
- Suzanne Maywalt

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Associate Architects
Sidney Johnston served as a historical consultant for the study. He completed historical lighthouse research and prepared the National Register nominations. Cullen Chambers provided guidance and copies of reports he had previously prepared for several Florida Lighthouses.

We received tremendous support and assistance with this study from many individuals and organizations including the United States Coast Guard, United States Navy, and United States Air Force. Lighthouses not owned or operated by nonprofit or community groups are typically owned and operated by the Coast Guard, Navy, or Air Force. The report could not have been completed without their support and assistance.

Studying the lighthouses has been a great adventure. We traveled from Amelia Island to Key West and the Dry Tortugas to Pensacola to visit the lighthouses. Our visits included boat trips to islands and travel via foot and all types of machinery. We found a keen interest in lighthouses at all of our visits. During our visit to St. Marks Lighthouse on a Tuesday morning in February, we noted several individuals walking around and photographing the lighthouse. We traveled to St. George's Lighthouse on uninhabited St. George’s Island on a Tuesday afternoon in April and found a group of 10 – 12 Audubon Society members sitting on the base of the lighthouse. We visited Egmont Key Lighthouse on Egmont Key near St. Petersburg on a Friday in April and had many visitors walking around the lighthouse property and inquiring about touring the lighthouse.

The St. Augustine Lighthouse, operated by St. Augustine Lighthouse and Museum, Inc., had 180,250 visitors last year, plus additional casual visitors that did not enter the lighthouse complex. Recently, they commissioned an economic impact study for the St. Augustine Lighthouse and determined that public visitation of the lighthouse results in an annual $2 million economic impact for the St. Augustine community. Their total revenue last year was $2.2 million with $727,000 received from admissions and $1.2 million in retail gift shop sales. They return $40,000 per year to the state in sales tax revenue and have a $600,000 annual payroll.

The Ponce de Leon Inlet Lighthouse near Daytona Beach averages around 115,000 visitors annually and is self-supporting with a payroll of over $300,000 and an annual budget of over $1 million.

The Florida historic lighthouses are tremendous assets for the State. Florida residents and State visitors love to tour the lighthouses and marvel at the magnificent views from lighthouse galleries. Lighthouses open for public visitation are popular locations for weddings and a variety of other social gatherings. The economic benefits of restoring and opening the lighthouses for public visitation have positive impacts throughout Florida.
Discussions regarding unique potential uses and economic benefits for the reef lights are included in specific lighthouse reports.

Several historic lighthouses were constructed before Florida became part of the United States. They are vivid sentinels of our past and beacons for our future.

Kenneth Smith, Architect, FAIA
Bert Bender, Architect

We gratefully acknowledge the assistance provided by the following in completing this report:

Alligator Reef Lighthouse: Chief Todd Stoughton
United States Coast Guard, Aids to Navigation

Amelia Island Lighthouse: Vicki Wolfinger, Grants Coordinator
City of Fernandina Beach, Florida
Nan Voit, Director, Parks & Recreation
City of Fernandina Beach, Florida

American Shoal Lighthouse: Chief Todd Stoughton
United States Coast Guard, Aids to Navigation
Key West Art & Historical Society

Anclote Key Lighthouse: Terry Smith, Anclote Key Preserve State Park

Port Boca Grande Lighthouse: Marilyn Hoeckel, Director, Boca Grande Lighthouse Museum

Boca Grande Entrance Rear Range: Chief Petty Officer Mike Locke, United States Coast Guard

Cape Canaveral Lighthouse: Dr. Elbert (Sonny) Witt, Cape Canaveral Air Force Station, Deputy Base Commander
George T. Cole, C.S.P., Associate Director Technical Engineering and Space Lift Services

Cape Florida Lighthouse: Lee Niblock, Park Manager
Bill Baggs State Recreation Area
Susan Olsen, Historian

Cape San Blas Lighthouse: Colonel Mike Newberry
Environmental Director at Eglin Air Force Base
Dr. Newell Wright, Cultural Resource Manager of Archeology

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Cape St. George Lighthouse: Roy Ogles, Environmental Specialist III, Resource Management Coordinator, Apalachicola National Estuarine Research Reserve (ANERR)

Carysfort Reef Lighthouse: Woody Miley, Environmental Administration Manager, Apalachicola National Estuarine Research Reserve (ANERR)

Cedar Key Lighthouse: BMC Ed Lawrence, United States Coast Guard

Crooked River Lighthouse: Pam Darty, Lower Suwannee and Cedar Keys National Wildlife Refuge

Dry Tortugas Lighthouse: Carabelle Lighthouse Association

Egmont Key Lighthouse: Chief Petty Officer Mike Locke, United States Coast Guard

Fort Jefferson/Garden Key Lighthouse: Chief Warrant Officer Ed Cocking, United States Coast Guard

Hillsboro Inlet Lighthouse: Bob Howard, Management Assistant for the Dry Tortugas, National Park Service

Jupiter Inlet Lighthouse: Chief Petty Officer Mike Locke, United States Coast Guard

Key West Lighthouse: BMC Ed Lawrence, United States Coast Guard

Pensacola Lighthouse: Bob Howard, Management Assistant for the Dry Tortugas, National Park Service

Ponce de Leon Inlet Lighthouse: Bob Howard, Management Assistant for the Dry Tortugas, National Park Service

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Associate Architects
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Sand Key Lighthouse: Chief Todd Stoughton, United States Coast Guard,
Aids to Navigation
Key West Art & Historical Society

Sanibel Island Lighthouse: Chief Petty Officer Mike Locke, United States Coast Guard

Sombrero Key Lighthouse: Chief Todd Stoughton, United States Coast Guard,
Aids to Navigation
Key West Art & Historical Society

St. Augustine Lighthouse: Kathy Fleming, Executive Director
The St. Augustine Lighthouse and Museum, Inc.

Old St. Johns Lighthouse-Mayport: Homer Hull, Architect, Cultural Resources Manager
Mayport Naval Air Station
Petty Officer Stover, United States Coast Guard

St. Johns Light Station: Petty Officer Stover, United States Coast Guard

St. Mark's Lighthouse: St. Marks Refuge Association
Lee Cook, Grant Administrator and
Robbin Will

General Lighthouse Assistance: Lt. Francis O'Connell, Seventh District United States Coast
Guard
Lt. Christopher McMunn, Seventh District United States
Coast Guard
Lt. Brad Ripkey, United States Coast Guard Civil Engineering
Unit, Miami, Florida
Lt. Commander Pauline Cook
Mrs. Gail Fuller, Coast Guard Historical Curator

D. B. Justice, Chief Boatswain's Mate, Officer-in-Charge
Aids-to-Navigation Team, Panama City, Florida

Lead Really Specialist Robert Easterling and Realty
Specialist Patricia Dixon, U.S. Coast Guard, Civil
Engineering Unit, Miami


McCarthy, Kevin M., *Florida Lighthouses*, University Press of

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
Florida Lighthouse Location Map
Name: Alligator Reef Lighthouse
Location: Monroe County / 3.5 miles offshore of Islamorada
Type: Wrought iron skeletal screw-pile tower
Height: 150 feet
Daymark: White wrought iron skeletal screw-pile tower, white square integrated dwelling, black pilings
Year Built: Ca. 1873
Owner or Operator: U.S. Coast Guard
National Register Status: Eligible
Active: Yes
Visitor Access: Proximity access by boat, no direct access
Contact: Ms. Brenda Atmeier at: Brenda.atmeier@noaa.gov
Facilities: Keeper's Quarters integrated into tower

1. History
The Alligator Reef Lighthouse was completed in 1873 and first lit on November 23, 1873. The lighthouse was named after the U.S.S. Alligator, a 12-gun schooner that shipwrecked on the reef in 1822 while commissioned to put an end to the pirating in the waters off the Florida Keys. To prevent the pirates from salvaging the schooner, her crew blew her up. Because of the many shipwrecks over the years in this area, a thirty-six foot high iron-pile daymark was erected in 1852, but due to the severity of the storms and continuing wrecks on the dangerous reef, it was recommended that a lighthouse be erected at this location. Since Florida joined the Confederacy, plans for a lighthouse were delayed. Funds for construction of Alligator Reef Lighthouse were finally authorized by Congress in 1870. Nearby Indian Key, located four miles from the site was used as a staging area for the construction and the iron pile structure, forged by Paulding Kemble, was shipped from Cold Spring, New York, to Indian Key.

Once the contractor completed the essential construction work on Indian Key, materials and workers were sent to the designated area on the reef, a circle about fifty-six feet in diameter. After boring in various areas, engineers had found the coral most suitable for providing a solid base... at the northeast
end of Alligator Reef, thirty yards from the already existing day beacon C. This would place the new light about two hundred yards from the deep water of the Gulf Stream.

At this site, workmen first built a small landing jetty and a platform, sinking mangrove piles five feet into the coral. Although these were temporary structures, the piles had to withstand the heavy waves that built up on the reef. Once the men completed the platform, the real work began.

The coral reef was leveled to receive nine heavy cast-iron foundation disks. These had to be placed five feet under water, at the center and the outside corners of an octagon.¹

The wrought iron foundation piles that passed through these disks were twenty-six feet long and twelve inches in diameter, with pointed lower ends. The men used a pile driver powered by a portable steam engine to drive the piles through the center holes of the disks and into the coral. The two thousand pound pile driver hammer fell an average distance of eighteen feet, forcing the pile down into the coral from a half-inch to one and a half inches each time. The workers drove the piles into the reef to a depth of ten feet. This laborious and dangerous work needed to be exact in every detail before the engineer could have the second series of pilings attached.²

The lighthouse was initially lit by kerosene oil-wick lamp. In 1913 it was replaced by an incandescent oil vapor lamp and steel oil storage tanks for kerosene were installed within the tower frame. A numerical system of flashes distinguishes the reef lights at night...Alligator Reef Lighthouse uses four four-second flashes that can be seen for approximately sixteen miles at sea.

Alligator Reef Lighthouse has experienced many storms, the worst in 1935 when winds of 200 miles per hour with a 20-foot storm wave passed over the northern Keys. The lighthouse survived, partly because its spindly nature offers little resistance to the winds and waves, which pass through the supports.³

². Ibid., 212
2. **General Description:**

The Alligator Reef Lighthouse is an iron screw pile tower located four miles south of Islamorada. The 150-foot octagonal tower has a square keeper's dwelling and cylindrical stair tower painted white, set on black iron pilings and capped by a black top. The keeper's dwelling is characterized by classical detailing including half column trim with plinth bases and capitals forming six bays on each side. Two sets of double doors on each side are framed by this trim. Only one of these eight sets of doors is operational with the seven non-operational doors welded shut with plate steel skins on the inside face. Four of the doors have been modified further and have 21" square Lexan panels centered in the upper half, protected on the outside by perforated stainless steel panels, and are effective at providing light on the interior. Windows rising up the central stair tower provide light and ventilation that filters through the grated cast iron treads.

3. **Site Improvements:**

**Evaluation:** Significant, Good Condition

Located four miles south of Islamorada at the reef, the tower is completely surrounded by water. The landing platform is located at the northwest corner of the tower with access ladders on its northwest and southwest sides. Coral heads to the south, running east and west, limit access to this northerly approach. Access to the tower is via a steep steel ship's ladder rising 22 feet to the keeper's quarters platform.

**Recommendations:**

Access to the light is reasonable, but improvements to the dock will make access easier and safer. Fenders and various tie-off points to allow options for varying wind and sea conditions are recommended.

4. **Exterior Structure/Walls:**

**Evaluation:** Significant, Sound, With Areas Of Deterioration

The structure and walls are iron. Eight 12" diameter columns taper up to the top forming an octagonal pyramid. The main floor platform is set 22' above the landing dock platform, or approximately, thirty feet above mean high water. Historic photographs show that a lower platform once existed at the level where the columns begin to taper, about 10' above the water. All evidence of this platform is gone. The structure is braced with diagonal cross bracing between each column and back to the central stair tower and column below with the rods and turn buckles 3" in diameter at the first floor. The rods are connected to column collars with clevis pins. Beams and floor plates have bolted connections. Wall panels are riveted together.
at joints using battens on the interior, including the radiused corner pieces. Wall panels at both the
keeper's quarters and cylindrical stair tower are rusted through in places, most typically near the floor.

**Recommendations:**
Repairs are required where walls are rusted through, by welding in patches. Where bolts or rivets have
lost more than 50% of their diameter, they should be replaced. All welding should be accomplished using a
M.I.G. welding method.

5. **Exterior Openings/Doors & Windows:**

**Evaluation:** Altered, Non-Operational
There were originally eight sets of double doors, each leaf being 24" wide x 7'-7" high. Currently only one
set of doors is operational. The other seven openings have been replaced with a 48" wide x 91" tall piece
of sheet steel, with 1-1/2" x 1-1/2" steel angle welded to the top and sides. Battens have been welded to
the outside to replicate the doors and the panels are secured in place by bolting the interior angles
together to the doorframe angles and the hinges to the wall panels and door panel. Four of these panels
have 21" square Lexan panels, protected on the outside with perforated stainless steel panels. There are
seven windows in the stair tower. The window openings are 22" wide x 26" high. The windows are glazed
with Lexan set in steel sashes 22" wide x 20" high with the 1-1/2" wide steel plates forming the sash-bolted
together to hold the glass in place. The two sashes overlap in the original frame with the outside sash set
at the top of the opening and inside sash set at the bottom of the opening, which creates a 1-1/2" gap
between glass panes, a 6" space at the bottom of the outside sash and a 6" gap at the top of the inside
sash. This arrangement allows air circulation, ventilation and light for the interior, while the 14" overlap is
effective at keeping wind driven rain out of the building. This same size and window configuration was
used at the one window in the watch room. The door from the watch room to the watch gallery is
fabricated from sheet steel with battens applied to the outside face to replicate the original door pattern.
This arched top door, 30" wide x 75" high overall is hung with two stainless steel hinges and secured on
the inside with a barrel bolt. The door has no stops in place and binds the hinges when fully opened,
putting stress on the screws holding the hinge to the watch room wall. All doors and windows are
serviceable.

**Recommendations:**
None of the doors or windows is original to the building, but they are serviceable and can be retained.
However, the non-operational fixed panels that are intended to replicate doors negatively impact the
historic characteristics of the building. They should be replaced with operational doors that replicate the
originals. The watch room door should have a stop installed far enough from the hinges to relieve the

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stress on them, and hinge fasteners should be repaired to a tight fit. The windows are cleverly designed to allow light and ventilation. However, they do not resemble the historic windows. If a restored exterior is desired, the windows should be replaced.

6. **Foundation and Floor Structure:**

**Evaluation:** Significant, Deteriorated but Sound

The light's structure consists of nine screw pile foundations supporting a central column and eight perimeter columns. The perimeter columns form an octagon. The keeper's quarter's floor platform is supported by iron beams radiating out from the central column to each of the perimeter columns and perimeter girders between columns. The girders are 3" x 10" flat plate steel and radiating beams are 2" x 9" flat plate steel. This skeleton of beams supports cast iron floor plates, each with supporting ribs cast in that are deeper at mid span and taper toward the edges of the plate. Several floor plates are buckled and cracked in places with interior surfaces peeling and flaking off. All components show signs of rust and deterioration and deflection in one beam was noted, but overall the foundations and floor structure appear sound. Historic photos show that a lower platform existed at the first tier of columns above the water, about 9 feet above water. This platform was used for storage and to land boats. In addition, several tanks were suspended from the main platform of the lighthouse, probably for storage of water and fuel. Both the tanks and the platform have been removed.

**Recommendations:**

Repairs, as opposed to replacement are possible and are preferable, as it will preserve historic fabric. Most repairs can be performed on site, but if necessary, floor plates and other components can be unbolted and removed for repair and or replacement. A continuing maintenance program of removing rust and repainting is recommended. Where reinforcing ribs cast in with floor plates have lost 1/3 of the metal's thickness, they can be repaired by infilling with M.I.G. welding. This method can also be used at columns, beams, and other metal components. All rust should be removed to bare metal and ferrous metals should be painted with an inorganic zinc primer within 6 hours of initial stripping.

7. **Interior Openings:**

**Evaluation:** None on site

The only interior opening is the door to the stair tower, and that door is missing.

**Recommendations:**

Interior openings are not required unless a full historic restoration is undertaken.

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8. **Interior Finishes:**

   **Evaluation:** Altered, Significant

   All of the finishes and partitions at the keeper’s quarters have been removed. The finishes at the watch room are described in that section.

   **Recommendations:**
   If a full historic restoration is undertaken, the keeper’s quarters interiors should be replicated based on historic research. Continued maintenance of the remaining interiors is recommended.

9. **Stairs:**

   **Evaluation:** Significant, Sound

   The lighthouse is accessed from a steep ship’s ladder leading from the boat dock to the keeper’s quarter’s platform. The ladder extends 22’-4" down to the boat landing platform. The contemporary platform is approximately 9’ above mean high water, and in good condition.

   The main stair cylinder is 7’-0" in diameter, and is constructed of curved iron plates 37" wide x 10'-0" high x ¾" thick. The stair cylinder wall has rusted through at the keeper's quarter's floor. Each level of the cylinder is made up of seven iron plates, attached with 4" battens riveted at the inside. Each wall plate has two or three iron angles riveted to it, 4 ½" x 3 ¼" x 3" wide, with a hole at the plate. It is possible these were used to hoist the panels in place during construction, as the angles appear historic. The stair treads are constructed of cast iron perforated in a diamond pattern. Each tread is 33" wide, and is 5" deep at the inside and 14 ½" at the outside. Each tread has a collar that stacks on the main structural column running through the center, and every third tread is bolted back to the stair cylinder wall, approximately 6". The first tread is missing and has been replaced by wood, and the third tread is cracked and in need of repair. Nine treads past the first landing is a broken stair. The twelfth stair down from the watch room has a hole that has been patched. The hole appears historic, and was cut for the weights of the rotation mechanism. There is a hole in the first stair landing that has been patched. The remainder of the treads are sound and painted, but show signs of surface rust. The top eight stairs differ from the rest; they are solid cast iron with solid treads. There are six windows in the stairwell, with a landing at each one. The stair from the watch room to the lens room is cast iron and historic. The treads are 6 ½" diameter at the inside and 8" diameter outside, with open risers. The stair is 23" wide and has a 9" riser height. There is a 15" wide cast iron ladder from the watch room gallery to the lens room gallery. The rungs are each composed of two 5/8" diameter rods. Finally, a single column ladder leads from the lens room gallery to the roof.
Recommendations:
The stairs are in relatively good condition, with the exceptions noted above. They should be sandblasted, primed, and painted. If a historic renovation is undertaken, the first stair tread should be replaced to match the originals, and the cracked stairs should be repaired by M.I.G. welding.

10. Railings:

Evaluation: Significant, Altered
The galvanized steel railings at the bottom exterior platform are not historic. They are 41" high and in good condition. The guardrail verticals use the same attachments to the floor as the historic guardrails. The historic main stair rail begins at the watch room floor. It consists of iron pipe 2" in diameter, with brackets holding the rail 8-1/2" away from the exterior walls. The rail height is approximately 34" above the stair nosing. The rail brackets are approximately 48" apart and terminate at each landing. The ends terminate with 3" diameter iron balls. The railing is sound.

In the watch room, there is a painted guardrail around the main stair opening. It is historic and sound, with 1" tapering verticals at 34" o.c., and a flat bar top 2" wide x ½" deep, curling at the end. The guardrail ties into the lens room stair.

The watch room gallery rail is not historic. It is 40-1/2" high, with flat bar horizontals at +8-1/2", +28-1/2" and a top rail at +40-1/2". The guardrail is galvanized steel and sound.

The galvanized steel guardrail at the lens room gallery is non-historic but sound. The rail is composed of 1 ½" diameter verticals, with a flat bar top rail 2" wide x 3/4" deep.

Recommendations:
Most of the exterior guardrails are sound replacements and only require continued maintenance. If a full restoration is undertaken, the railings could be replaced with painted cast iron guardrails fabricated from historic photos and drawings.

11. Watch Room and Gallery:

Evaluation: Significant, Sound, Altered
The watch room is circular and measures 11'9" in diameter. The exterior walls consist of iron plates 31" wide x 94" high. The plates are butt-jointed at the outside. The inside walls are painted wood vertical tongue and groove, with painted wood baseboard. The wood inside walls are furred 3' from the iron plate.
outside wall. The walls are painted and sound, though some damage is evident from mounting of modern electrical panels at the interior. The floor consists of the iron plate 'cap' of the stair cylinder (84" diameter) with painted 1" wood tongue and groove outside to the exterior walls. Both plate and wood floor are recently (five years) painted, sound and in good condition. The watch room ceiling consists of the underside of the lens room catwalk above. A cast iron stair leads up to the lens room along the exterior wall. There is a historic window opening on the south side of the room, with 3" wide historic interior wood trim. The window itself is tempered glass in a steel frame. A historic 20" wide cast iron ship's ladder stair leads down the stair cylinder to the top landing below. The guardrail around this stair is historic and ties into the lens room stair. An arched door 30" wide x 75" high leads to the watch room gallery. The door has stainless steel hinges and appears to be a steel replacement. It consists of steel plate with steel battens 1-1/2" x 1/4" welded to the outside. The door has wood interior trim around it.

The watch room gallery is octagonal, measuring 61" at its deepest and consists of eight sections bolted together. Brackets cast into the floor sections support the gallery. The underside and brackets are deteriorated, but recently painted. The plate iron floor has a raised diamond pattern, and diamond shaped perforated areas 32" wide x 19" high are located at the center of each panel. The steel guardrail is not historic, but sound. The watch gallery has been painted in the last few years and shows little visible rust. A modern steel mount for solar panels sits on the entire south portion of the gallery. The mount is 6'-10" high, 9'-8" wide and 44" deep, painted and in good condition. A historic ladder leads up to the lens room gallery above.

The gallery floor has been patched at the northeast point with a steel angle and bracket. The broken cast iron piece is supported underneath with a bracket. The patch is also welded.

**Recommendations:**

The brackets under the watch room gallery should be further inspected for deterioration and repaired and painted if necessary. The watch room is in good condition, and ongoing maintenance should be continued. The watch room door and window are replacements. The window should be replaced if a historic restoration is undertaken. The door is a reasonable interpretation and could be retained and repaired. However, the original door probably had glass and replacing this door with a more accurate replica, based on historic documentation, is recommended.

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12. Lens Room & Lens Room Gallery:

**Evaluation:** Significant, Sound

The lens room is circular with sixteen panels of glass in three tiers for a total of 48 lights. The room is 11'-6" in diameter, with a plate height of approximately 10'-1". The ceiling consists of 16 metal panels screwed into the rafters behind. A circular hole at the top ventilates air. The grates for the ventilator ball are visible through the hole. Sixteen horizontal tie rods extend from the top plate, terminating in a collar directly above the lens. Eight vertical tie rods from the ceiling also support the collar. The rods are all painted and sound. The roof structure was not visible behind the metal sheathing. There are no signs of leakage in the room. The original lens mount is historic, 4'-10" wide with Victorian detailing. The modern beacon (VRB-25) is mounted to the original pedestal. All of the historic window glazing has been replaced by tempered glass. The vertical mullions are structural, measuring 4" x 1-1/2". The horizontal mullions are U-shaped, measuring 2-1/4" wide x 1" deep, and are bolted to the verticals. They are also structural. The glazing is attached from the exterior with 1-1/4" wide x ¼" deep battens, screwed at +/- 12" o.c. All mullions are painted black. The glazing and battens are weather-stripped. A hand hold runs along the outside of the lens room windows for glass cleaning. The handhold is deteriorated and no longer sound.

The lens room interior floor consists of a historic catwalk 27" wide, supported by brackets at the watch room ceiling. The catwalk is composed of fourteen sections, with two left out for the 23" wide historic cast iron stair leading down to the watch room. The catwalk flooring is diamond pattern cast iron. Lens room ventilators are located at every other windowsill, eight in all. The historic panels of the ventilators have been replaced by steel mesh. The ventilators vent to the underside of the lens room gallery. There is significant deterioration at the underside of the gallery.

The lens room gallery is 27" wide, composed of sixteen sections bolted to each other and the watch room upper wall. The plate has a raised diamond pattern. The gallery is accessed by a ladder from the watch room gallery. The historic guardrail has been replaced by a galvanized steel rail. The guardrail is sound. The Coast Guard RACON is mounted to the lens room gallery floor. A pipe column ladder leads from the lens room gallery to the roof of the north side. It is sound. All of the metalwork in the lens room has been painted within the last few years and is sound.

**Recommendations:**
The Lens Room interior is in good condition and only needs continued painting and maintenance. The handhold at the Lens Room Gallery should be repaired and made sound. There is significant deterioration at the exterior base of the Lens Room, where the ventilators vent. The metal at this point should be stripped of paint, patched by welding, then primed, and painted, or replaced if beyond repair.
13. **Roof Structure and Roof Covering:**

   **Evaluation:** Significant, Sound, Altered

   The roof sheathing and ventilator ball are copper. The roof interior is sheathed in metal panels attached to the rafters, sixteen in all. Eight vertical tie bars hang from the ceiling to support the lens support at the top. There is a sound ladder to the roof from the lens room gallery and the roof was viewable. A handhold runs completely around the top of the windows, bolted to the window mullion verticals. The interior ceiling is painted and sound. The panels show no signs of rust. The roof exterior is black and sheathed in copper. Rooftop and ventilator are painted and appear watertight. No signs of leakage are apparent inside the lens room. The cornice at the exterior is rusted through on the southwest side and the handhold bar and brackets have rusted away at these points.

   The keeper’s quarters roof consists of 36” wide rectangular panels. The panels are newer and appear to be welded together. The original keeper’s quarter’s roof structure consists of sixteen I-beams radiating out from bolted connections at the stair cylinder. The beams bolt to the side of the keeper’s quarter’s walls. The beams taper to form the slope of the roof, from 10-1/2” deep at the stair cylinder to 4-1/2” deep at the outer walls of the keeper’s quarters. At the stair cylinder the beams are bolted to each other and to the stair cylinder. The roof structure is painted and in good condition.

   **Recommendations:**

   The cornice at the lens room roof should be stripped to bare metal, patched with similar metals by welding in new sections, painted, caulked and made watertight. The handholds should be repaired or replaced to facilitate maintenance.

14. **Mechanical and Plumbing Systems:**

   None

15. **Lightning Protection System:**

   **Evaluation:** Sound, Altered

   The historic spire lightning rod is mounted at the top of the ventilator ball. There is no visible wire extending from this rod, though the mounting for the beacon’s electrical panel appears to be grounded via a cable running down the inside of the stair cylinder. It terminates at the base of the stair interior and is tied into a metal bracket.
**Recommendations:**
The ground system should be checked to ensure its function. The single lightning rod at the top of the ventilator ball should be reactivated and properly grounded. A certified lightning protection system specialist should be consulted for design input.

**16. Electrical Systems:**

**Evaluation:** Required, Non-Historic, Serviceable

The Coast Guard light is powered by a solar powered 12 volt battery system. No other electrically powered items are on site. The system is operational and serviceable.

**Recommendations:**
The Coast Guard has an appropriate maintenance program for navigational aids and no modifications are needed. If additional electrical power is desired, the solar system can be upgraded.

**17. Probable Cost for Restoration:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Site Improvements/Docking</td>
<td>$10,000</td>
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<tr>
<td>Exterior Structure Wall Repairs</td>
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<tr>
<td>Doors (8 @ $3,500)</td>
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<tr>
<td>Windows (5 @ $2,400)</td>
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<tr>
<td>Floor Structure Repairs (4,000 s.f. @ $175/s.f. avg.)</td>
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<td>Interiors/Reconstruct Keepers Quarters (2,025 s.f. @ $250/s.f.)</td>
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<tr>
<td>Exterior Wall Restoration</td>
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<tr>
<td>Stair Restoration</td>
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<tr>
<td>Railing Restoration</td>
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<tr>
<td>Watch Room Restoration</td>
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<tr>
<td>Lens Room Restoration</td>
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<tr>
<td>Roof Repairs</td>
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<tr>
<td>Lightning Protection</td>
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<tr>
<td>Exterior Paint</td>
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<td><strong>Sub-total</strong></td>
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<td><strong>Remote Site Contingency @ 40%</strong></td>
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<td><strong>Design Fees @ 12%</strong></td>
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<tr>
<td><strong>Total Probable Cost</strong></td>
<td>$2,800,000</td>
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</tbody>
</table>

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18. Recommendations for Future Use: The Alligator Reef light is already a popular destination for boaters, due to its proximity to the City of Islamorada and the coral reefs, and its historic nature. At present this valuable piece of Florida history is slowly deteriorating due to lack of regular maintenance. In its present state, the light could be opened to limited visitor access on a regular basis. All that would be required would be improved access to the landing dock. It is our recommendation, however, that the lighthouse be fully restored, including rebuilding of the historic wood interiors of the keeper's quarters.

In addition to the obvious historic significance of the reef lights, a tremendous opportunity exists for increased use and public access. With fully restored lighthouses, including historic interiors, solar powered lighting, composting toilets, and improved docking facilities, the lighthouses could be used for:

1. Marine Research Facilities
2. Weather Stations
3. Military Training
4. Corporate Retreats
5. Living Accommodations for Maintenance Crews
6. Public Tours on a Limited Basis During Calm Weather Summer Months

and numerous other uses. The demand for these uses is high. The revenue generated from public use would ease the financial burden of maintaining the lights. Public awareness of the role of lighthouses and their importance would be raised.

Public awareness and appreciation for Untied States Coast Guard, their work and the dedication of the men and women of the Coast Guard would be raised.

The benefits are numerous. The drawbacks are few. It is without reservation that we recommend full historic restoration of the Alligator Reef Lighthouse and the establishment of a program for its future use. This public use plan, if applied to all of the reef lights of the Florida Keys, will generate worldwide interest and support.
ALLIGATOR REEF LIGHTHOUSE HISTORIC PHOTO. JUDGING FROM OUTBOARD ENGINE,
PHOTO DATES AFTER 1940'S. AGAIN, NOTE LOWER PLATFORM & WATER TANKS, NOW
REMOVED.
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Alligator Reef Lighthouse Photos
Date: 4/15/02
MAIN PLATFORM EXTERIOR OPENING TO KEEPER'S QUARTERS. COVERING IS A STEEL REPLACEMENT. NOTE ORNATE CAST IRON DOOR TRIM

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

OPERABLE DOOR TO KEEPER'S QUARTERS, ALSO A REPLACEMENT

Project No. 0119
Alligator Reef Lighthouse Photos
Date: 4/15/02
GENERAL INTERIOR VIEW OF KEEPER'S QUARTERS. ALL WOOD FINISHES HAVE BEEN REMOVED. DIAGONAL BRACING WOULD HAVE BEEN HIDDEN INSIDE WOOD INTERIOR WALLS

DETAIL OF RAINWATER LEADER AT KEEPER'S QUARTERS INTERIOR. COPPER DOWNSPOUTS ONCE CONNECTED TO TANKS SUSPENDED BELOW PLATFORM
TYPICAL REPLACEMENT STAIR CYLINDER WINDOW

UNDERSIDE OF STAIR LANDING, SHOWING PATCH OVER HOLE FOR COUNTERWEIGHTS

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Alligator Reef Lighthouse Photos
Date: 4/15/02

DETAIL OF TYPICAL STAIR TREAD
WATCH RM. GENERAL VIEW, SHOWING HISTORIC LENS PEDESTAL. MAIN STAIR LEADING DOWN AT LEFT. LENS ROOM ABOVE

WATCH RM. HISTORIC STAIR LEADING TO LENS ROOM. NOTE REPLACEMENT WINDOW IN ORIGINAL OPENING. STEP GIVES ACCESS TO PEDESTAL FOR MAINTENANCE

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
Alligator Reef Lighthouse Photos
Date: 4/15/02
LENS ROOM EXTERIOR CORNICE, SHOWING DETERIORATED EXTERIOR HANDHOLD FOR GLASS CLEANING. ALL GLASS ATTACHES FROM OUTSIDE

LENS ROOM ROOF, SHOWING VENTILATOR & LIGHTNING ROD IN GOOD CONDITION
LENSE ROOM GENERAL INTERIOR VIEW, SHOWING VR3-25 BEACON MOUNTED ON HISTORIC LENS PEDESTAL. NOTE VENTILATORS AT BASE OF WINDOWS

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
Alligator Reef Lighthouse
Photos
Date: 4/15/02

LENSE ROOM INTERIOR CEILING, SHOWING ORIGINAL LENS SUPPORT COLLAR. AIR VENTILATES THROUGH CIRCULAR HOLE. CEILING SHEATHING IS TIN OR COPPER. NOTE LADDER TO ROOF OUTSIDE WINDOW
<table>
<thead>
<tr>
<th>Name:</th>
<th>Amelia Island Lighthouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>215-1/2 Lighthouse Circle, Fernandina Beach</td>
</tr>
<tr>
<td>Type:</td>
<td>Conical Brick Tower</td>
</tr>
<tr>
<td>Height:</td>
<td>64 feet</td>
</tr>
<tr>
<td>Daymark:</td>
<td>White conical tower with black lantern room</td>
</tr>
<tr>
<td>Year Built:</td>
<td>1839 (present site)</td>
</tr>
<tr>
<td>Owner or Operator:</td>
<td>City of Fernandina Beach</td>
</tr>
<tr>
<td>National Register Status:</td>
<td>Nominated for the National Register of Historic Places as part of the scope of this study.</td>
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<tr>
<td>Active:</td>
<td>Yes</td>
</tr>
<tr>
<td>Visitor Access:</td>
<td>No access, except when gate is open.</td>
</tr>
<tr>
<td>Contact:</td>
<td>Harold (Hal) Belcher at:  <a href="mailto:hal@net-magic.net">hal@net-magic.net</a></td>
</tr>
<tr>
<td>Facilities:</td>
<td>Oil storage building, 1960s ranch-style keeper's house, and two-car garage/storage building</td>
</tr>
</tbody>
</table>

1. **History**

A lighthouse was erected in 1820 on the southern end of Cumberland Island, Georgia to mark the mouth of the St. Mary's River. After Florida was annexed as a United States Territory, the lighthouse board decided the light would provide better service on the south side of the river channel. In 1838, the Cumberland light was dismantled and moved to Amelia Island. It was rebuilt in the new location by the original contractor, Winslow Lewis, for $7,000 and was relighted in the spring of 1839. Amelia Island Lighthouse was reassembled on top of the highest point on Amelia Island at the second highest elevation on the South Atlantic Coast.¹ The lighthouse site is approximately three-fourths of a mile west of the ocean and two miles south of the St. Mary's River.²

The original light was 1,500 candlepower using 14 patent lamps with 15 reflectors. In 1903, a third-order Fresnel lens of brass and cut glass was installed. The Fresnel lens remains and is stamped Barbier & Bernard, Paris.¹

A red panel at the interior of the storm glazing was added in 1917 as a result of the increasing number of shipwrecks in the shoal waters off the southern end of the island.¹

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In 1933, the light was electrified with two 500-watt lamps. Before that time, clockwork-type weights and chains or cables rotated the light. The mechanism that revolved the lens had to be rewound every four hours. In 1970, the light was completely automated and the keeper was terminated. Wood housings for the clockwork mechanism remain below the watch room; however, the original rotation mechanism has been removed.

The current 1960s ranch-style keeper's house is out of character and not compatible with the historic lighthouse and oil storage building. The first keeper's house was a small brick structure. The second keeper's house was a two-story building located northwest of the tower. The third keeper's house was built southeast of the lighthouse and was demolished in the early 1960s.

Additional historical data regarding the Amelia Island Lighthouse is available from the Amelia Museum of History located in Fernandina Beach.

The United States Coast Guard transferred ownership of the Amelia Island Lighthouse and property to the City of Fernandina Beach on March 28, 2001.

2. General Description:

The Amelia Island lighthouse is constructed of brick masonry in a conical shape with tapered exterior and interior cylinders. Exterior walls have a cavity between interior and exterior sections of masonry. Exterior masonry surfaces are finished with painted stucco. Interior masonry surfaces were probably originally whitewashed and are now painted; however, paint is missing in many areas. Window opening shafts through the tower have painted stucco finishes at the sides of the openings and painted tongue-and-groove wood lintels and stools.

The interior spiral stair is constructed with hand-hewn granite with the outer ends of steps set into the masonry walls. The centers of the steps overlap with a circular-shape termination. Steps are set in mortar over the step below. The granite stair spirals from the bottom of the lighthouse to the top without landings. A historic wood handrail spirals above the outer stair edge at the exterior wall. The handrail is not interrupted at window openings. Six of the granite stair treads are cracked. A 12- by 12-inch vertical wood support post has been installed below an area with severely cracked steps and appears to have stabilized the broken treads. There are 59 granite steps that terminate in an approximately one-quarter of a circle granite landing.

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The masonry tower has six windows set in a semi-random pattern. One window is centered over the entry door and a second window is located 180° from the entry door. Other windows seem to be randomly spaced but have a consistent relationship with the stair treads and risers. Original wood windows have been removed and replaced with modern clad wood windows.

A lantern room is located above a rotation room at the top of the masonry lighthouse. A spiral cast-iron ship’s ladder-type stair leads from the granite stair landing to the rotation room above. The lens’ rotation electric motor is located on a stand in the rotation room. This room has painted vertical tongue-and-groove wood paneling at interior surfaces of the exterior walls and a cast-iron paneled floor. A non-historic hollow metal door leads to the exterior main gallery at this level. A spiral cast-iron stair leads to the lantern room above.

The exterior main gallery is supported on metal brackets cantilevering from the exterior of the brick masonry lighthouse shaft below. Several of the metal brackets are cracked and broken. The gallery has cast-iron decking fabricated in geometric sections with cast-iron railings and support stanchions around the outside of the gallery. Several areas of the deck plates are cracked and broken. Some of the deck plate cracks have been repaired in the past.

The exterior lighthouse shaft outside the watch room above the main gallery deck is clad with painted cast-iron panels.

A smaller lantern room gallery above is accessible by a ladder clipped onto the lantern room gallery metal handrail and extending down the outside of the building to the main gallery deck.

The lantern room houses a third-order Fresnel lens with cast-iron floor plates around the outer perimeter of the lighthouse with the lens rising through center opening. Exterior walls at this area are glass storm panes that extend the full height of the lantern room. Some of the glass panes have been damaged by bullets.

Vertical cast-iron window mullions support the storm panes and the cast-iron roof ribs and tension ring above. The interior roof framing is partially covered by a tin reflector. The roof surface is covered with a copper dome with a ventilation ball at the roof peak.

The lighthouse is in fair condition. It has broken granite treads, deck plates, and main gallery brackets. There are cracks in the masonry at the upper area of the lighthouse. Some glass storm panes have been
damaged by bullets. Use of the main gallery should be limited to four (4) occupants at a time as a result of reduced loading capability resulting from the broken brackets and deck plates. The building is in need of a general restoration.

A detailed condition assessment on an item-by-item basis is as follows:

3. Site Improvements:
   Evaluation: Oil house/significant/historic/stable.

The Amelia Island Lighthouse is located on a small hill on the highest site in Fernandina Beach near the mouth of the St. Mary's River. The hill may be an early Indian midden. The site is located in a residential area and is accessed by a paved service drive located between residential lots from Lighthouse Circle. Lighthouse Circle is located off Atlantic Boulevard just north of the Fort Clinch State Park. The lighthouse site is well maintained, and has good drainage with primary vegetation consisting of lawn areas and mature trees.

A chain-link fence and locked gate separate the lighthouse site from the adjacent residential area. Normally, the gate is locked and there is no visitor parking or access outside the gate. The site is not open for visitors.

A paved road inside the lighthouse site leads to a small parking area and a modern two-car garage/storage building and 1960s-era modern ranch-style keeper's house. The keeper's house and garage seem to be well maintained and in good condition and are non-historic. The non-historic buildings are separated from the historic structures and are of non-compatible construction.

A bluff leads to a tidal creek and marsh at the north and east sides of the site. A concrete walk leads to the historic lighthouse and oil storage building.

The construction date of the oil storage building is unknown; however, the building is historic and probably was constructed around 1900. The oil storage building is not present in an early photograph of the lighthouse.

The oil storage building has painted brick masonry walls, wood frame roof structure, cement asbestos roofing, wood entry door in a wood doorframe, and brick flooring. The entry door is not original. Early photographs illustrate a metal-clad wood entry door supported by two iron strap hinges. Door hinge

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support pins and plates remain embedded in the brick masonry wall. Large cracks in the brick walls radiate from the hinge plates and the doorhead opening.

An early metal fume vent system remains at the interior top of the lighthouse to vent fuel fumes to the exterior via pipe elbows at gable ends of the building over the entry door and at the rear wall.

A perforated cast-iron floor plate drain is located in one front corner of the interior brick flooring.

**Recommendations**: The oil storage building should be repaired and restored. The cement asbestos roofing should be replaced with metal roofing as typically installed on historic oil storage buildings. The entry door should be replaced with a sheetmetal-clad, tongue-and-groove wood door. Deteriorated wood roof fascias should be replaced. The metal vent system should be maintained. Masonry walls should be cleaned, repointed and repainted in historic colors. Cracked brick areas should be cut out and reset. The door hinge support plates should be removed and sandblasted to remove rust and exfoliation and be restored, metalized, painted and reinstalled in the restored brick walls. The brick flooring should be cleaned, repaired, and restored.

Currently there is no formal visitor access or parking. The 1960s-style ranch house and garage storage building are used by the Coast Guard for servicing the light and rotation mechanism. The structures are not compatible with the historic site and are slightly separated from the historic buildings. They should remain in use for lighthouse maintenance.

Property and grounds maintenance should be continued.

4. **Masonry Walls**:

**Evaluation**: Significant/deteriorated.

Exterior masonry walls have a stucco finish and have major cracks near the top between some of the gallery brackets and radiating up from the corner of the entry door head opening.

Exterior surfaces are painted white and are severely mildewed. The stucco coating appears to be in good condition and well bonded. White painted cast iron window sills are located at the bottom of window openings.

Interior walls are painted brick with 25 to 30 percent of the paint missing to expose brick units. Several interior masonry wall areas have been repointed with new mortar. In some areas, the new mortar covers
areas of the brick masonry. The new repair mortar is probably Portland cement mortar and is too hard and may damage the softer historic brick masonry.

**Recommendations:** Pressure wash and clean exterior surfaces to remove soiling and mildew. Route out and repair cracked stucco surfaces. Repaint the exterior with a long-life masonry coating. Clean interior surfaces to remove loose paint coatings. Carefully cut out and remove patched mortar areas and replace with lime mortar. Repoint holes and voids at interior masonry walls. Treat interior masonry walls with clear consolidant. We suggest the interior walls not be painted to leave areas of the historic brick exposed to view.

5. **Granite Stair:**

**Evaluation:** Significant/deteriorated.

The central stair is constructed from hand-hewn granite with each combination tread and riser being cut from a section of granite. Treads are tapered in shape to form a spiral stair and have a circular shape termination at the center of the stair. Treads are embedded in the brick masonry wall on the outside edges and the circular inter-terminations stack above one another similar to a center pole. Treads are set in mortar with a slight overlap over the tread below. Six of the treads are broken or cracked. A 12-inch square wood temporary support post has been installed below a section of the largest group of cracked treads. The back of the support post abuts the exterior wall and the post bears on two treads below. There is a second short wood support post below the supporting treads to the concrete floor below. There are 59 steps from the entry floor to an approximate one-fourth circle granite slab landing below the watch room. The granite spiral stair does not have any intermediate landings.

**Recommendations:** In general, the granite treads are risers are in good condition except for cracked and broken units. The tread nosings are in good condition without excessive wear or chipped areas. We believe removal and replacement of the broken stair treads will be difficult or impossible. Therefore, we recommend the cracked and broken treads be repaired by routing out channels at the bottom of the treads, inserting stainless steel rods across the cracked and broken areas and repairing the routed-out sections and cracks with polymer reinforced epoxy cement grout finished to match the granite treads. Metal support brackets may be required to be installed at the underside of cracked and broken treads to add additional tread support. The metal support brackets can be secured to the adjacent brick masonry with anchor bolts set with epoxy anchors.
6. **Wood Stair Railing:**

   **Evaluation:** Significant/good condition.

   A curved two-piece wood stair railing is mounted to the inside of the brick lighthouse structure above the granite stair. The railing is comprised of a vertical 3/4-inch x 4-inch board with a 1-1/2-inch wide half-round wood cap. The top of the railing is 2 feet 8 inches above the stair nosings and the railing extends over the window openings at the stair. The railing is painted black.

   **Recommendations:** Repair railing to good condition. Tighten anchor supports and repaint.

7. **Interior Floor at Base of Lighthouse:**

   **Evaluation:** Non-historic/not significant.

   A concrete floor topping has been installed inside the base of the lighthouse over the original flooring. The concrete topping has a rough troweled finish.

   **Recommendations:** We believe the lighthouse originally had a brick floor and have no knowledge why or when the existing concrete topping was installed. We suggest an area of the concrete floor topping be cut out to determine the thickness of the topping and to expose a section of the original floor finish below. If feasible, the non-historic concrete topping should be removed and the original flooring restored or replicated.

8. **Exterior Openings – Doors and Windows**

   **Evaluation:** Significant/non-historic/replace.

   The entry door and frame is a modern louvered, hollow metal door and frame. The lighthouse windows are modern wood double-hung windows with screens and vinyl-covered wood frames. The exterior door at the lantern room gallery is a modern hollow metal door with a large glazed view window opening at the top supported by a wood doorframe.

   **Recommendations:**

   Replace the main entry door, doorframe, and windows with a new custom fabricated wood door, doorframe and windows. The wood entry door should be a pair of two-panel style and rail doors with tongue-and-groove wood panels on a diagonal as illustrated in historic photographs. Replacement wood windows should be 6-over-6 pane, double-hung, wood window units. Wood windows appear to be painted white in historic photographs. Also, historic photographs illustrate the wood entry doors have dark stiles and rails and white panels. The original main gallery door appears to be a flush door in early photographs and was probably a metal door installed in a metal doorframe and should be replaced.
9. **Rotation Room:**

**Evaluation:** Significant/well maintained.

The rotation room has white painted vertical tongue-and-groove wood paneling at the interior of the exterior wall. Wood paneling is in excellent condition. The flooring is black painted cast-iron plates with a raised diamond pattern installed in a geometrical pattern. Electrical panels and disconnects are installed on the walls with surface-mounted electrical conduit.

The undersides of the cast-iron lantern room floor plates cover the outside perimeter of the top of the room with cast-iron brackets cantilevering out from the wall between joints between adjacent floor plates. Four brass posts support the lens above, an electric motor, and the lens rotation mechanism.

A spiral-shaped, cast-iron ship's ladder extends from the rotation room to the lantern room above and a spiral cast-iron stair extends from the rotation room down to the top of the granite stair landing below.

Three adjustable brass ventilation grilles are mounted over through-wall ventilators at this room.

**Recommendations:**

Metal surfaces are in good condition and only require painting. If the entire tower is restored, metal surfaces should be sandblasted and repainted. Paint wood paneling.

10. **Main Gallery:**

**Evaluation:** Significant/deteriorated.

The main or rotation room gallery has cast-iron deck plates supported by cast-iron brackets embedded in the brick masonry below the deck and cantilevering out to support the deck plates and metal railing. Metal handrail stanchions extend through openings in the outside of the brackets and through-bolt the railing system through the deck plates and brackets below.

Deck plates are installed in a geometrical pattern and join at the handrail stanchions and between the outer gallery edge and the building. A 4-inch high cast-iron cornice trim is installed below the lower outside edge of the gallery deck plates.

The center cylinder at the outer walls of the watch room is clad with painted cast-iron panels with butt joints. Three iron ventilator caps extend through the cast-iron wall panels.

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There are five broken ends on the deck plates adjacent to the base of the handrail stanchions. Four of the broken sections have been previously repaired. The handrails and stanchions are rusting and deteriorated with a 30-40 percent loss of metal in some areas.

Gallery cast-iron brackets are difficult to see from the ground; however, we believe at least one outer bracket section is broken and two outer bracket sections have cracked. This failure will significantly reduce the safe load capacity of the main gallery and, thus, we suggest the gallery occupancy be limited to a maximum of four persons until the brackets are repaired.

Cast-iron wall panels have areas of rust and exfoliation. All gallery surfaces are painted black.

**Recommendations:**
Remove the gallery railings, abrasive-blast and restore or replace deteriorated sections, metalize, repaint, and reinstall railings. Remove broken gallery deck plates and replace with new cast-iron deck plates.
Gallery brackets should be examined from scaffolding or a bosun's chair to determine if they can be repaired or require replacement. Sections of brick masonry should be removed to expose portions of the brackets embedded in the wall for analysis and to determine if the brackets can be repaired. At least three brackets are cracked and thus we recommend the brackets be removed and replaced.

Cast-iron wall panels should be abrasive-blasted and voids filled with liquid metal material, joint should be recaulked and panels repainted.

11. **Lantern Room:**

**Evaluation:** Significant/fair condition.
The third-order Fresnel lens located in the lantern room is in good condition and has been well maintained. The lantern room has cast iron floor plates, cast iron window sills, cast iron vertical window mullions and cast iron roof framing and tension ring members located at the base of the roof canopy. A tin canopy is located above the tension ring to reflect light down and direct smoke from early lanterns to the ventilation ball above. Copper roofing is installed over the cast iron roof framing members.

Storm window panels are in fair condition with a few panels damaged by small caliber bullets.

Cast iron window sills and mullions are rusting and have areas of exfoliation. Several mullions have egg size areas of exfoliation near the bottom of the mullions.

______________________________
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**Recommendations:** Remove glass storm panels and replace units with polycarbonate laminated safety glass. Abrasive blast metal surfaces and repair rusted and exfoliated areas. Repaint all areas.

12. **Roof:**
   **Evaluation:** Significant/deteriorated.
   The original copper roof canopy, copper cornices and bronze ventilator ball remain and appear to be in good condition when viewed from the underside in the lantern room. We were unable to gain access to view the outside of the canopy and ventilator ball. We anticipate minor pin hole leaks are present at the canopy and some standing seam canopy joints are probably opening up from exposure.

   **Recommendations:** Inspect copper roofing from a ladder or scaffolding. Chemically remove paint coatings. Patch and repair holes and leaks and panel joints. Repaint all surfaces.

13. **Electrical System:**
   **Evaluation:** Significant/non-historic.
   An electrical power panel is located on the interior wall at the base of the lighthouse. The panel is fed by power conductors housed in a conduit rising from the ground outside the lighthouse and routed through the exterior wall to the power panel. Power is routed to the watch room and to modern light fixtures in the interior of the lighthouse and over the entry door via surface mounted electrical conduits.

   An electrical panel is wall mounted in the rotation room and is connected to the rotation motor and lantern via surface mounted electrical conduits.

   **Recommendations:** Remove and reduce the surface mounted conduits at the interior base of the lighthouse to minimize clutter from the non-historic conduits. Add additional lights at interior of the lighthouse.

14. **Lighting Protection System:**
   **Evaluation:** Significant/non-historic.
   A steel ground cable is surface mounted on the outside of the masonry tower at the side of the building opposite the entry door. The ground cable is routed through the main gallery deck up the outside of the rotation room cylinder around the lantern room deck and up the outside of a lantern room vertical mullion to a lightning rod mounted at the top of the ventilator ball.

   **Recommendations:** Remove the existing lightning protection system components and install a new master label lightning protection system with one lightning rod mounted at the top of the ventilator ball.

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15. **Probable Cost For Restoration:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal Restoration</td>
<td>$120,000</td>
</tr>
<tr>
<td>Masonry &amp; Stucco Restoration and Lead Paint Removal</td>
<td>60,000</td>
</tr>
<tr>
<td>Granite Stair Repair</td>
<td>12,000</td>
</tr>
<tr>
<td>New Lantern Room Glazing and Mullion Repair</td>
<td>50,000</td>
</tr>
<tr>
<td>New Windows &amp; Restoration of Lintels and Stools</td>
<td>15,000</td>
</tr>
<tr>
<td>New Entry Doors</td>
<td>2,000</td>
</tr>
<tr>
<td>New Gallery Door and Frame</td>
<td>5,000</td>
</tr>
<tr>
<td>Roof Restoration</td>
<td>15,000</td>
</tr>
<tr>
<td>Painting</td>
<td>60,000</td>
</tr>
<tr>
<td>Electrical Renovations and New Lightning Protection System</td>
<td>10,000</td>
</tr>
<tr>
<td>Oil Storage Building Restoration</td>
<td>22,000</td>
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<tr>
<td>Walks</td>
<td>5,000</td>
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<tr>
<td>Scaffolding, Rigging and Construction General Conditions</td>
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<tr>
<td><strong>Subtotal</strong></td>
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<tr>
<td>Design Fees</td>
<td><strong>$ 51,000</strong></td>
</tr>
<tr>
<td><strong>Total Probable Restoration Costs</strong></td>
<td><strong>$477,000</strong></td>
</tr>
</tbody>
</table>

Pending the State Legislative budget approval, the City of Fernandina Beach will be awarded a State Special Category Grant for restoration in the amount of $350,000. If the Grant is included in the State budget, restoration of the lighthouse will commence in the fall.

16. **Recommendations for Future Use:** The Amelia Island Lighthouse is an attractive lighthouse sited on the highest parcel of land at Amelia Island. The site provides a great view of the adjacent marsh area and the ocean. Currently the site is not open for public visitation and many visitors are turned away.

The lighthouse could be opened for limited public visitation and tours. The lighthouse site drive area is narrow (in the range of 20 feet) between two residential lots. In order to avoid disturbance of adjacent home owners, we suggest a long-range goal should be to acquire one or both of the home sites adjacent to the entry drive to permit a wider entry drive with visitor parking. Limited visitor access to the lighthouse could also be provided via small buses from a visitor center at nearby Ft. Clinch State Park or from the Amelia Museum of History.

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An additional long-range goal should be to reconstruct one of the original keeper’s houses to illustrate the historic configuration and use of the site.

1 Helen O’Hagan Sintes, *Amelia Island Light*, (paper, undated).
Name: American Shoal Lighthouse
Location: Monroe County / off coast of Sugarloaf Key
Type: Wrought iron skeletal screw-pile tower
Height: 124 feet, focal plane 109 feet
Daymark: Brown wrought iron skeletal screw-pile tower, white stair cylinder
Year Built: 1880
Owner or Operator: U.S. Coast Guard
National Register Status: Eligible
Active: Yes
Visitor Access: Proximity access by boat, no direct access
Contact: Ms. Brenda Atmeier, P. O. Box 0831, Key Largo, FL 33037
Brenda.atmeier@noaa.gov
Facilities: Keeper's Quarters integrated into tower

Note: Inspection of the lighthouse was attempted on March 12, 2002, but the lighthouse was inaccessible due to 3-4 foot swell conditions and submerged pilings at the access dock. An inspection of the lighthouse will be performed as soon as weather conditions allow. The lighthouse is about to have major work performed on it. Much information in this report was acquired from the drawings for this work, titled "American Shoal Light Rehabilitation", dated 2/20/02, and approved by Commander E. Brown, USCG. Parts of this work involve removal and demolition of historic portions of the lighthouse, including interior finishes. All of the historic portions of the light should be restored rather than removed, or at least stabilized by repair and painting until funds are available for restoration. Retaining of any historic fabric is critical to the historic character and long term preservation of the light.

1. History
   Six iron screw-pile reef lighthouses were constructed on the only living coral reef in America. The sixth, and last to be constructed was the American Shoals Lighthouse. Although plans called for a lighthouse to be constructed in the area of Looe Key, Congress refused to accept proposals for construction of a lighthouse at this location for many years. Because of the strong and variable currents near the reef, the need for a reef light was mandatory. In 1850, they placed a thirty-eight foot pole on Looe Key reef topped with a barrel painted black. Two years later, Lieutenant James Totten, U.S. Army, had an iron screw-pile
sunk into the reef at American Shoal while assisting the Coast Survey.¹ Both day markers were helpful to navigators by day, but the reef in this area was still very treacherous at night. The Lighthouse Board continued to propose a lighthouse at American Shoals, and in June of 1878, Congress approved $75,000 for the lighthouse, which was to be modeled after the Fowey Rocks Lighthouse. Another $50,000 was needed to finish the lighthouse with a total project cost of $125,000.

Key West was designated as the project headquarters and depot despite the nineteen-mile distance. The tower was completely assembled in the industrial north to make sure that each part fit securely. In 1879 it was disassembled, shipped to Key West and reassembled on site. Construction proceeded smoothly due to a mild winter and relatively calm seas.

Even though the American Shoals Lighthouse was to be modeled after the Fowey Rocks Lighthouse, a decision was made to use a regulation style lantern instead of the bell-shaped dome used at Fowey Rocks. However, the mullions in the lantern gave the lantern a different look from the standard lantern. To differentiate between lighthouses and aid navigators, American Shoals Light was designated to be a white flashing light, while Sand Key Light, twenty miles southwest showed a fixed light, the same as Sombrero Key Light, located about twenty miles northeast.

American Shoal’s first-order Fresnel lens was manufactured in Paris. An outside iron gallery with a balustrade encircled the lantern room. Handholds were built into the vertical iron bars of the lantern, allowing the keepers to clean the storm panes without risk of blowing away in the strong wind.² The sixth and final reef light was completed and the first light shone on July 15, 1880.

To allow the light to shine red over the most treacherous parts of the reef, red glass panels were installed on the inside of the lantern storm panels a few years after American Shoals became active. In 1912 an incandescent vapor lamp was installed and in 1963 the American Shoal Lighthouse was automated.

² Ibid., 243.
1. **General Description:**
The American Shoal Light is an iron tower, octagonal in plan with an intermediate platform containing a two story keeper's quarters. A central stair cylinder contains a spiral stair and windows up the tower. The tower tapers as it rises and the top consists of a watch room with eight windows, a rotation room with exterior gallery, and a lens room with exterior gallery. The tower is almost identical to the Fowey Rocks lighthouse in Miami, with the exception of the roof of the lens room, which is much less ornate than Fowey Rocks. Both of these lighthouses have detailing characteristic of the Second Empire style.

All of the windows at the keeper's quarters are sealed with steel plates. As with all of the reef lights, historic photos show that there was a lower platform at the first structural tier above the water. This platform has been completely removed. The platform was used for storage and boat handling. Water and fuel tanks were suspended from the main platform, another common trait among the reef lights. Photos also show several hoists at the main platform level, all of which have been removed.

2. **Site Improvements:**

   **Evaluation:** Non-Significant, Essential, In Need of Work

   Presently the light is accessed by a square dock approximately 14' above the water. The dock's ladder is bent, the water is shallow, and several submerged piles are located at the base of the ladder. Access is dangerous in conditions other than flat calm water with no wind. An inspection of the light was attempted on March 12, 2002, but the light was inaccessible due to wave conditions, and the presence of submerged piles at the landing dock.

   **Recommendations:**
   A new dock should be built so that access can be attained without approaching the lighthouse structure. The dock should have multiple tie-offs, fenders, and ladders so that access can be gained in a variety of wind and sea conditions.

3. **Lens Room:**

   **Evaluation:** Significant, Condition Undocumented

   The lens room is circular, and is composed of three horizontal tiers of glazing. The glazing is rectangular. A narrow gallery surrounds the exterior, accessible from a ladder from the watch room gallery. The lens room was inaccessible to inspection, and will be inspected as soon as weather allows. It is unknown whether any historic windows remain. Current drawings are calling for replacement of windows in the lens room.

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**Recommendations:**
Current drawings call for replacement of lexan glazing in the lens room with laminated glass, repair and repainting of window mullions, removal of electrical components, repair and repainting of the interior ceiling of the room, and replacement of the lens room gallery guardrails. While continued maintenance of the light is critical, historic components should not be removed or damaged, and should be repaired rather than replaced when possible.

4. **Stair:**

**Evaluation:** Significant, Condition Undocumented
The stair was inaccessible to inspection, and will be inspected as soon as weather allows. It is unknown whether any historic windows remain. Current drawings are calling for replacement of windows in the stair cylinder. **If any of these doors and windows are historic, they should be retained and stabilized until funds for restoration are available. Retaining of any historic fabric is critical to the historic character and long term preservation of the light.**

**Recommendations:**
Current drawings are calling for cleaning and painting of stairs, and replacement of windows in the stair cylinder. **If any of these doors and windows are historic, they should be retained and stabilized until funds for restoration are available. Retaining of any historic fabric is critical to the historic character and long term preservation of the light.**

5. **Stair Railing/Guardrails:**

**Evaluation:** Significant, Condition Undocumented
The exterior guardrails at the main platform of the lighthouse could not be closely inspected, but they appear to be historic, or at least in keeping with the historic characteristics of the lighthouse.

**Recommendations:**
Current drawings call for the replacement of the guardrails at the main platform, the gallery and the lens room with ‘fabricated steel or ductile iron to match the existing handrail’. **Retaining of any historic fabric is critical to the historic character and long term preservation of the light.** It is recommended that if the guardrails are less than 50% deteriorated, they should be saved and repaired using additive welding by a magnesium inert gas method after the rails are sandblasted. They should then be primed with an inorganic zinc primer and repainted with high quality paints.
6. Interior Finishes:
   **Evaluation:** Significant, in Danger of Demolition
   The interior finishes of the keeper's quarters consist of linoleum floor tiles, wood walls, paneled wood
doors and windows, and wood ceilings. A large amount of the finishes are historic and are essential to the
historic character of the lighthouse.

   **Recommendations:**
   The current drawings indicate that the interior finishes at the keeper's quarters are to be removed,
and are not planned to be replaced. The finishes should be restored rather than removed, or at least
stabilized by repair and painting until funds are available for restoration. Retaining of any historic fabric
is critical to the historic character and long term preservation of the light.

7. Foundations and Floor Structure:
   **Evaluation:** Significant, Condition Undocumented, But Probably Sound
   The foundations of the light consist of nine screw pile foundations: eight perimeter columns forming an
octagon, and one central column. The columns taper in as they rise, and terminate at the watch room.
Floors are composed of iron plate with structural ribs cast in. As with all of the reef lights, historic photos
show that there was a lower platform at the first structural tier above the water. This platform has been
completely removed. The platform was used for storage and boat handling. Water and fuel tanks were
suspended from the main platform, another common trait among the reef lights. Photos also show several
hoists at the main platform level, all of which have been removed.

   **Recommendations:**
   Current drawings call for blast cleaning and repainting of the entire tower exterior structure. This periodic
maintenance is appropriate and should be continued.

8. Exterior Openings – Doors and Windows
    **Evaluation:** Significant, Condition Undocumented
   The exterior openings were only viewed from a distance. All of the 10 window and door openings at the
keeper's quarters level are covered by metal panels. It is unknown whether any historic windows remain
behind the panels. Current drawings are calling for removal of existing exterior doors and windows at the
keeper's quarters level. If any of these doors and windows are historic, they should be retained and
stabilized until funds for restoration are available. Retaining of any historic fabric is critical to the historic
character and long term preservation of the light.

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Recommendations:
If any of these doors and windows are historic, they should be retained and stabilized until funds for restoration are available. Retaining of any historic fabric is critical to the historic character and long term preservation of the light.

9. Watch Room:
Evaluation: Significant, Condition Undocumented.
All of the window and door openings at the watch room are covered by metal panels. It is unknown whether any historic windows remain behind the panels. Current drawings are calling for removal of existing windows at the watch room level. If any of these windows are historic, they should be retained and stabilized until funds for restoration are available. Retaining of any historic fabric is critical to the historic character and long term preservation of the light.

Recommendations:
If any of these windows are historic, they should be retained and stabilized until funds for restoration are available. Retaining of any historic fabric is critical to the historic character and long term preservation of the light.

10. Rotation Room / Main Gallery:
Evaluation: Significant, Condition Undocumented.
The rotation room is located at the top of the main stair cylinder. The octagonal room contains eight windows, one on each wall. The room was not inspected, but is scheduled to have its windows replaced.

Recommendations:
If any of these windows are historic, they should be retained and stabilized until funds for restoration are available. Retaining of any historic fabric is critical to the historic character and long term preservation of the light.

11. Roof:
Evaluation: Significant, Condition Undocumented
The current drawings call for scraping and repainting of the interior of the lens room ceiling. The drawings also call for repair and painting of the lens room roof and keeper’s quarters roof with an elastomeric coating, and repair of the keeper’s quarters gutters and downspouts.
Recommendations:
This periodic maintenance should be continued to preserve the lighthouse. Attempts should be made to repair and reuse the historic components rather than replacing them.

12. Electrical System:
Evaluation: Non-Historic, Essential
The electrical system for the lighthouse will be inspected when weather allows.

Recommendations:
Current drawings call for removal of all abandoned electrical system elements. This is appropriate, as most of the components are not historic. The components should be removed in a manner sensitive to the historic character of the light. All holes should be patched as necessary and repainted.

13. Lighting Protection System:
Evaluation: Significant, Condition Undocumented
The historic lightning protection system consists of a lightning rod atop the ventilator ball at the top of the structure, and a cable leading down the structure. It is not known whether this system is operational.

Recommendations:
The system should be checked by a certified lightning protection specialist to insure that it is operational.

14. Probable Cost for Restoration:
A line item breakdown of restoration costs can not be prepared until a detailed inspection is made. However, based on our review of other lights and a review of Coast Guard Rehabilitation Plans, we estimate full historic restoration costs to be between $2,000,000 and $4,000,000.

The plans call for complete removal of the historic interiors of the keeper’s quarters, including exterior windows, as an alternate bid. Each accommodation level is approximately 1,300 s.f. or 2,600 s.f. total. Replacement of removed historic interiors are estimated to cost $250 per s.f. plus 40% as a “remote site contingency” for a total of $350 per s.f. A restoration of historic interiors will cost about half that. Additionally costs for total demolition of the historic interiors will add to costs to replace the lost historic interiors. Therefore, it is economically advantageous to preserve and restore the historic interiors.
FLORIDA LIGHTHOUSE STUDY

Restore Interiors: 2,600 s.f. @ $175/s.f. $455,000
Remove Interiors 2,600 s.f. @ $15/s.f. $39,000
Reconstruct Interiors 2,600 s.f. @ $350/s.f. 910,000
Total to Demolish and Replace $949,000

Costs saved by preserving and restoring historic interiors is almost $600,000.

15. Recommendations for Future Use:
In addition to the obvious, historic significance of the reef lights, a tremendous opportunity exists for increased use and public access. With fully restored lighthouses, including historic interiors, solar powered lighting, composting toilets, and improved docking facilities, the lighthouses could be used for:

1. Marine Research Facilities
2. Weather Stations
3. Military Training
4. Corporate Retreats
5. Living Accommodations for Maintenance Crews
6. Public Tours on a Limited Basis During Calm Weather Summer Months

and numerous other uses. The demand for these uses is high. The revenue generated from public use would ease the financial burden of maintaining the lights. Public awareness of the role of lighthouses and their importance would be raised.

Public awareness and appreciation for United States Coast Guard, their work and the dedication of the men and women of the Coast Guard would be raised.

The benefits are numerous. The drawbacks are few. It is without reservation that we recommend full historic restoration of American Shoal Lighthouse and the establishment of a program for its future use. This public use plan, if applied to all of the reef lights of the Florida Keys, will generate worldwide interest and support.

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and
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AMERICAN SHOAL LIGHTHOUSE HISTORIC PHOTO. PHOTO APPEARS OLDER THAN PREVIOUS PHOTO & APPEARS TO BE TAKEN AT THE OTHER SIDE OF THE LIGHT.
AMERICAN SHOAL LIGHTHOUSE HISTORIC PHOTO. NOTE VARIOUS TANKS SUSPENDED BELOW MAIN PLATFORM. PHOTO ALSO SHOWS ANOTHER PLATFORM BELOW MAIN PLATFORM, FOR LANDING BOATS & STORAGE.
GENERAL VIEW OF KEEPERS QUARTERS

EXTERIOR VIEW OF AMERICAN SHOAL LIGHTHOUSE.

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
American Shoal Lighthouse
Photos
Date: 4/15/02
FLORIDA LIGHTHOUSE STUDY  
Rev. July 25, 2002

Name: Anclote Key Lighthouse

Location: Pinellas & Pasco Counties: Southern end of Anclote Key Island located in the Gulf of Mexico 5.5 miles west/northwest of Tarpon Springs

Type: Iron skeletal tower with enclosed stairwell

Height: 110 feet

Daymark: Rust colored, pyramidal skeletal tower with black top (originally all black)

Year Built: 1887

Owner or Operator: Florida Park Service

National Register Status: Listed

Active: No ( Decommissioned in 1984)

Visitor Access: No. Site views are possible via private boat to the uninhabited Anclote Key Island

Contact: Terry Smith, Anclote Key Preserve State Park at: dephoney@gte.net

Facilities: Abandoned in 1985. Fresnel lens destroyed by vandals. Walls of brick oil storage building, 10 partial brick foundation piers from two keeper's quarters, concrete cistern, and concrete walkway. A boat dock has been constructed on the island and construction of a boardwalk to the concrete walk is in progress.

1. History:
Anclote Key Light Station was completed and first lighted on September 15, 1887. Located on the south end of a 180-acre island in the Gulf of Mexico, 5.5 miles west/northwest of Tarpon Springs, Florida, the light station served as a navigational marker as well as a coastal light for the Anclote River. Local sponge harvesters depended on the lighthouse for guidance and by 1907, Tarpon Springs had become the world's leading sponge center.

The National Park Service report indicates that the building originally had a third-order Fresnel lens and a kerosene lamp.

During the Spanish American War (1898-99), a canon was kept on the island but was never used. The Anclote Key Light Station was decommissioned in 1984, at which time the federal government transferred land ownership to the Florida State Parks Authority, making it part of the Caladesie State Park and Wildlife Area.

Kenneth Smith Architects, Inc. 
and 
Bender & Associates, Architects, P.A. 
Associate Architects
2. **General Description:**

   The Anclote Key Lighthouse is a skeletal, tubular, cast-iron plate tower. This construction type was popular in the second half of the nineteenth century for its lightweight, strength, slow deterioration, and ability to be dismantled and relocated, if necessary. The structure was also relatively inexpensive. The tower skeletal structure has five tiers topped by a watch room and a lantern room (originally containing a kerosene lamp) accessed from below by a central spiral stairway enclosed in a cast-iron cylinder. The original light station complex included two keeper's quarters, a boathouse, a barn, and other support facilities that no longer exist. A cistern and oil storage building remain in a deteriorated condition. Partial remains of early concrete walks also remain.

   The central cast-iron cylinder has four window openings. Two windows are on the east elevation at the second and fourth levels. A galvanized metal closure panel is tack-welded in the second tier window opening. The other two windows are on the third and fifth levels of the west elevation. All window sash units are missing.

   The Anclote Key Lighthouse, while not architecturally distinctive, is historically important in its association with the Tarpon Springs sponge industry and as an example of mid-nineteenth century maritime design typical to Florida's coastline. Ruins of the light station complex ancillary structures, including the keeper's quarters, have archeological significance. The Anclote Key Lighthouse is listed on the National Register of Historic Places.

3. **Site Improvements:**

   **Evaluation:** Significant/historic/threatened.

   The Anclote Key Lighthouse site is located within Anclote Key State Preserve on Anclote Key, a barrier island in the Gulf of Mexico. The site is located approximately 5.5 miles west-northwest of Tarpon Springs and approximately 3.9 miles west of Anclote in Pinellas County, Florida. Anclote Key is bordered on the west by the Gulf of Mexico and is separated from the Florida mainland by the Intracoastal Waterway. Vegetation, tree encroachment, trash, and rubble are present on the site. There is poor site drainage around the base of the lighthouse.

   The concrete slab/foundation at the base of the skeletal structure appears to consist of a 1 1/2 inch-thick sand and cement topping applied over earlier concrete containing oyster shell aggregate. There are surface cracks, broken and deteriorated edges, missing areas of the topping slab, vegetation growing through cracks in the slab, and tar drippings on the concrete surface. The central stair cylinder's concrete foundation is raised approximately 6 inches in height above the surrounding concrete foundation.
Concrete is spalling in several areas due to rust and construction materials. The raised concrete section is surrounded by a three-inch-diameter tree root and vegetation causing additional deterioration.

A chain-link fence with barbed wire strands at the top and locked gate encloses the lighthouse and parts of the site of the former keepers' houses and cistern. Only the foundations remain for the two nearly identical original one-and-one-quarter-story, clapboard-sided, keepers' houses. Northwest of the former keepers' houses are the remains of a partially buried concrete cistern. The site is not open for visitors.

The lighthouse area and dock remnants are located near the southern end of the island. The majority of the island has been preserved in its natural state.

The route of the former walkway, from the light station to the historical dock location at the southern end of the island, crosses a portion of the beach and dune as well as a small finger of interior upland and passes through wetlands for the remainder of the length of the walk.

The remaining brick walls of the oil storage building are located outside and west of the fence enclosure. The oil storage building was built in 1894, or shortly thereafter. The roof and part of the west gable of the oil storage building have collapsed.

A new dock has been constructed by the State near the south end of the east side of the island. A boardwalk is being constructed to connect the dock to the original concrete walk. Construction of the boardwalk should be completed this summer.

**Recommendations:** The site should be cleaned of all trash, rubble, and unwanted vegetation. Tree root encroachment should be treated with herbicide and removed. Tar should be cleaned from concrete pavement. Spalled areas or voids in concrete surfaces should be patched to match the original concrete. Stack and store loose brick and other loose building components discovered on the site in secure areas for possible reuse in the restored lighthouse complex. Investigate the possibility of sloping the top of the raised foundation areas at the base of the lighthouse cylinder to direct surface water away from the lighthouse central cylinder.

4. **Metal Cylinder and Tower Structure:**
   **Evaluation:** Significant/deteriorated.
   Exterior paint coatings are in very poor condition and contain high concentrations of lead. A high
percentage of paint has eroded exposing the ferrous metal substrates to the elements. The exterior surfaces of accessible areas (ground level, watch room, galleries, etc.) have been vandalized with painted and etched graffiti.

**Recommendations:** Abrasive-blast all metal surfaces to remove remaining paint coatings, rust, scale, and exfoliation. Remove lead-based paint in accordance with state and federal regulations. Contain blast residue and legally dispose of material off the island. Experiment with blast media to find the gentlest media available that will clean the surface for an SSPC "near white" condition. Apply a zinc primer coating to cleaned metal surfaces on the same day they are abrasively blasted. Coat surfaces with a paint coating system designed for marine environments such as the moisture-cure urethane coating system manufactured by Wasser High-Tech Coatings. Repair metal surfaces and brush-blast prior to repriming disturbed surfaces. Apply a stripe coat of the intermediate coating by brushing on edges, crevices, nuts, bolts, rivets, welds, and tight metal-to-metal areas before joint sealer application. Install joint sealer at all joints and crevices and install paint topcoat. Have original paint colors documented by a historic paint consultant and paint the structure to match original paint colors.

5. **Entry Steps:**

   **Evaluation:** Significant/deteriorated.

   Two cast-iron steps with raised diamond-pattern treads and open risers provide access to the entry door. Both treads are cracked and broken from front to back. Surface rust, vegetation, trash, and rubble below the treads and tree root encroachment are present. There is no handrail at the entry steps.

   **Recommendations:** Weld and repair cracked and broken areas of cast-iron treads or replace broken treads and components with new components fabricated to match historic units. Clean trash, debris, and vegetation from below steps. If the lighthouse will be open for public visitation, consider the addition of a handrail at the entry for public safety.

6. **Entry Door Frame and Trim:**

   **Evaluation:** Significant/ deteriorated.

   The cast-iron entry door frame extends about four inches from the face of the stair cylinder. Surface rust, coating failure and graffiti cover the door frame and trim.

   The exterior door trim and protruding arch/frame is a character-defining feature of the lighthouse. Brackets adorn the top of the doorjambs to support the cornice/head that features a circle arch in the center with a raised five-pointed star. The bottoms of both jambs are bent out of alignment and areas of
the jambs and casement have been cut out. Surface rust, coating failure, and graffiti cover the door, frame, and trim.

**Recommendations:** Repair the door frame and casings to good condition.

7. **Entry Door:**
   **Evaluation:** Significant/non-historic/replace.
   A modern ferrous panel door is attached to the face of the doorjambs with five bolts at each of two modern hinges. The modern door has been vandalized and damaged along with the original door frame. The door threshold and the original door hardware are missing.

   The replacement flat panel door has a metal panel surround attached to the door frames that creates a transom panel over the door. The door has been vandalized with a cutting torch and paint graffiti. The door does not currently lock and the park ranger advised us that vandals repeatedly cut doors loose to gain access to the lighthouse. The original doors were double doors.

   **Recommendations:** Remove the modern door and hardware and install custom-fabricated replicas of the original entry doors, threshold, hardware, and missing components to match original units detailed on the original construction drawings and as may remain at similar skeletal steel lighthouses remaining from the construction period. A locking devise should be added to the new doors. Fill holes and voids created by vandalism and by the addition of the existing door.

8. **Skeletal Structure and Bearing Pads:**
   **Evaluation:** Significant/deteriorated.
   Eight circular cast-iron foundation disks anchored to a concrete slab foundation support the Anclote Key Lighthouse. The two-piece, cast-iron lighthouse foundation disks are anchored to the concrete slab with anchor bolds and support vertical columns. Horizontal struts and tension rods connect to each disk. Disks have surface rust, vegetation encroachment, and pockets in disks are filled with rusting metal debris and dirt. A few anchor nuts are severely corroded.

   The exterior structure, struts, tension rods, sockets and cylinder belts of the first through third tier have surface corrosion, rust, and coating failure that contribute to metal deterioration. The fourth tier has deteriorated tension rods and turnbuckles and will require repair or replacement. The fifth tier has severe corrosion at the tension rods, turnbuckles and sockets below the watch room gallery.
**Recommendations:** Clean crevices at foundation disks. Replace severely corroded nuts, bolts, and other fasteners. Inspect and repair all tension rods, turnbuckles and anchor lugs, and tighten tension rods as recommended by the structural engineering consultant. Replace fourth and fifth tier tension rods and turnbuckles. Repair the horizontal split at the east side center diagonal brace below the second tier. Add supplemental bolts to the second tier column to knuckle connections to offset the stresses resulting from high wind loads.

9. **Central Cylinder Exterior:**

**Evaluation:** Significant/deteriorated.

All central cylinder exterior wall panels have surface rust and areas of corrosion. Some panels have small bullet holes. All exterior wall panels generally appeared to be in good condition with surface rust on all areas. Exterior wall panels join with beaded drip edges. The drip edges are integral parts of the panels. Sporadic deterioration and disintegration of the drip edges were noted at all tower areas. Corrosion is penetrating panel joints.

**Recommendations:** Fill holes. Replace missing beaded drip edges at panels. Install sealants at panel joints.

10. **Windows:**

**Evaluation:** Significant/missing/replace.

The lighthouse has four window openings. All window sash are missing and the tower interior is exposed to the elements. Windows indicated on original construction drawings were single-hung with fixed upper sash. The upper sash was about one-half the height of the lower sash with a 2-over-4 light arrangement. When fully open, the top of the lower sash would extend above the top of the upper sash. Original window sash was metal. Glass was putty-set in the sash.

Window frames consist of cast-iron jambs with parting beads and cast-iron sill and head sections. Window pulleys remaining in the jambs are rusted and deteriorated. There are bolt openings adjacent to window jambs possibly remaining from earlier window closures.

**Recommendations:** Repair jambs and frames. Replace pulleys. Install new custom-fabricated wood window sash to replicate original windows. Install top sash fixed and lower sash opening with brass chain sash cords and weights.
11. **Interior Stair:**

   **Evaluation:** Significant/deteriorated.

   The interior stair is a spiral stair with a central slotted column. The stair has open risers, raised diamond-pattern treads, and a landing at the fifth level. A narrower spiral stair extends from the fifth level to the watch room, and a third stair leads from the watch room to the lantern room. There are open holes in some treads and sections of some treads are broken off and missing. A large hole exists in the cast-iron landing at the fifth level. The stairwell is dark, caused by the window closure and is a critical safety hazard. Minor surface rust is present on the stair.

   **Recommendations:** Clean debris from stairs. Inspect and repair cracked or broken stair sections and replace broken treads. Inspect and repair stair brackets. Replace the missing top wall return at handrail to match original construction.

12. **Central Cylinder Fifth-Level Landing:**

   **Evaluation:** Significant/deteriorated.

   Interior wall panels exist only at the fifth-level landing. Panels are secured in place by cast-iron battens. Interior wall finish color is brown/orange and contains a high concentration of lead. Paint coatings are in poor condition and a high percentage of the paint is eroded exposing metal surfaces.

   The floor is constructed with cast-iron plates with a raised diamond plate pattern and has a large hole in one of the floor plates. The floor is covered with debris, litter, and broken glass.

   Only one stile remains of the interior wood door located at the top of the main stair. The wood stile is one inch thick by four inches wide with two ball-tip brass hinges. The door is not illustrated on the original drawings. We assume it was a four-panel wood door.

   **Recommendations:** Remove fifth-level interior wall panels. Inspect void behind panels for corrosion. Abrasive-blast and prime-paint concealed surfaces. Repair deteriorated areas and reinstall wall panels.

   Clean debris from interior floors and stairs. Replace the section of cast-iron landing floor with the large opening at the fifth-level landing to match the existing floor. Inspect the area and replace other floor sections as required. Fabricate and install a new four-panel wood door on original hinges (if suitable).
Fabricate the new door from one-inch-thick lumber with mortised and tenoned joints. Install rim lock on door with brown or white ceramic handles. Have historic paint analyzed by historic paint consultant and repaint door in original color. Repair door frame to good condition.

13. **Watch Room:**

**Evaluation:** Significant/deteriorated.

The watch room has brown/orange paint coatings that contain a high concentration of lead, are in poor condition, and are blistering and pealing. The exterior walls of the watch room are rusting and have exfoliation at joints. A raised cornice surrounds the wall area and is badly rusting and exfoliating.

The watch room interior walls are covered with rolled metal panels secured in place by vertical metal battens. Wall panels have graffiti, surface rust, and exfoliation. Moisture has entered the cavity between the interior and exterior wall panels. The lower area of some of the panels is missing resulting in openings and loss of structural integrity. Wall surfaces are covered with rust and scale.

The watch room floor is composed of eight sections of raised diamond-pattern cast-iron panels. There is no paint finish on the top of the flooring and the floor is pitted by rust. There are several large and small holes in the deck are safety hazards. The structural condition of the flooring has been compromised by the holes in the flooring.

The architrave beams below the watch room floor are severely rusted and exfoliated and require structural repair. The missing exterior door exposes the interior features to the elements and has accelerated the deterioration of the lighthouse components. The door frame has rust, exfoliation, and damaged areas due to the exposure to the elements.

There is no paint on the lantern pedestal and the unit is covered with surface rust. A modern wood panel approximately 2 by 2 feet is clamped to the pedestal and should be removed.

**Recommendations:** Remove watch room and lantern room sections and lower to the ground. Remove interior panels and abrasive-blast the concealed areas to remove rust and scale. Add metal to replace missing areas and reinstall panels. Restore raised trim and cornice at top of walls; seal joints in walls.

Restore or replace architrave beams below watch room floor and corner casting units at top of corner columns. Remove and replace cast-iron panels. New panels shall be fabricated to match existing. Examine and repair framing below the floor and repair deteriorated areas to sound condition.

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Install new custom-fabricated replicas of the original doors and hardware as illustrated on the original construction drawings. Repair the door frame and casings to good condition. Replace missing components to match original units. Install weatherstripping on doors.

Remove the modern wood panel and brackets on the watch room lantern pedestal. Install missing handrail at landing adjacent to central stair in watch room to match the original railing design documented on the original drawings.

14. **Watch Room Gallery:**

**Evaluation:** Significant/deteriorated.

The deck plate in front of the door of the watch room gallery is cracked and should be repaired. Deck plates have surface rust. We were unable to gain access to the gallery deck support brackets for examination.

The gallery railing has cast-iron posts that bolt through the deck and brackets below. Ball caps screw to the top of each post. The top handrail is a two-piece unit. Intermediate railings are round verticals with flat bar horizontals. Railing sections half-lap at posts and the top rail has a fitting at the posts. Sections of the railing are missing and badly exfoliated. The top rail section is heaved and loose in areas. The structural integrity of the railing has been compromised by corrosion. Areas of black paint remain on the railings in areas.

The cast-iron soffit below the lantern room gallery is heavily exfoliated and deteriorated. The ladder for access to the lantern room gallery above is missing.

**Recommendations:** After abrasive-blasting the interior and exterior wall surfaces, repair exfoliated areas. At the gallery soffit, remove heavily exfoliated soffit panels and replace missing or damaged sections to original condition, or replace entire panels. Reinstall to match original installations. Paint concealed surfaces before reinstalling. Add copper insect screening above ventilation openings in soffit to keep wasps and insects out of the building. Repair cracked and broken sections of the watch room gallery deck plate, or replace deck plates to match original units. Remove deck brackets. Inspect and repair deteriorated areas to sound condition or replace brackets to match original construction. Reinstall deck brackets. Remove gallery railings and rebuild components to match original configurations. Replace missing sections or components. Reinstall gallery railings.

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15. **Lantern Room:**

**Evaluation:** Significant/deteriorated.

The vertical sash bars, handles, the brass or bronze interior and exterior glazing stops, and mounting screw's glass tops and glass that surround the lantern room are missing at all areas. The combination of exposure to weather and damage caused by animals living in the lighthouse interior has accelerated the deterioration of the lighthouse structure. Bolts at the bottom of window mullions are deteriorated. Window mullions support the lighthouse canopy. There is no paint finish on the window mulls and they have light surface rust. Brass or bronze interior and exterior glazing stops and mounting screws and glass storm panels are missing at all areas.

The lantern room deck is comprised of 10 cast-iron deck plates that form the interior and exterior flooring. The deck plates have a raised diamond-pattern surface. There is no paint on the deck plates and light surface rust is present.

The standing seam copper roofing is deteriorated. Seams have cracks and small sections of the copper roofing are missing. Copper bolts are installed through the roof covering. The spider-bar tension ring is heavily rusted and exfoliated. Areas of metal are missing at the tension ring and related bars. A tin ceiling conceals the upper roof framing. The tin ceiling has spray paint graffiti and is held in place by cast-iron batten strips screwed in place. The ventilator bass has a green patina oxidized finish. A brass pinnacle with a platinum tip extends from the top of the ventilator ball.

Some base portions of the lantern room floor vent units remain. All sliding dampers and knobs are missing.

The original lens was a third-order Fresnel lens. There is no current light or lens assembly in the lighthouse.

One of ten original retainer bars is missing from the outside edge of the copper roofing. One of eight floor lights is missing. Glass inserts are missing from all remaining floor lights.

**Recommendations:** Abrasive-blast and clean vertical mullion units and replace the bottom bolts to match existing on the vertical mulls. Install new bullet-resistant safety glass in new brass stops and pressure bars custom-fabricated to match the original units documented on the original drawings in all window openings.
Install new grab bars on exterior of glazed areas to match original units documented on original drawings. Examine the deck for cracks or loss of structural integrity and repair to good condition. Remove floor lights from deck plates. Fabricate one new cast-iron floor light to match remaining units. Abrasive-blast and paint units. Reinstall units in original openings. Install new glass inserts in openings in floor lights.

Abrasive-blast the lantern room cornice and replace missing metal to match original configuration. Remove and replace sections that cannot be repaired. New sections shall match original construction. Carefully remove the copper roofing and tin ceiling below. Abrasive-blast the cast-iron surfaces and repair structural components to good condition. Build-up metal sections to original configurations. Paint metalwork. Install new standing seam copper roofing. Replace missing roof retainer bar. Gently blast the tin ceiling with baking soda or other suitable medium to remove graffiti. Reinstall ceiling or replace if unable to successfully remove and clean. Remove, clean, install copper screen in vent openings on the roof ventilator to keep wasps out of ball, paint, and reinstall. Install new lightning ground rod and conductor and connect to base of pinnacle.

Reinstall watch room and lantern room sections on top of the tower and touch-up paint disturbed by installation and handling.

16. **Lantern Room Gallery:**

**Evaluation:** Significant/deteriorated.

The cornice of the lantern room gallery has an ogee profile and raised cove mouldings. Cornice areas are rusting and heavily exfoliated. The railing of the lantern room gallery has cast-iron posts that support an iron flat bar top rail. The top rail half-laps at the post joints. There is a nut on top of each post above the rail. Railings are rusted and exfoliated. The low, 20-inch-high railing, with open sections below, is a safety hazard.

**Recommendations:** Remove railing and rebuilt components to match original configuration. Replace missing sections or components. Determine if modifications to railings are necessary to conform to current building code requirements and modify as required. Reinstall railings.
### Probable Cost For Restoration:

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<th>Item</th>
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<td><strong>Total Estimated Restoration Cost</strong></td>
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</tr>
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17. **Recommendations for Future Use**: After the lighthouse is restored, the second objective should be to restore the light station, build a caretaker’s house and visitor orientation center, build access walks, provide an electrical power source on the island, and provide public toilets. The restored light station would provide a unique opportunity to interpret nineteenth century life and work in Florida in a natural setting without modern encroachments. A caretaker will be needed on the site to control access to the lighthouse and prohibit vandalism. Also, the caretaker could keep the vegetation cut back and the site attractive for visitors. The Tarpon Springs Historical Society or Relight the Light Committee could start public visitation tours of the restored lighthouse as soon as a dock and lighthouse access is provided. This should generate revenue through ticket and souvenir sales to fund ongoing maintenance and turn the light station into a healthy, self-supporting historical site.
WALKWAY AND LIGHTHOUSE ENTRY

WEST SIDE OF LIGHTHOUSE

VIEW OF LIGHTHOUSE FROM THE GULF OF MEXICO
ONE OF THE EIGHT LIGHTHOUSE SKELETAL STRUCTURE FOUNDATION DISKS

TENSION ROD CONNECTION AT BASE OF LIGHTHOUSE STAIR CYLINDER

SKELETAL STRUCTURE AND STAIR CYLINDER AT BASE OF LIGHTHOUSE
WATCH ROOM GALLERY HANDRAIL

DETERIORATED RAILINGS & CRACKS AT WATCH ROOM GALLERY FLOOR PLATE

CAST IRON FLOOR PLATE AT LANTERN ROOM
REMAINS OF OIL STORAGE BUILDING WEST OF LIGHTHOUSE

SITE OF FORMER KEEPERS' HOUSES NORTH OF LIGHTHOUSE
Name: Boca Grande Lighthouse
Location: Southern tip of Gasparilla Island, Lee County
Type: One story frame dwelling with pile foundation
Height: 44 feet. Focal plane 41 feet
Daymark: White frame dwelling with green shutters and black tower
Year Built: September 1890
Owner or Operator: Florida State Park Service
National Register Status: Listed
Active: Yes
Visitor Access: Boca Grande Lighthouse Museum open Wednesday – Sunday 10am-4pm, closed August.
Contact: Marilyn Hoeckel, Museum Director: hoeckel@gl3sc.com
Facilities: Lighthouse, assistant keeper’s quarters, one corrugated metal building, two metal cisterns, one masonry paint locker, and USCG beacon. Assistant keeper’s house identical to the lighthouse - located 70’ NE of the lighthouse.

1. History
Congress appropriated $35,000 to the Lighthouse Service in 1888 to build the Port Boca Grande Lighthouse located on the southern tip of Gasparilla Island, originally called Gasparilla Island Lighthouse. Many large ships carried phosphate from the port of Boca Grande when phosphate was discovered in west-central Florida in the 1880’s. The lighthouse was to serve as a harbor beacon for these large ships. Therefore, a one story, square, white frame dwelling with a pyramidal shingle roof was built on a pile foundation. A black lantern was built on top of the roof that displayed a fixed white light interrupted by a red flash. Another one story, white frame dwelling similar to the lighthouse structure, but without the lantern, was built about 70 feet distant for the assistant keeper. Construction was completed in two years and the light was first operated on December 31, 1890.

In 1956, the lighthouse was automated and unmanned, and in 1966, the light was removed and the Coast Guard turned the building over to the General Services Administration.¹ Severe erosion threatened Gasparilla Island and in 1970 local residents decided to gain support to stop the erosion. Threatened were roads and homes as well as the abandoned lighthouse that actually had water flowing around its supports and would possibly be unable to withstand a severe storm. The federal government owned the

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southern end of the island and did not want to finance repairs to the lighthouse it was not using and was in disrepair due to both the erosion and vandalism. Efforts from the local population along with support from shipping interests to reverse the erosion were steadfast and finally in 1971, the government contracted with a construction company to build a granite groin at the southern tip of the island, and workers built a 265 foot jetty into the Gulf to help restore the beach to its former depths. The local utility company, which owned the nearby fuel depot at Port Boca Grande next to the five acre lighthouse site, pumped some 100,000 cubic yards of fill into the sea, including 35,000 cubic yards around the lighthouse. In 1972 the federal government transferred ownership of the lighthouse to Lee County.²

The tilt of the lighthouse was corrected by contractors commissioned by Lee County and in 1980 the Port Boca Grande Lighthouse was placed on the National Register of Historic Places. In 1985-86, local citizens, under the leadership of the Gasparilla Island Conservation and Improvement Association, restored the lighthouse with help from The Florida Bureau of Historic Preservation.³ The U.S. Coast Guard installed the old rebuilt light in the lantern in 1986. This lighthouse was saved and restored to its original condition and the beacon became an aid to navigation once again. The state of Florida took over ownership in 1988, and in 1999, the lighthouse opened to the public as the Boca Grande Lighthouse Museum. The museum was created and is operated by the Barrier Island Parks Society, a volunteer organization for the park. The Coast Guard maintains the light, which continues to mark the southern tip of Gasparilla Island as it has done since 1890.⁴

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2 Kevin M. McCarthy, Florida Lighthouses, (Gainesville, Florida: University of Florida Press, 1989) 87
3 Taylor, 109
4 Ibid. 109

2. General Description:

The Port Boca Grande Lighthouse is a small iron tower on a widow's walk atop the keeper's dwelling. The octagonal tower has the appearance of a tall cupola with metal roof and ventilator ball. Other than the top, the building is wood framed, square in plan with a hip roof and wrap around porches on three sides. The top is black and the roof is covered with brown asphalt shingles. The building is painted white with green shutters at the watch room. The building is well maintained.
3. **Site Improvements:**

**Evaluation:** Significant Elements, Well Maintained

The Port Boca Grande Lighthouse is sited at the southern tip of Gasparilla Island and marks the entrance to Charlotte Harbor. Sand beaches stretch around the lighthouse with grassed dunes between the beach and the lighthouse. The lighthouse is accessible by car. The site is managed by the National Park Service and site amenities include parking, picnic tables, gazebos, public restrooms, and boardwalks over the dunes for access to the beaches. It is landscaped with palm trees, sea grass and sea grapes. The site is well maintained and has marked handicapped spaces and an elevator to the main floor of the keeper’s quarters museum. However, the spaces are not paved and the path to the building is sand and gravel.

**Recommendations:**

Provide ADA compliance throughout the site.

4. **Exterior Structure/Walls**

**Evaluation:** Significant, Sound, Restored

The exterior structure of the keeper’s quarters is wood frame with wood lap siding, as is the watch room widow’s walk. The walls, siding and structural components appear to be in good condition and well maintained.

**Recommendations:**

Having undergone a restoration several years ago and being well maintained, no work other than continued maintenance is required.

5. **Exterior Openings/Doors & Windows:**

**Evaluation:** Significant, Restored, Minor Adjustments Needed

Wood doors and double hung windows are the dominant exterior openings of the keeper’s quarters. The lighthouse exterior openings are limited to the windows of the watch room and door to the watch balcony. There are eight windows in the watch room, all paired, wooden double hung units on each side. Each window unit is 16” wide x 40” high with 16” x 21” single light sashes. All windows were operational, but several would not stay open.

The access to the watch balcony is through a 24” wide x 28” high opening with paired steel doors. These doors close against each other with the astragal of one holding the other closed. They were secured with a latch thru the head of one door into the iron head of the frame. The doors have 3” deep x 3/8” thick box
frames around them with a steel cover plate over one door. The doors are operational, but the latch does not operate and hinges required lubrication.

**Recommendations:**
Windows should be adjusted or repaired so that they will remain open. The iron doors to the watch balcony should be brought back to a fully operational condition.

6. **Foundation and Floor Structure:**

**Evaluation:** Significant, Sound
The building is framed on top of 10" round iron piles extending 8' above grade. Hand excavating below the surface of the sand shows rust and scale. Further investigation is necessary to confirm the condition, including excavation below the water table. Above ground, these columns are braced diagonally, to the main floor beams. These columns are spaced at about 11' o.c. in the north/south direction, and 8' to 9' o.c. in the east/west direction. Braces to the floor beams occur at mid height with diagonal wood braces 5" x 6" set in iron collars as the column and beam. The main floor beams are 6 x 12 and floor joists are 3" x 12" at 16" o.c. Overall the foundations and floor structure appear sound, although horizontal braces near grade are deteriorating and rusted through in places.

**Recommendations:**
Excavation of at least one iron pile is recommended to confirm the condition of foundations. Of primary concern are the detail and condition of piles at the line of the water table.

7. **Interior Openings:**

**Evaluation:** Significant, Good Condition
The 28" x 78" interior door to the watch room is fabricated from tongue and groove boards with horizontal and diagonal bracing on the backsides. The beaded tongue and groove boards are 7/8" thick with a 2-1/2" face dimension. Bracing on the back consists of 7/8" x 5" boards beaded on the edges laid horizontally top and bottom and one diagonal between them. The beaded boards of the door face match the walls inside and outside of the lower level of the watch room. The door is in good condition, well maintained and serviceable. Interior doors at the keeper's quarters are typical of the period – wood four panel doors.

**Recommendations:**
Interior doors are in good condition, well maintained and no work is required.
8. **Interior Finishes:**

**Evaluation:** Significant, Sound with Some Metal Deterioration

The lighthouse interiors match those of the keeper's quarters below it - painted wood floors, and painted beaded wood walls and ceiling. The lens room finishes are painted metal walls and ceilings. All are well maintained except for rusted metal walls at the lens room.

**Recommendations:**

All interior wood walls are well maintained and in good condition. The metal walls of the lens room should be cleaned of rust, primed and repainted.

9. **Stairs:**

**Evaluation:** Significant, Sound, Good Condition

Stairs accessing the watch room are a wooden "L" shaped run with 22-1/2 degree winders at the turn. Passing thru the beaded board door to the lower level of the watch room, the stairs turn to the left and wind around a central 6 x 6 wooden column with chamfered edges. Nine steps rise 79" to the watch room floor. An aluminum ladder allows access to the lens room through the hatch in the floor. The stairs are in good condition.

**Recommendations:**

Stairs are well maintained. No work is required.

10. **Railings:**

**Evaluation:** Compatible Replacement

There are no stair railings at the upper level of the watch room. A horizontal 1-1/2" x 2-1/2" wood piece serves as a guardrail. The watch balcony guardrail is wood, 36" high with 1-1/4" square spindles at 6" o.c. A 1-1/4" x 4" bottom rail set vertically, 1-1/4" x 3" top rail and 1-1/4" x 5" wide cap with chamfered top. Wooden posts 3" x 3-1/2" extend through the roof deck to support the railing. Although compatible, the railing at the watch rail feels contemporary in its execution.

**Recommendation:**

The railing at the watch gallery is serviceable, compatible and can be retained. When replacement is required, close attention should be paid to historic details.
11. Watch Room and Gallery:

**Evaluation:** Significant, Good Condition

The watch gallery is outside of the lens room. The wooden deck is covered with a bituminous membrane painted with a black asphalt emulsion. The coating is painted up the base of the lens room and wooden railing posts and is cracked and deteriorating. The watch room is 8'-2" square inside with paired double hung windows on each wall. The 16" x 21" sashes have glass lights of 11-1/2" x 16-1/2" each and are separated by a 7" wide post. The watch room is two levels entering at the attic level of the main roof and rising 79" to the main watch room level. The ceiling is 77" above this floor. The room is bright and airy with freshly painted yellow beaded board walls, white trim and white beaded board ceiling.

**Recommendations:**

The watch room is restored and well maintained. The exterior gallery deck is weathered and deteriorated. This surface requires repair and/or replacement. During this reroofing, the sheathing should be inspected and research into alternative surfaces that will be appropriate to traffic should be conducted.

12. Lens Room:

**Evaluation:** Significant, Deterioration

The lens room is octagonal in plan 6'-7" across on the inside with 3-1/2" thick base walls for an overall outside width of 7'-2". Each side of the base measures 3'-11-1/2" on its outside surface. The 37" high base walls are capped by glass lights. The glass panes have a plastic film on the inside and are currently glazed with glass 32" wide x 36" high. They are interior glazed and held in place with silicone sealant and a top bar. These lights were originally glazed from the exterior. The iron base walls are covered on the inside with a metal panel. Operable vents are set in four walls, but the outside plate is missing. A fourth order Fresnel lens 16" high is lit by a Coast Guard installed flashing tungsten halogen lamp. The iron roof is covered on the interior by a metal skin. Interior wall panels are rusted. The wood floor is weathered, but serviceable.

**Recommendations:**

Rusted wall panels should be repaired. Where panels are rusted through, repairs could include replacement panels or magnesium inert gas (M.I.G.) welded repairs. The lens room glass is inappropriate and improperly glazed. The glass should be removed and windows reglazed using appropriate glass and details. Note: The film on the glass was installed to provide "impact resistance". However, the film was applied after the glass was installed and does not extend under the glazing stops. Installed in this manner, the film will do little more than make it easier to pick up the broken glass after it is punched out of the frame.
13. Roof Structure and Roof Covering:
   Evaluation: Significant, Watertight, but with Weathered Surfaces
   The lens room roof is painted iron in good condition. The ventilator ball is copper. The watch gallery serves in part as the roof of the watch room. There are no signs of roof leaks inside the watch room, but there are at the portion overhanging the watch room. Also, the roof covering shows signs of weathering. The keeper’s quarter’s roof below the lighthouse is framed in wood and covered with brown asphalt shingles in good condition.

   Recommendations:
   The iron lens room roof needs to be repainted. The watch room roof, also the gallery deck surface, needs to be re-roofed. Alternatives should be investigated to provide a better pedestrian surface. The keeper’s quarters roof is serviceable, but when replaced, should be replaced with the original roofing material.

14. Mechanical and Plumbing Systems:
   Evaluation: Required, Good Condition
   Full mechanical and plumbing systems including A/C are installed and all are serviceable.

   Recommendations:
   No work is required.

15. Lightning Protection System:
   Evaluation: Required, Sound
   A new lightning protection system, about one year old, is in place and serviceable. However, the old cable was not removed from the spire and roof.

   Recommendation:
   Remove the old cable from the roof.

16. Electrical Systems:
   Evaluation: Required, Safe
   The current electrical system dates from 1986 and is code compliant.

   Recommendations:
   No work is required.

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17. Probable Cost for Restoration:

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<tr>
<th>Item</th>
<th>Cost</th>
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<td>8,000</td>
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<tr>
<td>Gallery Roof</td>
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<td>Design Fees @ 12%</td>
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<td><strong>Total Probable Restoration Costs</strong></td>
<td><strong>$86,000</strong></td>
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</tbody>
</table>

Except for A.D.A. improvements to the site, the above work can be performed as part of ongoing maintenance on an individual item basis if desired.

18. Recommendations for Future Use:

The lighthouse and keeper’s dwelling currently operate as a museum and gift shop within a National Park Service site. This use is appropriate and no use modifications are needed.
GENERAL VIEW OF LIGHTHOUSE AND KEEPER'S QUARTERS

TOP PORTION OF LIGHTHOUSE

FLORIDA LIGHTHOUSE STUDY
EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
Boca Grande Lighthouse Photos
Date: 4/15/02
LENSS ROOM ROOF SHOWING VENTILATOR BALL & LIGHTNING ROD

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0119
Boca Grande
Lighthouse
Photos
Date: 4/15/02

DETAIL OF VENTILATOR BALL
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Boca Grande
Lighthouse
Photos
Date: 4/15/02

WATCH ROOM INTERIOR

WATCH ROOM INTERIOR
FLOOR STRUCTURE OF LIGHTHOUSE- GENERAL VIEW

COLUMN CONNECTION DETAIL- UNDERSIDE OF LIGHTHOUSE
Name: Boca Grande Entrance Rear Range Lighthouse
Location: Southern tip of Gasparilla Island, Lee County
Type: Hexagonal pyramidal skeletal tower with integrated cylindrical stairway
Height: 106 feet
Daymark: White skeletal tower, white stair cylinder
Year Built: 1927
Owner or Operator: U.S. Coast Guard
National Register Status: Listed
Active: Yes
Visitor Access: Grounds only. Easily visible from public beach
Contact: Marilyn Hoeckel: hoeckel@glis3c.com
Facilities: None, no handicap access. Only grounds open, located next to main road, easy access for photos along beach

1. History

Although the Port Boca Grande Lighthouse on the southern tip of Gasparilla Island functioned to guide ships through the Boca Grande Navigation Channel and into the commercial Charlotte Harbor from 1890 it was determined that an additional light would benefit navigation in the area. The Seventh Lighthouse District in Florida requested a lighthouse for Port Boca Grande on Gasparilla Island in 1919, but due to lack of funding obtained a lighthouse only in 1927. The Boca Grande Entrance Rear Range Light is one of only a handful of lighthouses that have had active service in two states. According to new research, this tower was originally built in 1881 to serve as the Delaware Breakwater Rear Range Lighthouse. The lighthouse in Delaware was dismantled, each part marked and numbered for easy reassembly, and the iron tower was shipped by railroad to Miami. The Boca Grande Rear Range Entrance was re-erected in 1927 and finally lighted in 1932 with a fourth order bivalve lens. Painted white, the skeletal tower stands at 106 feet.

The Boca Grande Lighthouse and the Boca Grande Entrance Rear Range both serve to safely guide ships into Port Boca Grande. The captain lines up the lights, and the vessel then can safely proceed, since it is then located in the middle of the channel. A drift of fifty feet either way could run his ship aground.

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2. **General Description:**

The Boca Grande Lighthouse (entrance rear range) is a white iron tower set on a concrete foundation base about one mile north of the southern tip of Gasparilla Island on the Gulf of Mexico. The tower has an entrance foyer with a gable roof located on its east side. The iron door is flanked by classically detailed pilasters engaging the corners of the building. Rectangular windows with arched top trim are centered in the north and south walls of the 4’ deep x 5’ wide foyer. The 8’ diameter stair cylinder rises 105’ and is braced by six steel columns tapering in toward the top, forming a hexagonal pyramid 19’ on each side at its base and 38’-6” thru its center from column to column. The 9’ deep I-beams with 4” flanges are braced in three locations, at splice points, with horizontal I-beam struts between each column and to the tower. Each of the three vertical bays is braced with diagonal rod cross bracing and turnbuckles between the columns and to the tower. Five vertical windows spiral up the tower each with an arch top. The exterior skin is rusted and separating in places at seams.

3. **Site Improvements:**

**Evaluation:** Not Significant

The lighthouse is sited between the main street and the beach about 75 yards from Gulf Road. Grass covers the high area of the sand with palms and sea grape as the primary vegetation. A public beach with bathroom and parking facilities is located directly to the north of the lighthouse. This facility is managed by the National Park Service, but the Coast Guard has the keys to the light. A concrete pad surrounds the tower, extends to the outer edge of the perimeter columns and mirrors the hexagonal base. Twelve-inch square concrete piers support a single 2-1/2” pipe serving as a fence. This fence is open on the north side with two risers at the base accessing the pad. A sand path leads to the road.

**Recommendations:**

No site maintenance is required at this time, other than an interpretive sign or display giving information about the light.

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4. **Exterior Structure / Walls:**

**Evaluation:** Significant, Deteriorated, Further Inspection Needed

The exterior structure consists of six 9" deep I-beam columns, which taper inwards as they rise. The tower is braced with horizontal I-beam struts and diagonal rod and turnbuckle cross bracing. The rods, columns and struts show signs of rust and deterioration, but appear to be structurally sound. Cleaning, minor repairs and painting are required. The exterior wall surface is sheet steel riveted together. The interior diameter of the stair cylinder is 8'. Half the circumference measured 12'-11" at the base trim for a calculated outside diameter of about 8'-2" indicating that the exterior walls do not have an interior framework. Sighting up the tower shows deformation of exterior wall panels, most notably at about mid height between struts. The wall panels are rusted and are separating at joints. These areas should be inspected further for structural soundness. Noticeable repairs have been limited to caulking of these joints to keep water out. The panels are set to overlap the panel below so that water sheds over the joint. The panels run half way around the perimeter with a 44" vertical exposure and vertical joints staggered at succeeding panels. The panels are joined by rivets at 3" o.c. each way. Several small patches are visible and the entire tower is in need of cleaning and painting. A number of the rivets have been replaced with bolts, varying in size from ½" to ¾". There are holes rusted through the walls at several locations, particularly at fastening locations, i.e. bracing locations or stair landing attachment points. There is a noticeable amount of swaying at the top of the lighthouse, due to the nature of its construction. The swaying did not seem excessive and probably has always been present.

**Recommendations:**

The wall panels should be analyzed structurally to confirm soundness in the areas mentioned above. Tests should be conducted on welds and rivets to confirm that these connections are not unduly stressed. Areas of deteriorated panels should be stripped of paint, patched using a M.I.G. welding process, primed with an inorganic zinc primer, and repainted. The entire tower should be cleaned of rust and scale and repainted. As in all lighthouses, periodic maintenance by cleaning and painting is critical to the long term preservation of the structure.

5. **Exterior Openings/Doors & Windows:**

**Evaluation:** Significant, Some Deterioration

The entrance foyer has an iron door and two windows. The door is 3'-3" wide x 7'-6" tall with an overall thickness of 2" fabricated from sheet steel on both faces and stiffener ribs at the top and sides. Three 8" tall surface hinges support the door, bolted to the frame and welded to the door. The original hinges were 4" tall and mortised into the frame. The frame with 2" x 2" stops at 4" deep is fabricated to receive a 2" thick door. The windows at this level are 17" wide x 55" tall and are covered on the inside face with sheet steel bolted to the frame. Solid steel glazing stops 5/8" square, form glazing channels of 1-3/8" between
them and the outside arch top trim. The arch top springs from 47" above the sill and has an 8" radius. The five tower windows, each at a landing, are glazed with Lexan panels 26" wide x 56" tall. The same arch top trim exists at these windows and the Lexan is glazed to it. Channels for the 5/8" stops have threaded holes for fastening the stops at 16" o.c. Pulleys from the original single hung windows are in place. (The ground floor pulley holes were sealed with caulk). All of the Lexan panels are fogged with poor clarity and one has a crack. All require replacement. The door from the lens/watch room to the watch balcony is 17-1/2" wide x 39" high hollow with an exterior tin panel and interior plywood panels mounted in the lower solid wall section and held shut by a slide bolt. The hinges are non operational and access to the watch balconies was gained by bending the holes.

**Recommendations:**
While all of the window frames are solid, the windows at the stair tower and entrance foyer will require replacement. The entrance foyer windows have been covered with steel plates. While this is an adequate response to the security concerns of the light, it prevents ventilation of the foyer. If complete restoration is desired, the windows should be reconstructed in their original single hung configuration with weights and pulleys, and glazed with Lexan or tempered glass. Perforated shutters could be installed over the foyer window to provide security while still maintaining historic appearance. Frames and metal surrounds should be repaired and patched using metal repair techniques listed in the other sections. Any replacement windows installed should provide some means of ventilating the stair interior while keeping out weather. The door at the lens room gallery should be made secure and operational by installation of new hinges and bolts, and general cleaning and painting.

6. **Foundation and Floor structure:**

**Evaluation:** Significant, Sound

Inspection of the foundations was not possible, but the exterior columns and the central tower were bolted to concrete bases. No distress from settlement was noted and foundations are presumed to be in good condition.

**Recommendations:**
The foundations should be inspected periodically to ensure that no settlement is taking place.

7. **Interior Finishes:**

**Evaluation:** Significant, Sound, Minor Deterioration

All interiors are steel or cast iron up to the lens room. The lens room has a 47" high base wall with tongue and groove beaded wood, capped by 37" high windows, glazed with Lexan. All interiors are painted white.
Recommendations:
There are minor sections of wood wall at the lens room are missing and should be replaced. Missing sections should be replaced with materials that match the originals.

8. Stairs:
   Evaluation: Significant, Sound
   The stairs are cast iron spiraling around a central iron column, with five landings to the top. Access to the lens room is via a steel ladder with ¾" steel rungs at 8" o.c. The treads have an open diamond pattern and are 38" long around a 12" diameter collar with a 7-3/4" rise. There is no handrail. The stairs show signs of rust, but are generally in excellent condition.

Recommendations:
The stairs are only in need of general cleaning and painting.

9. Railings:
   Evaluation: Significant, Sound
   There are no railings on the interior stair cylinder. The watch gallery railing is constructed of galvanized pipe 1-1/2" in diameter with a top rail at 38" above the deck and one intermediate horizontal. Vertical stanchions are at 45" o.c. The railing is sound.

Recommendations:
The railing should be cleaned and painted. The connections of the railings to the gallery floor are on the underside and were not visible. They should be inspected when repair work is done on the lighthouse. If public access to the light is desired, a handrail will have to be added to the stair. The work will have to be in keeping with the historic characteristics of the light.

10. Lens Room/Watch Room and Gallery:
    Evaluation: Significant, Deteriorated, Needs Further Inspection
    A single room at the top of the stair serves as the lens room, watch room and accesses the gallery. The octagonal room is framed with iron mullions, head and sill at 47" above the iron floor plate. A wood wainscot covers the lower framing, but tie rods and bolts extend through the sill on each side of the mullions and additional rods are located at the north and south panels. Seven of the eighteen tie rods are missing or broken and require replacement. The lens room is glazed in Lexan glass, which is fogged over and requires replacement. The ironwork appears to be in reasonably good condition, but needs cleaning,
patching and paint. The interior base walls are framed in wood, 2-1/2" x 3" verticals on each side of each joint, 3/4" x 3-1/2" horizontals let in on the outside face vertical tongue and groove on the outside, covered by a galvanized metal skin. The posts are toe nailed to the sill plate.

**Recommendations:**
A structural evaluation of the construction of the lens room is recommended. All of the damaged tie rods should be replaced. The lexan window panels are fogged and should be replaced with Lexan or safety glass, and resealed. The lens room and gallery should be cleaned, and areas of deterioration should be patched. All areas should then be primed and painted. Missing pieces of the wood wainscot should be replaced with materials matching the originals.

11. **Roof Structure and Roof Covering:**
**Evaluation:** Significant, Sound
The roof structure was not visible, but appears to be an octagonal steel framework covered on the inside by a tin skin and exterior copper dome painted black with a copper ventilator ball. The lens room is watertight, but there is minor rusting at the cornice of the roof.

**Recommendations:**
A ladder should be installed to provide access to the roof for periodic inspection. The rusting at the cornice should be cleaned and repaired by sandblasting, priming within 6 hours with an inorganic zinc primer, welding in of new material using a M.I.G. welding process, and repainting. Any repairs should match the existing shape and thickness of the original material. The roof should be inspected and resealed and repainted on a periodic basis.

12. **Electrical Systems:**
**Evaluation:** Non-significant, Sound
The tower is served by municipal power, running underground to the tower, 120/240 volt, single phase 60 amp main breaker. The meter is mounted at the exterior side of the entrance foyer. The system appears to be in sound condition.

**Recommendations:**
The electrical system is not historic but is installed in a manner sensitive to the historic character of the structure. It should be inspected and maintained on a regular basis.

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13. **Lightning Protection System:**

No lightning protection system was apparent on the lighthouse. There is a spire atop the ventilation ball, but no ground wire was visible.

**Recommendations:**

Because the wall of the lens room is wood, there is no direct metal path for electrical current from the spire to the base of the light. The light should be inspected by a certified lightning protection specialist to determine whether a lightning protection system should be installed.

14. **Probable Cost for Restoration:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Site Improvements</td>
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<tr>
<td>Exterior Structure Wall Repairs</td>
<td>20,000</td>
</tr>
<tr>
<td>Doors (1@$3,500 + 1 @$1,500)</td>
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<tr>
<td>Windows (5 @$2,400)</td>
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<tr>
<td>Metal Restoration</td>
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<td><strong>Total Probable Cost</strong></td>
<td><strong>$290,000</strong></td>
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</table>

15. **Recommendations for Future Use:**

While the Boca Grande Entrance Light is situated in a National Park Service property, it is still operated by the Coast Guard. The light is currently in good enough condition to be opened up for limited public
access, but daily access is probably not possible. Funds collected for tours could be used for maintenance of the light.

We are recommending that a full historic renovation be performed on the light, based on the inspection outlined in this report. Safety measures such as guardrail improvements and handrails could be added to the light, enabling daily tours to be given. This increased revenue could pay part, if not all, of the maintenance on the light. Interpretive signs could also be placed throughout the light, and self guided tours could be allowed.
FLORIDA
LIGHTHOUSE
STUDY

EXISTING CONDITIONS
PHOTOGRAPHY

VIEW OF LIGHTHOUSE FROM NORTHEAST

VIEW OF LIGHTHOUSE CROWN, NOTE RUST ALONG THE UNDERSIDE OF LENS ROOM BALCONY AND AROUND THE WINDOW
FLORIDA LIGHTHOUSE STUDY
EXISTING CONDITIONS PHOTOGRAPHY

CLOSER VIEW OF LIGHTHOUSE ENTRANCE NOTE RUST ALONG MANY OF THE ARCHITECTURAL DETAILS
SIDE VIEW OF LIGHTHOUSE ENTRANCE. NOTE INSIDE OF DOOR SHOWN, ORIGINAL GLASS REPLACED, AND NEW ELECTRIC INSTALLED

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Boca Grande Entrance Rear Range Lighthouse Photos
Date: 4/15/92

DETAIL VIEW OF LIGHTHOUSE ENTRANCE, NOTE EXTENSIVE RUST ALONG UNDERSIDE OF ROOF OVERHANG & ALONG ALL OVERLAPPING EDGES AND CORNERS
VIEW OF INTERIOR SPIRAL STAIRS IN LIGHTHOUSE - VIEW FROM ENTRANCE

FLORIDA
LIGHTHOUSE
STUDY

EXISTING CONDITIONS
PHOTOGRAPHY

DETAIL VIEW OF INTERIOR SPIRAL STAIRS & CONNECTIONS

Project #: 0119
Boca Grande
Entrance Rear
Range Lighthouse
Photos
Date: 4/15/02
FLORIDA Lighthouse Study

EXISTING CONDITIONS PHOTOGRAPHY

EXTERIOR VIEW OF WINDOW ABOVE ENTRANCE

INTERIOR VIEW OF WINDOW BELOW WATCH ROOM
DETAIL OF PERFORATED DIAMOND TREAD AT A TYPICAL STAIR LANDING OF INTERIOR SPIRAL STAIRS

FLORIDA LIGHTHOUSE STUDY
EXISTING CONDITIONS PHOTOGRAPHY

DETAIL VIEW OF LADDER TO LENS ROOM, SHOWING CONNECTION OF CENTER COLUMN OF LIGHTHOUSE MEETING LENS ROOM IRON PLATE FLOOR
VIEW INSIDE LENS ROOM. NOTE NEW LIGHT INSTALLED ON PLATFORM, TONGUE & GROOVE PANELING, COLUMNS FOR CROWN SLIGHTLY INFRONT OF GLASS

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

VIEW LEN'S ROOM CEILING. HOLE IN CENTER OF CEILING IS FOR VENTING
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

VIEW OF LENS ROOM BALCONY AND DOOR. NOTE MULLIONS AROUND GLASS, RUST ON OPERATION ELEMENTS AND ANGLE OF DOOR
DETAIL OF TYPICAL PRIMARY CONNECTION BETWEEN TENSION & COMPRESSION MEMBERS OF EXTERIOR STRUCTURAL ELEMENTS, VIEW OF CONNECTION AT MIDSECTION OF TOWER

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Boca Grande Entrance Rear Range Lighthouse Photos
Date: 4/15/02

DETAIL OF STRUCTURAL MEMBERS AT BASE OF LIGHTHOUSE
Name: Cape Canaveral Lighthouse
Location: Kennedy Space Center at easternmost point of Brevard County
Type: Conical cast-iron and brick tower
Height: 151 feet
Daymark: Conical tower with black-and-white horizontal bands
Year Built: 1868 – Moved 1892-1893 1-1/2 miles inland to present location
Owner or Operator: United States Air Force
National Register Status: Eligible
Active: Yes
Visitor Access: No access. Located in a highly restricted zone.
Contact: USAF Public Relations, Cape Canaveral Air Force Station, Cape Canaveral, FL 32920
Facilities: Oil storage building

1. History:
   In 1513, Ponce de Leon first named the area Cabo de las Corrientes, Cape of the Currents, as he sailed through the strong offshore water of the Florida Cape. Later, other explorers used the name Canaberal or Canaveral, meaning place of reeds or cane.

   In the 1840s, navigators requested a lighthouse be built between Ponce de Leon Inlet and Key Biscayne. Cape Canaveral was the logical location and, in 1848, a 65-foot-tall brick tower was built. In 1853, Captain Mills Burnham became the third lighthouse keeper for Cape Canaveral Lighthouse. He served at the lighthouse until his death, 33 years later. Mariners often complained about the lighthouse, saying that they were forced to enter dangerous currents near the shore before they could see the light.

   A new lighthouse was under construction when the Civil War erupted in 1861. During the Civil War, Confederate Secretary of the Navy Stephen Mallory ordered all lighthouses on the southern coast shut down to thwart attempts by federal authorities to land troops in the area and to help blockade-runners landing at night. Captain Burnham dutifully complied with the order, burying the lamps and clockwork in his orange grove near the Banana River.¹

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After the Civil War, work continued on the new, 145-foot, cast-iron, lighthouse completed in 1873. Cape Canaveral lighthouse had a cast-iron panel exterior, lined with brick on the interior, and was painted with alternating white and black bands, similar to Bodie Island Lighthouse in North Carolina that was finished only a year before the Cape Canaveral Lighthouse. The tower was constructed with interior living quarters on the first-through-fourth levels although no one has ever lived inside the lighthouse.

Due to severe coastal erosion conditions, only 70 feet remained between the lighthouse and the ocean in 1892 and Congress decided to allocate funds to move the lighthouse 1.25 miles inland. Workers used fragmented brick from the interior of the old tower for the concrete foundation at the new relocated tower site. The lighthouse first-order Fresnel lens was relighted in 1894 after the move inland.

Cape Canaveral Lighthouse was automated in 1967 and the first-order Fresnel lens was removed in 1993 and replaced with a modern optic. The first-order Fresnel lens is now on display at the Ponce de Leon Inlet Lighthouse Museum.

The area Cape Canaveral lighthouse was incorporated into the Cape Canaveral Air Force Station after World War II and is the home of Kennedy Space Center. Early rocket and missile tests were conducted near the lighthouse in the 1940s and 1950s. Today, numerous rocket pads surround the lighthouse site.

The lighthouse was restored in 1994-1995, and the original copper dome was replaced. The remains of the original copper dome have been installed at a gazebo on the air force base. The original lighthouse foundations and brick flooring remain with a modern brick marker.

2. **General Description:**

The Cape Canaveral Lighthouse is constructed with cast-iron exterior wall panels with brick interior lining in a conical shape with tapered interior and exterior cylinders. The lighthouse is 151 feet tall and has round, porthole-type, window openings. Exterior walls are constructed with curved cast-iron panels with brick interior lining. The exterior wall panels are bolted to the masonry foundation via heavy cast-iron flanges that turn out from the base of the wall panels. Brick interior walls have been abrasive-blasted to expose the brick and only fragments of early paint remain.

A lantern room and gallery cap the tower. The lantern room and gallery are painted black. The tower is painted with three black bands and three white bands. The tower was constructed with four living levels.

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inside the base of the lighthouse; however, window openings were too small for the hot Florida climate and no one ever lived in the lighthouse.

The main lighthouse entrance is located at the west side of the third level and is accessed via 20 cast-iron treads bolted to the exterior cast-iron wall panels. The exterior stair leads to an exterior balcony outside the entrance door supported by cast-iron brackets from below. A metal handrail and vertical balusters are attached to the outside of the entry steps and balcony. A heavy, hinged lifting davit is mounted to the exterior wall of the lighthouse and was used to lift lantern oil to the third level.

Entry doors are a pair of modern hollow-metal doors hung in the original cast-iron frame that swing out. A pair of two-panel wood doors with three glass lights in each upper panel opening is hung at the interior of the entry doorframe and swing into the lighthouse. A cast-iron portico extends from the exterior wall above the door for weather protection.

A second pair of cast-iron entry doors with a cast-iron frame is located at the south side of the base of the lighthouse for entry into the cellar level. This door opening may not be original.

The lighthouse sets on a raised brick base that extends beyond the perimeter of the lighthouse and rises above the surrounding grade with two brick courses plus a rowlock cap course. The brick base is topped with a thin cement coating and the base and cement cap are painted a dark red brick color.

The lighthouse has a metal gutter attached around the exterior wall at the third (entry) level to catch rainwater for an earlier cistern.

Decorative metal gallery brackets with a cast-iron trim ring around the tower at the base of the brackets cap the cast-iron walls. The metal brackets support the main gallery deck and handrails. The rotation room and lantern rooms cap the lighthouse with a metal roof and ventilator ball.

There are four levels at the interior base of the lighthouse. The lower level is a cellar with a brick floor and brick exterior walls and exposed cast-iron beams and floor plates above supporting the floor above. There are four, 16-inch^2-diameter brass ventilator grille openings in the ceiling. Modern fluorescent lights are surface mounted on the underside of the floor structure above. This level is used as a museum space to exhibit historic lighthouse photographs. Part of this space has been partitioned off to use for storage. Four round window openings are located at this level.
A spiral stair is located in the center of the lighthouse and extends from the cellar to the ninth level. The spiral stair has curved and riveted cast-iron panels surrounding the stair with a pair of curved two-panel wood stair entry doors at each of the four living levels. The upper door panel openings at the cellar level are closed with wire mesh.

The base of the central stair is raised approximately 6 inches above the cellar floor. The stair is 6 feet in diameter and constructed with tapered cast-iron treads with a checkered-plate finish and open risers. Treads overlap at the center to form a central post and bolt to the cast-iron surround at the outside tread edges.

The second level was constructed as a kitchen/bedroom level. The central stair has a small vestibule located in front of the stair entry doors and the floor space is divided in half by walls at each side of the stair cylinder and entry vestibule. Storage closets are built into the dividing walls. A kitchen space was located in the northwest half of the lighthouse and the opposite side was a bedroom. This level has wood plank floors installed in a radial pattern from the central stair to the exterior walls. Four brass floor grilles with removable covers are located in the floor for ventilation. Four round windows are located at exterior walls at this level. Exposed cast-iron beams and decking for the floor above form the ceiling at this level above brick exterior walls. Modern fluorescent lights are surface mounted on the underside of the floor structure above. A chimney opening is located in the ceiling at the southwest side of the tower under the bottom of the brick chimney above.

The third level has the central stair cylinder and is open all around the central cylinder to use as a living room space. The exterior entrance door is located at the west side of this level. Four windows are located at this level.

A brick chimney is located adjacent to the brick exterior wall at the southwest side of this space. Exterior walls are brick with the east brick exterior wall area painted black. The third level has radial wood plank flooring and cast-iron beams and decking form the ceiling. A wood table remains at this level.

The fourth level is a bedroom level that is divided in half by the central stair cylinder and vestibule and closets similar to the second level. The interior dividing walls are constructed with white painted vertical beaded board wood paneling. There are four windows at this level. The brick chimney continues through

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this level to the underside of the fifth level above and is connected to an exhaust vent through the southeast exterior wall capped with a metal hood.

A floor hatch is located in the northwest floor area to permit lifting fuel oil to the fifth level with a second hatch in the fifth level floor construction above. Floor, wall, ceiling finishes, and lighting match the second level. There are four windows at this level.

The fifth through ninth levels were used for fuel storage. The perimeter of the central stair is open above the fifth level with vertical cast-iron stanchions at each stair tread supporting a cast-iron handrail. The floor opening at each level is protected with vertical cast-iron stanchions supporting a cast-iron handrail to match the stair railings.

The fifth through ninth level floors are smooth finished cast-iron plates supported on cast-iron beams at the underside exposed to the level below. Exterior walls are brick that have been abrasive-blasted. Floors and the metal stairs are painted gray and ceiling areas are painted white.

Vertical electrical conduit and lightning system ground conductors are connected to the walls at all levels. Lights are mounted to the electrical conduits. A PVC condensate drain system is installed adjacent to the electrical conduits. The condensate drain system was installed to drain modern dehumidifiers at each level. Dehumidifiers remain but are longer used.

An eyebolt is installed at the underside of the ceiling structure at the fifth level above the floor hatch below to lift fuel to this level. Two windows are installed at each of the fifth through ninth levels.

The ninth level is separated from the watch room above by cast-iron panels surrounding the upper section of the ninth level stair with a cast-iron door swinging out into the stair. This section of the stair is difficult to climb because the open door blocks a section of the handrail and the outside part of the star treads. There is no handrail inside the cast-iron cylinder up to the watch room level.

The watch room is constructed similar to the storage levels below with cast-iron plate floors, brick walls, and painted cast-iron beam and panel ceilings. The spiral central stair terminates at this level at a semicircular floor opening surrounded by a metal railing. A steep cast-iron ship's ladder adjacent to the exterior wall with a very low handrail on the open interior side of the ladder provides access to the rotation room above.
The rotation room has cast-iron floor plates and brick exterior walls. The brick walls have been abrasive-blasted and areas of paint and earlier mounting holes and anchors remain where wall-mounted equipment has been removed. Electrical panels are mounted on a wood backboard on the wall with miscellaneous electrical conduits and lightning ground conductors. A modern aluminum pedestal is mounted in the center of the floor and extends into the lantern room above to support two modern beacon lights.

The ceiling area is open in the center with the underside of the lantern room cast-iron deck plates exposed around the perimeter of the ceiling area. A steep cast-iron ship's ladder adjacent to the exterior wall with a low handrail at the open interior side of the stair provides access to the lantern room above. A metal handrail surrounds the floor opening around the stair from the watch room below.

A heavy curved cast-iron door hung in a cast-iron frame provides access to the main exterior gallery outside the rotation room. The gallery has 16 cast-iron floor plates with a checkered-plate finish supported on 16 cast-iron brackets below.

Metal handrails surround the open side of the gallery with 16 vertical cast-iron support stanchions anchoring through the deck plates and brackets below. Support stanchions offset in at the deck plates approximately 10 inches and have ball caps at the top. Handrail sections between support stanchions were replaced with stainless steel replicas during the 1994 restoration and are in good condition. Railings have flat horizontal, top and bottom rails with round vertical pickets between the top and bottom railings.

Cast-iron panels surround the exterior walls around the rotation room with 15 recessed panels with molded trim around panel recesses. The lantern room gallery deck plates extend over part of the main gallery and are pitted and corroded. Rectangular vent openings are located at the wall below every other lantern room deck plate to serve as lantern room ventilation openings. A painted stainless steel ladder located on the north side of the lighthouse leads from the main gallery to the lantern room gallery above.

The lantern room has cast-iron deck plates that extend under the glass exterior walls to form the exterior lantern gallery deck. Sixteen vertical cast-iron mullions support the storm glass panels. Horizontal mulls divide each glass section into three vertical panels.
Cast-iron roof framing ribs and tension ring members are supported on top of the window mullions. There is no tin canopy sheathing or reflector. An aluminum ladder is hung inside the lantern room and can be moved outside to the lantern room gallery to provide access to the roof.

Copper roofing covers the upper side of the roof ribs and is painted white on the underside. All roof framing, tension ring members, window mullions, and the deck plates are painted white. Copper lightning ground conductors are routed from the ventilator down the interior of this space.

Modern beacon lights and an electric motor for rotation are installed on top of the lantern pedestal.

The exterior lantern room gallery has cast-iron floor plates with a 6-inch curb below the storm glass. A single cast-iron metal railing surrounds the lantern gallery supported by 16 vertical cast-iron stanchions.

The roof cornice is ogee-shaped cast iron with a cast-iron ladder rail. Roofing is standing seam copper with a bronze ventilation ball at the peak and a pinnacle at the top of the ball.

3. **Site Improvements:**

   **Evaluation:** Significant/historic.

   The Cape Canaveral Lighthouse is located at Canaveral Air Force Base in a restricted access area. The surrounding grade is flat grass lawn areas with natural vegetation north of the lighthouse.

   Brick masonry walls of an oil storage building remain to the south of the lighthouse and a modern small concrete block storage building approximately 6 feet by 8 feet in plan is located west of the lighthouse.

   A raised brick base surrounds the lighthouse with brick paving between the brick base and the oil storage building. Brick walks extend from the brick paving adjacent to the east and west sides of the oil storage building and join south of the oil storage building at a point. When viewed from the lighthouse gallery, the brick walks and paving and oil storage building appear in the shape of a ship pointing south.

   A brick walk extends west from the paving between the lighthouse and oil storage building to a former keeper's house site. The grass area on the east of the brick paving opposite the west walk is slightly recessed and it is believed that a brick walk leading to a second former keeper's house is located below the grass.
There are remains of brick pier foundations from the keeper's house east of the lighthouse. Apparently, remains of this house were burned at one time as part of firefighter training.

A single palm tree and a brick marker installed by the Boy Scouts are located south of the oil storage building. The entry door from the oil storage building is stored in a hangar just west of the lighthouse site. This hangar is also used to store restored rockets. They plan to open the hangar to the public for tours.

Brick exterior walls of the oil storage building remain. The oil storage building entry faced north toward the lighthouse cellar door at the south side of the brick paving area. North and south brick walls extended above the building roof to form gable end parapets. A granite doorsill leads into the oil storage building and an arched wood lintel remains above the doorhead. The entry door and doorframe are missing; however, door hinge pins remain on cast-iron plates imbedded in the brick walls.

The interior of the oil storage building has a brick floor and interior and exterior walls have remains of earlier whitewash or paint coatings. There are remains of dark gray paint on the brick flooring and some sprayed paint on the west wall.

The original entry door from the oil storage building is stored in the adjacent hangar and is clad on exterior surfaces with painted sheetmetal. The door is fabricated with vertical planks and has heavy cast-iron hinge straps bolted across the door near the top and bottom. The top of the door is arched. The exterior of the door appears to have been painted black and the interior was painted white.

A window opening has been cut into the south oil storage building wall opposite the entry door. The window is missing but wood window framing remains in the opening. Cast-iron vent pipes are installed through the north and south gable wall extensions. There are two vertically slotted drain openings at the base of both the north and south gable walls. Drain openings are one inch, or so, wide by two brick courses high. Interior walls have four rows of concrete poured into brick courses at both the east and west walls and returning about two feet on each of the north and south walls. The concrete was used with interior shelving for oil storage.

A concrete plaque installed in the brick paving just south of the cellar entry doors has embossed letters reading *Erected 1868 Rerected 1894.*
The lighthouse stands above a raised brick base. The brick base extends about two feet beyond the lighthouse walls and is raised above the surrounding grade by two brick courses with a rowlock cap course. The brick base has a thin cement cap and the entire base is painted a dark red brick color.

Areas of the cap are deteriorated and cracked and should be repaired and the brick has a few voids and openings that should be repointed.

A concrete well point is located to the southeast of the oil storage building.

The original lighthouse foundations remain a short distance from the lighthouse. Large granite slabs installed at the base of the lighthouse walls remain with remains of three cast-iron anchor bolts protruding from each slab. The interior edges of the slab form a circle with remains of the original brick floor. The Boy Scouts have installed a modern concrete pedestal marker at the center of the lighthouse area.

**Recommendations:** Restore the oil storage building and remove grass overgrowth from brick walks. Continue current site maintenance.

A long-term goal should be to probe for other remaining brick walks, expose the walks, and reconstruct the original keeper's houses and other original light station structures.

4. **Exterior Walls:**

**Evaluation:** Significant/good condition.

Exterior walls are clad with cast-iron panels. There are 15 courses of cast-iron wall panels with joints between panels centered over the panel below. The lower course of panels has a large integral cast-iron flange with vertical braces that is bolted to the supporting foundation with exposed bolts and nuts.

An ogee-shaped gutter is attached around the perimeter of the lighthouse at the floor of the third level to catch rainwater for a cistern.

An exterior cast-iron stair and balcony provide access to the entrance to the third level. The exterior stair consists of 20 cast-iron treads bolted to the exterior cast-iron wall panels. A metal handrail and vertical metal balusters are attached to the outside of the entry steps and balcony. Three cast-iron brackets below support the balcony. A hinged lifting davit is mounted to the wall above the balcony.

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Exterior wall panels have round window openings with cast-iron trim and funnel-shaped window linings. An exhaust vent for the interior chimney is located on the exterior near the ceiling of the fourth interior level and has a sheetmetal cap.

A cast-iron trim ring surrounds the tower near the top of the cast-iron panels at the base of the gallery brackets. The tower is painted with alternating black-and-white bands.

There is rust stain on the gallery brackets and the exterior wall panels between gallery brackets and at the cast-iron trim ring at the base of the brackets. Several areas of exterior paint are missing from the west side of the tower. There is rust and exfoliation at the third level entrance pediment and doorhead.

**Recommendations:** The tower was restored and painted in 1994 and should be cleaned and repainted. Rust areas should be removed and metal surfaces repaired as required.

5. **Cast-Iron Stair and Landings:**
   The central spiral stair is constructed with cast-iron treads with a checkered-plate finish. Treads within the cast-iron cylinder surround are bolted on the outside edge to the surround. Treads at the open stair sections at the fifth through ninth levels have integral cast-iron brackets to bolt to the tread below. Treads overlap at the center to form a center post.

   The spiral stair has 9-inch risers and treads are 13 inches deep at the outside edge, tapering to 4-1/2 inches deep at the 5-inch-diameter center support.

   The stair spirals to one-quarter circle landings at the second through fourth levels. From the fifth through ninth levels, the stair has a half-circle landings formed by the floor plates.

   A riveted, cast-iron, cylinder surrounds the stair from the first level to the floor of the fifth level. The stair is open from the fifth level to the ninth level and has a section of cast-iron cylinder surround and a door in the stair below the watch room floor at the top of the ninth floor level.

   There is no handrail at the stair in the areas with the cylinder surround. Cast-iron vertical handrail stanchions are mounted to the exterior of each tread at the open stair areas to support a continuous cast-iron metal handrail. Floor openings at the fifth through the watch room levels have handrail surrounds.

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Steeper cast-iron ship's ladder-type stairs lead from the watch room to the rotation room and a second steep ship's ladder stair leads from the rotation room to the lantern room. These stairs are installed with one side of the stair against the exterior wall and have low, cast-iron, railings on the open side of the stairs. The railings are too low and are safety hazards.

There are low headroom conditions at the spiral stair at the underside of each floor landing approximately 5 feet 8 inches in height and a lower headroom condition at the underside of the fifth-level landing. The watch room handrail around the floor opening is too low and should be raised for life safety.

Generally, the stairs are in good condition with light surface rust in areas.

**Recommendations:** Hand-tool clean rust areas and repaint stairs. Install additional handrails at higher elevations at areas where railings are too low for public safety. Install warning markings and resilient materials at locations where headroom height is too low.

6. **Interior Floor at Base of Lighthouse and at Living Levels:**

**Evaluation:** Historic/significant/good condition.

The cellar at the base of the lighthouse has a brick floor installed when the lighthouse was moved to its current location. The floor was previously painted and areas of paint remain. Two raised concrete pads are installed above the floor on the east side of the space. These pads were probably used for earlier emergency generators or other equipment and should be removed and the brick floor below cleaned and repaired.

The living levels have wood plank flooring installed in a radial pattern from the center of the lighthouse to the exterior walls. Each plank is tapered in length to form the radial pattern. Wood floors are painted dark gray.

**Recommendations:** Clean and repair the brick flooring. Remove out-of-service raised concrete equipment pads and repair the brick flooring below. Clean paint from brick flooring.

7. **Exterior Openings – Doors and Windows:**

**Evaluation:** Significant/historic/good condition.

The main entry doors at the third level are a pair of modern, flush, hollow-metal doors probably installed in the 1994 restoration. These doors are hung in the original cast-iron entry doorframe and swing out. A

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second pair of wood, two-panel, entry doors that swing in are hung at the interior of the entry doorframe. The wood doors have three glass lights in the upper panel openings. The entry door has a cast-iron plate sill, jambs, and head.

The entry doors at the cellar are a pair of riveted cast-iron doors with small metal louver openings in each door. The doors swing out and are hung in cast-iron frames with a cast-iron sill and head.

Interior doors at the stair cylinder are pairs of wood doors curved to follow the curve of the stair cylinder with two panels at each door. The cellar stair doors have wire mesh in the upper panel openings and doors at other living levels have three panels of glass in the upper panel openings. Stair doors are hung in cast-iron frames constructed as part of the stair cylinder surround.

Interior doors at the living levels consist of wood four-paned doors at bedrooms and closets and wood doors with two lower panels and 12 vision light openings at the upper panel area.

The door in the stair at the entry to the watch room level is a cast-iron door in a cast-iron frame. The rotation room door leading to the main gallery is a cast-iron door curved to follow the curve of the exterior wall installed in a cast-iron frame with a cast-iron sill. Heavy strap hinges and mounting bolts on this door appear to have been replaced with stainless steel units.

All windows are round porthole-type windows, approximately 15 inches in diameter. Window openings at exterior metal panels have cast-iron surrounds with a rope detail with flat sections in the mouldings at the top, bottom, and each side. A tapered cast-iron cylinder connects the exterior opening to the windows installed near the interior face of the walls. Most windows are installed in hinged wood frames with brass latches and open out. Each window has a single glass light. The glass from a window at the north side of the third-level living quarters is missing and has been filled with sheetmetal. Hinged wood frame screens are installed at the interior of windows with brass latches. Screen hinges appear to have been replaced. Molded cast-iron trim surrounds the interior of window openings.

**Recommendations:** Doors and frames are generally in good condition with areas of rust at exterior doors and frames that should be repaired. The modern, hollow-metal, main entry doors should be removed and replaced with reproductions of original doors. All exterior doors and frames should be painted. Windows are in good condition and only require painting. Replace glass in north window at third-level living quarters.

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8. **Watch Room:**

   **Evaluation:** Significant/historic/good condition.

   The main stair terminates at the watch room level. A steep narrower ship’s ladder stair leads from the watch room to the rotation room above. The watch room floor is constructed with smooth finished, painted cast-iron plates. The exposed underside of the cast-iron beams and floor plates at the rotation room floor above form the watch room ceiling. The watch room has two window openings located between cast-iron gallery brackets at the interior.

   Exterior walls are brick that have been abrasive-blasted with areas of gray paint over-spray from the floor paint.

   **Recommendations:** Continue current maintenance. Clean paint over-spray from brick walls.

9. **Rotation Room:**

   **Evaluation:** Significant/historic/good condition.

   The rotation room floor is painted cast-iron plates with a checkered-plate walking surface. A fixed modern aluminum lens pedestal is located in the center of the room and supports a lens platform at the lantern room above. A narrow, steep, cast-iron ship’s ladder provides access to the lantern room above. A cast-iron door at the exterior wall leads to the main exterior gallery.

   Rotation room walls are brick that have been abrasive-blasted with fragment of paint remaining. Walls have openings and mounting inserts remaining from earlier wall-mounted devices that have been removed. The out-of-service mounting devices should be removed and masonry wall openings should be patched. Brick masonry walls have four vertical cracks around the room that should be patched and repaired.

   Electrical panels are mounted on the wall on a wood backboard and electrical conduit, power outlets, and lights are mounted on the walls. Two copper lightning protection ground leads are also mounted on the walls.

   The undersides of the lantern room cast-iron floor plates are exposed around the perimeter of the room.

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10. Main Gallery:

Evaluation: Significant/historic/good condition.

The main gallery has painted cast-iron floor plates with a checkered-plate walking surface. Decorative cast-iron brackets extending from the cast-iron sheathed walls below support the deck plates. There are 16 brackets and deck plates. Cast-iron handrail stanchions anchor through deck plates and brackets to support metal railings around the open side of the gallery. Handrail stanchions offset approximately 10 inches at the deck level and are exfoliated and deteriorated. A ball cap tops each stanchion. Railings have a flat bar top and bottom rails spanning between stanchions. Vertical round pickets, spaced approximately four inches on center, fill the openings between the top and bottom horizontal rails. The railing sections between the cast-iron stanchions are believed to be stainless steel and were replaced by 1994 renovations.

All main gallery surfaces are painted black. The central cylinder has a cast-iron surround articulated with 15 recessed panels and the access door opening. Recessed panels have cast-iron mouldings around panels. The underside of the lantern room gallery deck plates extends over part of the main width of the gallery with vertical stiffener ribs at each edge of each deck plate. Every other lantern room deck plate has a rectangular opening at the central cylinder turned-down flange to serve as lantern room ventilation openings. A section of lantern room deck plate was left out for a ladder to access the lantern room gallery above. A stainless steel ladder is mounted in place for lantern room gallery access.

Recommendations: Abrasive-blast cast-iron surfaces to remove exfoliation and rust. Repair severely deteriorated handrail stanchions. Paint all surfaces.

11. Lantern Room:

Evaluation: Significant/historic/good condition.

Two modern electrical beacons and an electric rotation motor are installed on the modern lens platform. The original first-order Fresnel Lens was removed because of concerns from vibrations caused by nearby Kennedy Space Center rocket launches. The original first-order Cape Canaveral Lighthouse lens has been restored and is on display at the Ponce de Leon Inlet Light Station.

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The lantern room has cast-iron floor plates, windowsills, vertical window mullions, and roof framing and tension ring members located at the base of the roof canopy. There is no tin sheathing or reflector at the base of the canopy.

Each storm panel opening has two horizontal mullions to frame three glass panels in each of the 16 openings.

Cast-iron floor plates extend below the glass panels to form the exterior lantern room gallery decking. The lantern room gallery has cast-iron vertical handrail stanchions supporting a single flat bar handrail protecting the open side of the gallery. There is a raised sill below the glass at the intersection with the exterior deck that is rusting and exfoliating.

An aluminum ladder is hung from the canopy tension ring framing. The ladder can be removed to use on the exterior to provide access to the roof. Copper lightning ground leads are routed from the underside of the ventilation ball down the interior of the room. Ventilation grilles are located on vent openings in cast-iron windowsills. Interior surfaces are painted white and exterior surfaces are painted black.

**Recommendations**: Continue current interior maintenance. Abrasive-blast and repair deteriorated exterior metal surfaces and repaint exterior surfaces.

12. **Roof**:
   **Evaluation**: Significant/historic/good condition.
   The original copper roofing was replaced by the 1994 restoration. The original bronze ventilator ball, cast-iron cornices, and cast-iron lantern rail remain. A bronze pinnacle caps the ventilator ball. All exterior roof surfaces are painted black.

   **Recommendations**: Continue current maintenance.

13. **Electrical System**:
   **Evaluation**: Significant/non-historic.
   Electrical power panels are wall-mounted at the cellar and rotation room levels. The electrical service is routed into the base of the lighthouse on the north side from an underground service. Vertical surface-mounted electrical conduits extend from the cellar to the rotation room. Modern fluorescent lights are surface-mounted at ceiling areas in the cellar and living levels. Wall-mounted lights are located at storage,
watch room, and rotation room levels. Out-of-service electrical conduits and boxes are located at the west side of the base of the lighthouse. Power outlets are located at all levels to operate dehumidifiers that are not in use. Dehumidifiers and wall-mounted PVC drain piping for dehumidifiers remain.

**Recommendations:** Remove all out-of-service electrical conduit and equipment and patch mounting openings. Remove fluorescent lights at living levels and replace with compatible lighting. Remove dehumidifiers and associated drain piping and patch resulting openings.

14. **Lightning Protection System:**

**Evaluation:** Significant/historic/non-historic/good condition.

Two copper lightning protection ground leads are attached to the pinnacle and are routed down opposite sides of the interior of the lighthouse. Ground leads are routed outside to grounds at the cellar level. A cast-iron ground connection remains attached to the base of the north side of the lighthouse.

A loose section of copper ground cable is located at the base of the south side of the lighthouse.

**Recommendations:** Remove loose and out-of-service components.

15. **Probable Cost for Restoration:**

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<th>Description</th>
<th>Cost</th>
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<td>Site Improvements</td>
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<td><strong>Total Probable Costs for Restoration</strong></td>
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16. **Recommendations for Future Use:**

The Cape Canaveral Light Station should be opened for public access. Cape Canaveral Air Force Base tour buses pass the lighthouse during tours. There are plans for an adjacent hangar to be opened to tours to exhibit restored rockets.

Cape Canaveral Light Station has a rich history and served as a platform for scientists to view rocket test launches as early as 1950. The lighthouse is in generally good condition and could be opened for public visitation after safety improvements are completed. The gallery of this lighthouse provides an excellent view of the Cape Canaveral Air Force Station and adjacent Kennedy Space Center. If open for public visitation, this lighthouse would be similar to Ponce de Leon Inlet Lighthouse and would have over 100,000 visits each year.

A future goal should include reconstruction of other light station structures for exhibit.

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CAPE CANAVERAL LIGHT STATION SHORTLY AFTER MOVING TO ITS PRESENT LOCATION

ORIGINAL GRANITE FOUNDATION EAST OF THE PRESENT LIGHTHOUSE LOCATION
TYPICAL STAIR LANDING ABOVE FOURTH FLOOR LIVING LEVEL

STAIR OPENING IN CAST-IRON FLOOR DECK AT WATCH ROOM
DETERIORATED CAST-IRON PANELS
AT ROTATION ROOM GALLERY

CAST-IRON BRACKETS OUTSIDE
WATCH ROOM WINDOW
FLORIDA LIGHTHOUSE STUDY

Name: Cape Florida Lighthouse

Location: Dade County / Bill Baggs Cape Florida State Park, Southeastern tip of Key Biscayne off US Highway #1

Type: Brick Tower

Height: 95 feet

Daymark: Whitewashed brick conical tower with black lantern

Year Built: 1846

Owner or Operator: Department of Natural Resources, Division of Recreation & Parks

National Register Status: Listed

Active: No. Note: Went out of operation in 1878 when Fowey Rocks light went into operation.

Visitor Access: Thursday – Monday, tours at 10 am and 1pm

Contact: Park Ranger at: Lee.Niblock@dep.state.fl.us

Facilities: Museum, Gift Shop

1. History

The original Cape Florida Lighthouse was one of the first commissioned by Congress after Florida’s annexation as a territory of the United States in 1821. Constructed by Samuel B. Lincoln in 1825, the original tower was built to a height of 65 feet, “With walls five feet thick at the base, tapering off to two feet at the top.” During a Seminole Indian attack in July of 1836, this original tower was extensively damaged by fire.

The present tower at Cape Florida was constructed a decade later in 1846. While accounts differ as to whether the present tower is a “repair” of the original or a different structure, our historic research indicates that the present tower is an entirely different structure. Additionally, since the original had 5-foot thick walls at the base, and the current tower has four-foot thick walls at the base, it seems obvious that this tower is not a repair of the 1825 tower. In either case, the Cape Florida Lighthouse is one of the oldest standing structures in South Florida.

By 1853, it became apparent that the 65 foot masonry tower would need to be increased in height and the Lighthouse Service accepted George Meade’s recommendation to extend the height and install a second order fresnel illuminating apparatus. In 1855, the tower’s height was increased to 95 feet with a focal

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plane at 100 feet above sea level. A second order lens was installed along with triangular sashes, providing structural strength and allowing increased distribution of light.\(^2\)

Lighthouse Service records indicate that in 1869 the tower was reported to be in good condition, but a recommendation to wash the tower with cement was made. In 1875, even though the station was to be discontinued, additional repairs were made to the dwelling and cistern. In 1876 only “indispensable” repairs were made and in 1877 only “temporary repairs of an insignificant character…” were made. The light was discontinued on June 15, 1878 and the lens removed.\(^3\)

Subsequent to this period, the Lighthouse went into disrepair and deterioration. In 1886 the Lighthouse was reported to stand 800 feet from the tip of the island. In 1915, James Deering began the restoration of the tower and in 1918 installed the present foundation system. A 1926 hurricane eroded the top of the Cape, increasing the vulnerability of the tower to further decay and deterioration. The ensuing years involved protection of the tower foundation through efforts to control beach erosion and install sheet piling around the foundation.

The property and Lighthouse were eventually purchased by the State of Florida and on April 15, 1966 a deed to Cape Florida was accepted by Governor Hayden Burns from Mrs. Elena Saneiro Garcia.

Renovation work was carried on for the next four years; including the construction of a replica of the keeper’s quarters, new stairs to the tower and a new lens room. On October 3, 1970, Cape Florida Lighthouse was opened to the public, and during a gala celebration on July 4, 1978, 100 years after being extinguished, Cape Florida Lighthouse was re-lit for use as a navigational aid. It was deactivated again in 1987 and relit after the 1996 restoration as a private aid to navigation.

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2 Compilation of Lighthouse Service Records, MCPL. 1789-1878, National Archives, Washington, D.C.  
3 Ibid.

2. General Description:

The Cape Florida Lighthouse is a brick tower with a mortar wash coating on the exterior and whitewashed inside and out. The tower walls are solid brick, four feet thick at the base. The 1996 restoration replaced about \(\frac{3}{4}\) of the outer witch of brick that had been lost to weather and vandals. Four iron windows rise up

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the tower, three on the east-southeast side, stacked vertically at the ground floor, the first landing and the third landing. The fourth window is on the west-southwest side at the fourth landing directly over the tower entrance door. The brick walls rise 84' above the ground floor to the iron watch room and gallery where eight brackets cantilever from the walls to support the iron floor plates and decorative railing. The watch room has an arch top iron door to the watch room gallery on the south side and a window directly opposite on the north.

The lens room, an accurate replica of the original, was fabricated and installed in 1996, and is in excellent condition. All details and pieces match the original, down to the "V" crimped glazing retainers and thru pins, iron cupola, triangular windows and sash rails. Overall, the tower is well maintained. The tower was restored in 1996 including complete reconstruction of the iron top and a new iron entrance door. The iron stair was completed during that restoration but had been started during a previous project. The public path to the lighthouse is concrete lined with palm trees; the base of the tower has a brick path around it. A reconstruction of the keeper's quarters sits east-southeast of the tower.

3. Site Improvements:
   Evaluation: Significant, Good Condition
   The site is well maintained with good site drainage. A palm tree lined public path of concrete pavers leads from the main parking lot to the tower. Sea grapes and native plants are the predominant landscape elements. St. Augustine grass is planted in front of the keeper's quarters replica. A concrete seawall and rip rap run in front of the tower at the water's edge, to protect the shoreline. Paths are covered with mulch and lead to various site elements; markers, information signage, the replica keeper's quarters, cistern, cookhouse and privy. Ample parking is available to service the lighthouse and adjacent beach.

Recommendations:
Bill Baggs State Park is managed by the National Park Service and is well maintained. Continuing with the current maintenance plan is recommended.

4. Exterior Structure/Walls
   Evaluation: Significant, Sound
   The exterior walls are solid brick parged on the exterior with a lime mortar wash coating and painted with whitewash. The walls are in good condition, having undergone a major restoration in 1996 with approximately 70% of the first brick with being replaced. The exterior mortar wash shows signs of weathering and peeling, but overall appears to be well maintained. At the base of the tower on the waterside, some of the parging has worn down to the brick surface.

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Recommendations:
The exterior parging needs to be renewed where it has worn to the brick surface. The tower should be whitewashed on a regular schedule if possible. It should be emphasized that when the original parging weathered away, the brick experienced severe deterioration with approximately 70% being replaced. Even though that deterioration occurred over a period of 100 years, the parging and whitewash are protective coatings. As the whitewash wears, the parging is exposed and as the parging wears the brick becomes exposed. Whitewash typically last six months to a year and a regular application will save additional work and expense later. The 1996 restoration cost $1.1 million dollars. Had the parge coating and whitewash coatings been maintained, the brick replacement would not have been required. Maintaining the whitewash and parging is recommended on a regular schedule.

5. Exterior Openings/Doors & Windows:
Evaluation: Significant, Good Condition
There is an iron door, accessing the tower, at grade, 2'-8" wide x 5'-8" high, on the west – N.W. side. An iron window at grade level faces the ocean on the east side. This window is an out swinging casement, 25" wide x 41" high, with 12 lights 8" wide x 12" high, 3 across and 4 up. The window is held shut by a pin into the granite sill in the lower right hand corner. When the window is open a 24" long hook holds it in place by setting into an eye mounted 24" up from the bottom of the window. This eye is padlocked with a chain to an eye in the brick wall of the window opening. The window is mounted to granite jambs, sill and head 3 to 4" thick x 6"deep. The second window up the tower is directly above the ground floor window. This window is mounted directly to the brick at the exterior wall and has a 6-1/2" high steel base. The window is fixed, but is the same configuration as the ground floor window with 12 lites, 8" x 10" each. The third window is directly above the first two and at the third landing of the stair. The fourth window up the tower is directly over the entrance door at the fourth landing and matches the 2nd and 3rd windows.

Recommendations:
The windows were part of the 1996 restoration and are in good condition. No work is required.

6. Interior Finishes and Stairs:
Evaluation: Significant, Sound, Good Condition
The interior walls of the tower are brick, painted with whitewash. The tower walls taper in from sixteen feet at the base to 7'-6" at the top. The central iron stair is painted black, is 8' in diameter to the fourth landing and reduces to 6'-8" in diameter at the fifth landing. The fifth landing is a half circle, 8'-0" approx. in diameter. The stair to the Watch Room is steeper with 11-1/4" risers vs. 9" risers and 11" tread depth at

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the outside vs. 14" below the fifth landing. Eight risers lead through the floor plate to the watch room. Access from the watch room to the lens room is by eight 24" wide stair treads at the outside wall, tapering from 4-1/2" to 5-1/2".

**Recommendations:**
The iron stairs are in good condition. No work is required.

7. **Watch Room and Gallery:**

**Evaluation:** Significant, Sound, Good Condition

The iron watch room was fabricated in 1996 to replace the deteriorated original. The gallery is accessed through a 29-1/2" wide by 72" high half circle arched door. The door has 8 glass lites in the top half of the door, 2 at the top following the arch, 3 in the middle and 3 below those. The outer panes are rectangular, 5" wide x 8" high. The middle bottom pane is 4-1/2" wide x 8" high and the central pane is 4-1/2" wide x 10-1/2" high with its top a half circle. A north-facing window of paired out swing casements has been bolted shut with a steel astragal plate from the inside. Each window has 6 panes of glass, 4-1/2" wide x 8" high. The window opening at 23" wide x 28" high would vastly improve ventilation of the tower if it were operable. The watch room is 10'-8" in diameter and is fabricated from 12 steel sections bolted together. One section contains the door and one contains the window. The steel floor is fabricated from 8 radial sections. A contemporary guardrail is installed around the stair opening. The exterior balcony is octagonal and the 42" high railing replicates the original. The balcony is 20" wide at the narrow points and 26" wide at the octagon corners. Only minor deterioration of the railing was noted with only one section requiring repairs. Overall the condition of all ironwork of the watch room and gallery is excellent.

**Recommendations:**
Return the watch room window to an operable condition. Repair all rusted or deteriorated iron railing components. Where welding is used, a M.I.G. welding process is recommended.

8. **Lens Room:**

**Evaluation:** Significant, Sound, Good Condition, Non-original Lens

The lens room consists of an iron floor, glass walls with triangular glass lites, and exposed iron framework of the roof. The room was also refabricated in 1996 to replace the deteriorated original. A circular hole approximately 5'-6" wide in the floor leads down to the watch room. The structure of the lens sits within the opening. The original lens has been removed and replaced by a modern electric flashing beacon. The original pedestal base for the lens remains. A modern steel handrail surrounds the opening. The lens room is approximately 10'-0" in diameter.

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The walls consist of triangular glass lites in the original iron framework, all painted and in good condition. The triangular lites are set in 3 tiers, each 33" high; making the glass wall 8'-4" high to the top iron ring. An iron circular gallery surrounds the exterior of the room, approx. 24" wide and accessed by a ladder from the lens room gallery below. There are no guardrails, but a continuous handrail is located at the level of the second ring of glazing. All glazing is intact. The bottom of the iron roof structure is exposed at the ceiling of the lens room. Twelve iron rafters are joined at the center. The roof sheathing consists of 12 unpainted metal panels.

Recommendations:
No work is required other than ongoing maintenance.

9. Foundation and Floor Structure:
Evaluation: Significant, Sound
In 1989, Bender & Associates Architects (Bert L. Bender, Architect) prepared an architectural and engineering report on the Cape Florida Lighthouse. As part of that report, extensive testing was conducted, including excavation and testing of foundations. The report concluded:

"Stability Investigation of the Foundation/Pad
The on site and laboratory investigations and testing methods used, determined that the Portland cement/lime rock/silica sand structural concrete foundation pad was in excellent condition, with the concrete matrix showing excellent density, durability, and the potential of a very long service life.

The sampling, testing and evaluation of the subject concrete, both non-destructively and semi-destructively have proven that the subject concrete pad strength is well in excess of 4,000 psi compressive strength "in situ", and there appear to be no reactive aggregates, spalling or any other type of concrete distress present in the subject foundation."

Recommendations:
No work is required.

10. Roof Structure and Roof Covering:
Evaluation: Significant, Sound, Good Condition
The roof structure consists of 12 iron rafters approx. 6-1/2" deep and T-shaped bearing on the iron framework of the lens room. A circular ring supports the rafters and is bolted together in sections to form a
full circle. The interior ironwork is painted and in good condition. The roof sheathing consists of 12 metal panels unpainted at the interior, each centered on a rafter and pie shaped. The roof overhangs approx. 9' and the eaves form a curve. The eaves are also sheet metal. The rafters are attached to a circular 12" diameter iron ventilator flue, which also supports the lens. The roof sheathing is painted at the exterior. All metalwork interior and exterior is painted black. The paint at the exterior gallery walkway is weathered and in need of repainting. Minor rusting is evident at many of the bolted connections of the exterior.

Recommendations:
Clean minor rust to bare metal, prime with an inorganic zinc primer and repaint. No other work is required as all components are in good condition. The room should be cleaned and repainted on a regular basis.

11. Mechanical and Plumbing Systems:
There are no mechanical or plumbing systems in the tower.

12. Electrical Systems:
   Evaluation: Required, Good Condition
   All electrical systems are new dating from the 1996 restoration and are in good working order.

Recommendations:
No work is required.

13. Probable Cost for Restoration:

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
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<tbody>
<tr>
<td>Window Maintenance</td>
<td>$2,000</td>
</tr>
<tr>
<td>Renew Parge Coating, Lower Portion</td>
<td>5,000</td>
</tr>
<tr>
<td>Whitewash and Paint Interior &amp; Exterior</td>
<td>45,000</td>
</tr>
<tr>
<td>Bucket Lift Rental</td>
<td>3,000</td>
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<tr>
<td>General Conditions</td>
<td>15,000</td>
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<tr>
<td>Contingency</td>
<td>10,000</td>
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<tr>
<td>Subtotal</td>
<td>$80,000</td>
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</table>

Design Fees @ 12% \[N/A\]

Total Probable Construction Cost \[ $80,000 \]

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14. Recommendations for Future Use:

Currently the light is open to the public for guided tours. The current use of the lighthouse is appropriate, and should be continued.

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FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Cape Florida Lighthouse Photos
Date: 4/15/02

BASE OF MAIN STAIR. NOTE EXPOSED AREAS OF BRICK & ELEC. PANELS
INTERIOR WINDOW AT TOWER BASE. NOTE GRANITE SURROUND

MAIN DOOR OF LIGHTHOUSE AT INTERIOR

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
Cape Florida Lighthouse Photos
Date: 4/15/02

DETAIL OF CASEMENT WINDOW HINGE AT EXTERIOR
<table>
<thead>
<tr>
<th>Name:</th>
<th>Cape San Blas Lighthouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>Gulf County. 15 miles south of Port St. Joe on Highway 98, Port St. Joe, Florida, on Eglin Air Force Base</td>
</tr>
<tr>
<td>Type:</td>
<td>Iron skeletal tower with enclosed stairwell</td>
</tr>
<tr>
<td>Height:</td>
<td>96 feet</td>
</tr>
<tr>
<td>Daymark:</td>
<td>White square pyramidal skeletal tower with black lantern</td>
</tr>
<tr>
<td>Year Built:</td>
<td>1885 – In 1919 moved back one-quarter mile due north to present location</td>
</tr>
<tr>
<td>Owner or Operator:</td>
<td>United States Coast Guard</td>
</tr>
<tr>
<td>National Register Status:</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Active:</td>
<td>No. Deactivated in 1996.</td>
</tr>
<tr>
<td>Visitor Access:</td>
<td>No access</td>
</tr>
<tr>
<td>Contact:</td>
<td>Colonel M. Newberry, Environmental Director, Eglin Air Force Base, <a href="mailto:newberry@eglin.af.mil">newberry@eglin.af.mil</a></td>
</tr>
<tr>
<td>Facilities:</td>
<td>Two wood-frame keeper’s cottages and a brick oil storage house</td>
</tr>
</tbody>
</table>

1. **History:**

The Cape holds the dubious honor of having the most towers constructed (four) and destroyed (three) of any Florida lighthouse site.¹

The first lighthouse, a 65-foot brick tower, built on the cape in 1848 was destroyed by a hurricane three years later. The second brick tower also was destroyed by a hurricane in 1855 only ten months after construction. A third brick tower was constructed in 1859 and was in service until the start of the Civil War. Confederate troops removed the light and burned everything made of wood at the light station including the keeper’s houses in fear that Union troops would use the light station to guide their ships to the Cape to destroy the nearby salt mines. The tower survived the war only to become a victim of erosion eventually having its base surrounded by eight feet of water. The lighthouse was unable to be used during rough seas and fell in 1882.

The fourth, current lighthouse was completed and first lighted on June 30, 1885. Construction had been delayed because of an illness among the workers, a severe draught and the sinking of the ship carrying the material for both Sanibel Island Lighthouse and Cape San Blas Lighthouse. Fortunately, the ship sank...
in shallow water off of the coast of Sanibel Island and the lighthouse material was salvaged and reshipped to Cape San Blas.

The lighthouse was constructed 1500 feet from shore and over the years the shore eroded, leaving the lighthouse dangerously close to the shoreline. Plans to move the structure were cancelled several times over the years but in 1918 it was decided to move the lighthouse to its present location, 1,850 feet inland.

The light was decommissioned on January 18, 1996. The keeper’s houses had been left at the original location near the coast and in 1998, one of the two keeper’s houses was severely damaged by a hurricane. Later the two keeper’s houses were moved near the relocated lighthouse. One of the keeper’s houses has recently been rehabilitated while the other lighthouse remains in poor condition.

2. General Description:
Cape San Blas Lighthouse is a skeletal, tubular, cast-iron plate tower similar to Sanibel Island Lighthouse. This construction type was popular in the second half of the nineteenth century for its lightweight, strength, slow deterioration, and ability to be dismantled and relocated if necessary. The structure was also relatively inexpensive. The tower skeletal structure has five tiers topped by a watch room and a lantern room accessible from an exterior stairway to a central spiral stairway enclosed in a cast-iron cylinder. The center stair cylinder starts at the second tier about 20 feet above grade and is supported below by a cast-iron center column. A modern exterior metal stair provides access to a modern metal grill exterior entrance landing at the first tier level.

The exterior of the lighthouse is painted white with a black watch room and lantern room.

All three of the original two-over-four, double-hung wood windows are missing from window openings at the central cast-iron cylinder. One window opening is located on the northwest elevation at the fourth level slightly south of the entry door. Pieces of the wood sash are all that remain of the window in the cast-iron frames. Two other window openings are located on the southeast elevation at the third and fifth levels. Window sash have been completely removed and all of the window openings have been closed with plywood from the inside.

Three concrete steps provide access to the modern metal exterior stair on the north side of the lighthouse. The metal stairs and metal handrail rise to a modern metal grille landing outside the lighthouse entry. The metal grille landing leads to the bottom of the center stair cylinder.

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Inside the center stair cylinder, 26-inch wide cast-iron stairs spiral to the first one-quarter circle landing at the fifth tier. A wall-mounted, cast-iron handrail spirals along with the stair and is interrupted only at window openings. A steeper cast-iron stair continues from the first landing to the watch room level. A cast-iron ship's ladder-type stair at the watch room rises to the lantern room.

The floor of the watch room is constructed with cast-iron floor plates. A support pedestal with the original clockworks for the 1906 third-order bivalence lens, still intact, is located in the center of the watch room. Watch room wall panels have recently been repainted white. Wall areas where equipment was once surface mounted remain unpainted. Several cracks in the cast-iron floor plates should be repaired for visitor life safety.

The watch room gallery handrails are loose and have areas of heaving, exfoliation, rust, and pitting. Handrails should be repaired or replaced. Watch room gallery cast-iron floor plates and cast-iron wall panels have peeling black paint and areas of rust and exfoliation. An earlier mounting pedestal remains bolted to the gallery decking.

A metal ladder located at the watch room gallery provides access to the lantern room gallery above. The lantern room gallery has a single handrail supported by ten vertical handrail stanchions. The lantern room gallery cast-iron deck panels and handrails are rusted and have loose paint coatings.

The lantern room is constructed with cast-iron floor plates and ten vertical cast-iron mullions supporting glass storm-panels and cast-iron roof framing and tension-ring members above. Glass storm-panels are single, full-height panels. One panel, facing the Eglin Air Force Base, has a metal black out panel mounted to the interior of the cast iron mullions. Several pieces of purple colored inset glass at the floor lights are missing.

The underside of the roof framing is covered with tin sheathing and a tin reflector is installed above the lantern location. Tin surfaces are painted white and have light surface rust.

One windowsill member is badly rusted and exfoliated and should be removed and replaced.

The lighthouse has a copper dome roof and bronze ventilator ball at the top that was not accessible during our visit.
3. **Site Improvements:**

   **Evaluation:** Significant/non-historic

Cape San Blas, a peninsula west of Apalachicola, extends three miles west and than another 15 miles north forming the St. Joseph Bay. The lighthouse is located on the Gulf of Mexico at the southwest point of the peninsula on Eglin Air Force Base.

The light station complex originally included two keeper's quarters, and a one-story brick oil storage building. The lighthouse was moved to its current location in 1919. The keeper's houses were moved near the base of the lighthouse after a hurricane nearly destroyed one of the houses in 1998.

The lighthouse, two keeper's houses, and the oil storage building are enclosed by a chain link fence and a locked gate. The fence enclosure is bent near the southeast keeper's house. The two identical but opposite hand keeper's houses are two-story wood frame buildings with one-story kitchen additions.

One of the two keeper's houses has been rehabilitated and has new roofing, new interior finishes, and new exterior paint. The rehabilitated keeper's house has a covered porch with tongue-and-groove wood decking. A plywood panel covers the front entry door and a handicap entrance ramp has been constructed on the east side of the house. The rehabilitated keeper's house is located southwest of the lighthouse.

The other keeper's house located south of the lighthouse is in poor condition with a sagging and deflected roof. The exterior porch and porch columns are missing and the porch roof overhangs are not supported. The house is boarded and secured.

North of the rehabilitated keeper's house across the paved road is a one-story oil storage building. The oil storage building has painted brick exterior walls, a wood door, wood louvers at both gables and a deteriorated metal roof. The vertical tongue-and-groove wood entry door with metal hinge straps is located sixteen inches above the existing grade and has an arched brick head above a wood lintel.

Vegetation within the chain-link enclosure consists of a grassed lawn and a few pine trees. A concrete drive west of the light station connects to the original light station location and circles the lighthouse.
**Recommendations:** The fence surround should be repaired at the southeast keeper's house to keep vandals out of the lighthouse area. Future improvements should include the rehabilitation of the second keepers' house. Property and ground maintenance should be maintained.

4. **Metal Cylinder and Tower Structure:**

**Evaluation:** Significant/deteriorated.

Exterior paint coatings are in generally good condition but show areas of rust below the watch room gallery, on the exterior center stair cylinder and areas of coating failure below horizontal struts and tension rods.

Nine circular cast-iron foundation disks anchored to concrete slab foundations support the Cape San Blas Lighthouse. The two-piece, cast-iron lighthouse foundation disks are anchored to a concrete foundation slab with anchor bolts and support vertical cast-iron columns. Cast-iron horizontal struts and tension rods connect to each disk. Paint has weathered at the disks and minor rust accumulation is present.

All central cylinder exterior wall panels are in good condition with weathered exterior coatings. Exterior wall panels join with integral beaded drip edges.

**Recommendations:** Abrasive-blast all metal surfaces to remove remaining paint coatings, rust, scale, and exfoliation. Remove lead-based paint in accordance with state and federal regulations. Contain blast residue and legally dispose of material. Experiment with blast media to find the gentlest media available that will clean the surface for a SSPC "near white" condition. Apply a zinc primer coating to cleaned metal surfaces on the same day they are abrasively blasted. Coat surfaces with a paint coating system designed for marine environments such as the moisture-cure urethane coating system manufactured by Wasser High-Tech Coatings.

Apply a stripe coat of the intermediate coating by brushing on edges, crevices, nuts, bolts, rivets, welds, and tight metal-to-metal areas before joint sealer application. Install joint sealer at all joints and crevices and install paint topcoat.

Inspect and repair all tension rods, turnbuckles, and anchor lugs, and tighten tension rods.
5. **Exterior Openings – Doors and Windows:**

**Evaluation:** Significant/deteriorated.

The cast-iron entry doorframe extends about 4 inches from the face of the stair cylinder. Light surface rust is present on the doorframe and trim.

The exterior door trim and protruding arch/frame is a character-defining feature of the lighthouse. Brackets adorn the top of the doorjambs to support the cornice/head that features a half circle arch in the center with a raised five-point star. The pair of metal doors appear to be original to the lighthouse and are in good condition with small areas of rust and corrosion. A padlock and new steel locking device are currently used to lock the lighthouse.

The lighthouse has three wood window openings with one on the southeast elevation and two on the northwest elevation. All window sash are missing from the lighthouse and window openings have been closed with plywood panels. Partial remains of the window sash are located at the southeast window opening. The original windows were wood double-hung windows with upper sash approximately one-half the height of the lower sash with a two-over-four light arrangement. When fully open, the top of the lower sash would extend above the top of the upper sash.

Window frames consist of cast-iron jambs with parting beads and cast-iron sill and head sections.

**Recommendations:** Repair the doorframe and casings to good condition and repaint the doorframe and door.

Repair window jambs and frames. Replace pulleys. Install new custom-fabricated wood window sash to replicate original windows. Install top sash fixed and lower sash to operate with brass chain sash cords and cast-iron window weights.

6. **Cast-Iron Stairs:**

**Evaluation:** Significant/deteriorated.

Three concrete steps provide access to a exterior modern metal stair with a modern metal handrail that rises to a modern open metal grille landing. The modern metal landing is bolted to the base of the center stair cylinder.
The 26-inch-wide interior cast-iron spiral stair has a cast-iron central slotted column, open risers, raised diamond-pattern treads, and a one-half circle landing at the fifth level. The stair is in good condition with minor areas of surface rust and worn black paint. A narrower cast-iron spiral stair extends from the fifth-level landing to the watch room, and a spiral cast-iron ship's ladder stair rises from the watch room to the lantern room.

The cast-iron stair handrail is bracket-mounted to the inside of the cylinder wall and is painted black and continues the height of the stair with intermediate stops at window openings.

**Recommendations:** The stair and handrail are in good condition but require repainting. Sandblast and repaint stair and handrail.

7. **Watch Room:**

**Evaluation:** Significant/deteriorated.

Watch room interior walls are covered with rolled metal panels secured in place by vertical metal battens. Interior walls have recently been repainted white. Two holes through the cast-iron wall panels were used to mount modern exterior lights outside the watch room level.

The watch room floor is composed of eight sections of white painted, raised diamond-patterned, cast-iron panels. There are minor cracks in the cast-iron deck plates along the connection joints. Cast-iron floor plates have areas of surface rust.

Exterior architrave beams below the watch room floor have large areas of rust.

A lantern pedestal supports the lens above and the original rotation clockworks is located in the center of the watch room. The rotation clockworks is located in a glass box with a brass frame and is in good condition; and is one of a few such mechanisms still remaining in Florida lighthouses. A pulley for the original weights, used to operate the clockworks to rotate the lens, remains below the lens pedestal. The rotation weight remains inside the center cast-iron stair support.

The ceiling of the watch room consists of the underside of the eight cast-iron lantern room floor plates that are painted white. A cast-iron ship's ladder rises to the lantern room above.
The watch room has a pair of exterior gallery doors that are similar to the entry doors at the base of the lighthouse and appear to be original to the lighthouse. The two panel cast-iron doors extend from above the floor plates to the underside of the cast-iron cornice above. Doors are painted white on the interior and black on the exterior and have areas of rust and exfoliation and are exfoliating and splitting at seams near the bottom of the doors.

**Recommendations:** Repair the door, doorframe and casings to good condition. Install weatherstripping and repaint doorframe and door. Repair door lock.

Repair or replace cracked cast-iron floor plates. Restore or replace architrave beams below watch room floor and corner casting units at top of corner columns.

8. **Watch Room Gallery:**

**Evaluation:** Significant/deteriorated.

The watch room gallery has cast-iron handrail stanchions that bolt through the deck and support brackets below. Ball caps screw to the top of each stanchion. The top handrail is a two-piece unit. Intermediate vertical railings are round bars and horizontal rail members are flat bars. Railing sections half-lap at posts with a top rail fitting at the posts.

Gallery metal railings are in poor condition. Several stanchions have vertical splits and larger areas of exfoliation. The top rail is split, heaved and loose in areas. The structural integrity of the railings have been compromised by corrosion. Intermediate vertical pickets at railings are severely pitted with areas of lost metal.

The watch room gallery deck is constructed with cast-iron floor plates with a raised diagonal pattern. An out-of-service mounting bracket and pole is attached to one of the floor plates. A metal ladder is attached to the gallery deck for access to the lantern room gallery. The decking is in good condition with minor rust. The ladder is in good condition but needs to be repainted.

A cast-iron soffit and cornice wraps the cylinder below the exterior of the lantern room gallery deck above and is badly rusted and exfoliated. The cornice should be removed and repaired. The cast-iron soffit has scallop-shaped holes that function as air-vents for the lantern room and is badly exfoliated and should be removed and repaired or replaced. The cast-iron cylinder is in good condition but has minor rust and exfoliation at joints.
**Recommendations:** Repair or replace handrail stanchions. Remove and repair deteriorated railings. Fill holes at the gallery floor deck. Sandblast and repaint all surfaces. Remove out-of-service brackets from deck and fill mounting holes.

After abrasive-blasting exterior wall surfaces, repair exfoliated areas. At the gallery soffit, remove heavily exfoliated soffit panels and restore damaged sections to original conditions or replace entire panels. Reinstall to match original installations. Paint concealed surfaces before reinstalling. Add copper insect screening above ventilation openings in soffit to keep wasps and insects out of the building. Remove the soffit cornice sections, repair to good condition, and reinstall units.

9. **Lantern Room:**

**Evaluation:** Significant/deteriorated.

The ten-sided lantern room has vertical cast-iron mullions that support ten, full-height glass storm panes. Sheet metal covers the cast-iron roof support ribs and the underside of the copper dome and a sheet metal reflector is located above the lantern over the tension ring. The sheet metal reflector and cast-iron tension rods and ring have light surface rust. The black out panel on the northeast side of the room is cracked. One of the glass storm panes has a small crack at the base and one of the cast-iron windowsills is badly rusted and exfoliated and should be replaced.

The room has recently been painted white. Floor plates and ventilation grilles are in good condition with light surface rust. A beautiful 1906 third-order bivalve lens remains; however, the rotation mechanism is not operating. Sliding dampers and knobs exist in half of the brass vent plates. Cast iron sills have areas of severe deterioration. Drapery hooks remain in place above cast-iron mullions.

The lantern room deck is comprised of 10 cast-iron deck plates that form the interior and adjacent exterior gallery flooring. The deck plates have a raised diamond-patterned surface. Deck plates and grilles have light surface rust.

Several pieces of purple glass are missing from the floor inserts.

**Recommendations:** Abrasive-blast, clean, and repaint vertical cast-iron mullion units and brass window stops and pressure bars. Install new impact resistant glass. Replace badly rusted bolts and nuts at the base of the vertical mullions.

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Examine the cast-iron floor deck for cracks or loss of structural integrity and repair to good condition. Remove floor lights, clean, and repaint units and reinstall on original locations. Clean original glass in floor lights and replace missing pieces.

10. Lantern Room Gallery:

**Evaluation:** Significant/deteriorated.

The lantern room gallery cornice is constructed of cast iron with an ogee profile and raised cove mouldings. Cornice areas are rusting. The railing at the lantern room gallery has round cast-iron stanchion posts that support a single horizontal iron flat bar top rail. The top rail half-laps at the post joints with a nut on top of each post above the rail. Railings are rusted and exfoliated. The low, 20-inch-high railing, with open sections below, is a safety hazard.

**Recommendations:** Repair or replace the original railings with rebuilt components to match the original configuration. Add additional horizontal railings as required for life safety.

Abrasive-blast and repair the lantern room cornice.

11. Roof:

**Evaluation:** Significant/deteriorated.

The original copper roof canopy, cast-iron cornices, and bronze ventilator ball remain in place. We were unable to gain access to the roof and it was difficult to determine the condition of the roof from the ground or gallery areas. The roof appears to be recently repainted and in good condition. We anticipate pinhole leaks are present at the canopy and some standing seam canopy joints are opening up from exposure.

Roof retainer bars are loose and in danger of blowing off in a storm. One retainer bar was laying on the gallery deck.

**Recommendations:** Carefully remove the sheetmetal ceiling below the roof framing. Abrasive-blast the cast-iron framing surfaces and repair structural components to good condition. Paint metalwork. Gently clean the sheetmetal ceiling to remove paint. Reinstall ceiling.

Inspect copper roofing from a ladder or scaffolding. Chemically remove paint coatings from roofing and the ventilator ball. Patch and repair holes, leaks, and roof panel joints. Repair and reattach roof retainer bars. Install copper screening over openings at the roof ventilator to keep wasps out. Repaint roof and

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ventilator ball. Install new lightning ground rod and conductor and connect to base of pinnacle.

12. **Electrical System:**
   **Evaluation:** Significant/non-historic.
   The is no current electrical service to the lighthouse. Some out-of-service electrical components remain.
   **Recommendations:** Install a new electrical system designed to provide minimal visual impact of the electrical components in the lighthouse. Add lights at interior of the lighthouse for visitor safety.

13. **Lightning Protection System:**
   **Evaluation:** Significant/ non-historic.
   A lightning rod is mounted to the copper ventilator ball at the top of the lighthouse and appears to be grounded to the metal structure.
   **Recommendations:** Install a new rehabilitated master label lightning protection system using the existing pinnacle and new ground conductors. Install the ground conductors to minimize the visual impact of the lightning protection system at the historic lighthouse.

14. **Probable Cost for Restoration:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
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<tr>
<td>Site improvement</td>
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15. **Recommendations for Future Use:** Cape San Blas is currently owned and maintained by Eglin Air Force Base. The lighthouse is located on government property and there are no plans to open the lighthouse for public visitation.

We recommend stabilization of the lighthouse with the installation of replacement windows that match the original design, repairs to the roof canopy and the repainting of exterior surfaces of the lighthouse.

The second identical keeper’s house should also be stabilized with a new roof, repairs to the structure, foundation and horizontal wood siding.

The lighthouse is located in an area that is readily accessible to the general public and is near a public beach access. We suggest the lighthouse be restored and public visitation improvement be completed and the light station be opened for public visitation. The restored keeper’s house can be used as a visitor orientation center and museum.

A long range goal should include rehabilitation or restoration of the second keeper’s house.

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UNRESTORED KEEPER’S HOUSES LOCATED WITHIN THE CHAIN-LINK FENCE ENCLOSURE

RESTORED KEEPER’S HOUSE WITHIN THE CHAIN-LINK FENCE ENCLOSURE
Name: Cape St. George Lighthouse

Location: Franklin County on southernmost point of Little St. George Island between Apalachicola Bay and Gulf of Mexico

Type: Conical brick

Height: 74 feet

Daymark: White conical tower with black lantern

Year Built: 1852

Owner or Operator: U.S. Coast Guard operated by the Florida Department of Environmental Protection, Apalachicola National Estuarine Research Reserve.

National Register Status: Listed

Active: No

Visitor Access: Accessible only boat

Contact: Roy Ogles, Environmental Specialist III, Resource Management Coordinator
          Apalachicola National Estuarine Research Reserve
          Roy.Ogles@dep.state.dep.fl.us

Facilities: Remains of a keeper's house and oil storage building, both partially destroyed by hurricanes.

1. **History:**

   The current Cape St. George Lighthouse was built in 1852 as the third lighthouse on Little St. George Island. The first masonry tower built in 1833 and the second masonry tower built in 1847 were both destroyed during high winds. Cape St. George Lighthouse is the second oldest lighthouse on the Gulf Coast of Florida.

   In 1852, the current 74-foot brick tower was built to withstand high winds over a solid piling foundation. Walls are solid brick with a header course every nine courses. Walls taper from four feet thick at the base to two feet thick at the top. *For the interior and exterior walls workers used hydraulic cement, a mixture of lime and clay which hardens under water. The tower's six windows were reinforced with strong frames and iron bars. A circular stair leads from the ground to within six feet of the lantern, with an iron ladder completing the ascent.*

   Edwin Bowden of Franklin County, the construction manager in 1852, used two-thirds of the brick remaining from the ruins of the second 1847 lighthouse to build the new lighthouse. A third-order Fresnel...
lens, installed in 1859 was visible 14 miles at sea, and originally had an oil lamp and later had an electric light powered by a gasoline generator.

During the Civil War, Confederate troops moved the third-order Fresnel lens to Apalachicola to hold in safe keeping during Union occupation of St. George Island. The light was replaced in 1940 with a modern optic and the lighthouse was automated in 1949. A 1961 fire destroyed a single-story wood frame house, a two-story brick house, a pump house, stable, storeroom, and generator building at the lighthouse site.

In 1995, Hurricane Opal further weakened Cape St. George lighthouse causing the masonry tower to lean towards the ocean. Cape St. was in serious danger of collapsing into the sea. The Cape St. George Lighthouse Society was formed to help save the lighthouse and in 1999 repairs commenced to stabilize the lighthouse in vertical alignment with a new concrete foundation. The Cape St. George Lighthouse Society’s lease on the lighthouse expired upon completion of the stabilization project. The U.S. government currently owns the property and is in the process of turning the property over to the Florida Department of Environmental Protection.

A causeway has been constructed from the mainland to nearby St. George Island but Little St. George Island remains only accessible by boat.

2. General Description:

The Cape St. George Lighthouse is constructed of brick masonry in a conical shape. Exterior masonry walls are finished with painted stucco. Interior masonry walls were probably originally whitewashed and are now painted; however, paint is missing in many areas. Window opening shafts through the tower have granite surrounds on the exterior and brick surrounds on the interior.

Local volunteers removed the interior stair during the 1999 stabilization project. The original stairs were probably constructed of wood but were replaced in the mid-80s with a metal stair. Wood stair treads were set in the masonry wall at the outer edge and attached to a wood center post at the center of the lighthouse. Wood pegs and eyebolts once used to secure the handrail remain set in the brick wall. The handrail was probably a rope handrail similar to the one at Egmont Key Lighthouse.

The masonry tower has five window openings in a semi-random pattern with two windows on the east side, one window on the south side, one window on the northeast side, and one window on the north side of the lighthouse. Windows are missing and all upper window openings have been covered with plywood.

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The watch room floor possibly constructed of wood is missing leaving the lighthouse open to the watch room ceiling constructed of brick in a radiating circle pattern. A wood beam used to remove the stairs in 1999 remains mounted below the center of the brick ceiling.

The access opening to the lantern room remains at the east side of the watch room ceiling. As the stair is missing, we were unable to gain access to the lantern room during our visit to the lighthouse.

The exterior main gallery deck is formed with a soapstone coping that cantilevers about one foot outside the brick masonry lighthouse shaft below.

A heavy metal railing system surrounds the gallery with eight vertical support stanchions that curve-in at the top and are attached to the outside of the lantern room vertical mullions. Three horizontal railings surround the gallery and attach to the vertical stanchions.

Exterior lantern room walls have vertical support mullions supporting glass storm panes. Some of the glass panes are cracked and other openings have been covered with plywood.

The vertical window mullions also support the roof ribs and tension ring. When viewed from the ground, the painted white underside of the roof canopy appears to have areas of surface rust. The roof surface is covered with a copper dome with a ventilator ball at the roof peak.

In 1999, the Cape St. George Island Society initiated a lighthouse stabilization project that consisted of removing sand from the high side of the lighthouse and gradually stabilizing the lighthouse in a vertical position with a series of new pilings and a new concrete foundation.

The lighthouse is in poor condition although as a result of the 1999 stabilization project the lighthouse seems to be structurally secure. The interior stairs and watch room level platform are missing. The lantern room is exposed to the weather by broken and missing glass storm panes.

3. **Site Improvements:**

**Evaluation:** Significant/threatened.

Little Cape St. George Island lies within a forty-mile-long string of barrier islands along the Florida Panhandle Coast and is located nine miles offshore in the Gulf of Mexico southwest of Apalachicola Bay.
Little St. George Island is only accessible by boat. The lighthouse site is maintained by the Apalachicola Natural Estuarine Research Reserve but is cluttered with construction debris and abandoned machinery left by the contractor of the 1999 stabilization project.

Northwest of the lighthouse, a brick chimney with square base and rotated chimney flue are all that remain of the keeper’s house. Most of the debris from the 1961 fire has been removed for visitor safety. The oil storage building, north of the lighthouse, is in poor condition with only two masonry walls still standing. The wood roof framing with corrugated metal roofing has caved on top of the other two brick walls. A tabby concrete floor lies in pieces around the oil storage building site.

Main vegetation at the site consists of sea oats, and other native beach ground cover. Beyond the sand dunes are palms and pine trees.

The lighthouse is located on the beach and the concrete foundation is surrounded by water at high tide. Tidal surges threaten the lighthouse structure.

**Recommendations:** Construction debris from the 1999 stabilization project should be removed. The keeper’s house chimney and the remains of the oil storage building should be stabilized and preserved. Property and grounds maintenance should be continued.

A coastal engineering study should be completed to assess the potential for additional coastal erosion, tidal surge threats, and protection alternatives.

4. **Masonry Walls:**

**Evaluation:** Significant/deteriorated.

Exterior brick masonry walls have a stucco finish with hairline cracks and several vertical grooves cut into the brick walls at the northeast base of lighthouse. Grooves are 1-inch² in depth and are probably the result of driving pilings at the base of the lighthouse during the 1999 stabilization project.

Exterior surfaces are painted white, are severely mildewed, and have several rust stains. The stucco coating appears to be in good condition and well bonded. Door and window openings have granite surrounds. Granite windowsills extend about one inch over the bottom of window openings on the masonry tower.

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Interior masonry walls are painted brick with 30 percent of the paint missing to expose brick units. Areas on the interior masonry walls need to be repointed. Interior masonry walls corbelled slightly to create a ledge support for stair treads.

During the 1999 stabilization project, pilings were driven into the sand around the base of the lighthouse and fourteen, 18-inch-diameter by 3-foot-4-inch-long cores were cut out of the base of the brick lighthouse foundation walls. The openings in the lighthouse foundation walls were filled with concrete and fiberglass rebar cages. A ten-foot-wide concrete base was poured around the base of the lighthouse with vinyl sheet piling surround and is raised above the surrounding beach sand. Water surrounds the concrete base at high tide.

**Recommendations:** Pressure-wash and clean exterior surfaces to remove soiling and mildew. Route out and repair cracked stucco surfaces. Repaint the exterior with long-life masonry coating. Clean interior surfaces to remove loose paint coatings. Repoint holes and voids at interior masonry walls with lime mortar. We suggest the historic brick at interior walls not be painted to leave the brick exposed to the view.

5. **Stairs:**

**Evaluation:** Significant/missing.

The stairs at the interior of the lighthouse are missing but the footprint of the original stair remains on the interior masonry wall. The original stairs were probably constructed of wood and were replaced in the 1980s with a metal stair. The brick steps out slightly along the exterior masonry wall to create a ledge support for stair treads. Outside edges of stair treads were built into the masonry walls. The bottom of the stair was on the east side of the masonry tower.

The metal stair was removed in 1999 during the stabilization project. A temporary wood beam for hoisting was installed below the watch room brick ceiling and the stairs were lowered to the ground and removed by volunteers. A remaining piece of the metal stair hangs from the masonry wall.

Wood pegs and eyebolts set in the brick wall and used to support at stair handrail remain in place. The handrail supports appears similar to the rope handrail supports at Egmont Key Lighthouse.

**Recommendation:** Reconstruct a wood stair at the interior of the lighthouse to match the original stair design.
6. **Interior Floor at Base of Lighthouse:**

   **Evaluation:** Significant/deteriorated.

   A concrete floor topping was installed during the 1999 stabilization project. The resulting concrete floor is higher in elevation than the original floor level and has a rough troweled finish. Excess concrete is splattered on the lower brick walls.

   **Recommendations:** The original floor was washed away when the lighthouse was damaged by the hurricane. The existing concrete floor should be ground down for a smoother finish and the excess concrete splatters should be removed from the brick at the base of the lighthouse.

7. **Exterior Openings – Doors and Windows:**

   **Evaluation:** Significant/missing.

   The entry door and frame and all five windows are missing from the lighthouse. Window and the door openings have granite surrounds installed flush with adjacent brick surfaces. The entrance door opening has wood blocking attached in the granite surround. Rusting and exfoliated metal hooks from a metal door grille at the entrance door opening are mounted between the brick and the granite.

   Granite sills at window openings extend about one inch over the masonry structure below. Window openings are 2 feet 9 inches wide with granite surrounds on the exterior and brick surrounds on the interior. One window opening is located near the base of the lighthouse. The other four window openings are located in a semi-random pattern alternating in height around the lighthouse.

   There are cracks between the granite surround and the brick at doors and window openings.

   **Recommendations:** Replace the main entry door, doorframe, and windows with a new wood door, doorframe and windows custom-fabricated to replicate the original design. Replacement wood windows should be four-over-four light, double-hung, wood window units as illustrated in historic photographs. Historic photographs illustrate wood shutters attached to the exterior brick tower. Wood shutters should also be custom-fabricated to match original units and installed over window openings.

   Wood closure panels should be maintained in open window openings to protect the interior until replacement windows are installed.

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8. **Watch Room:**
**Evaluation:** Significant/missing.
The watch room floor platform has been refloved leaving the entire brick tower open to the underside of the lantern room floor. The watch room ceiling has a circular radiating brick pattern with a small center opening. An east ceiling opening was used to access the lantern room above.

There is one window opening at the watch room level. The spiral stair probably terminated at a wood platform at this level and a metal ladder provided access to the lantern room above.

**Recommendations:** Rebuild the watch room floor platform to match the original design. Provide a metal ladder to access the lantern room.

9. **Lantern Room:**
**Evaluation:** Significant/inaccessible.
We were unable to access the lantern room during our visit to the lighthouse. The eight-sided room has eight vertical mullions supporting glass storm panels. Storm panels sections are divided in half with horizontal mullions for a total of 16 glass panel openings. Several of the storm panel openings have been closed with plywood. Glass remains in the majority of the openings and several of the glass panes are broken. One window opening is used for access to the lantern room gallery.

When viewed from the ground, it appears that the underside of the copper canopy is painted white and has areas of surface rust.

**Recommendations:** Remove glass storm panels and replace units with polycarbonate laminated safety glass. Abrasive blast metal surfaces and repair rusted and exfoliated areas. Repaint all areas. Plywood panels should be installed in any open window opening for stabilization until new glass can be installed.

10. **Lantern Room Gallery:**
**Evaluation:** Significant/inaccessible.
We were unable to gain access to the lantern room gallery during our visit to the lighthouse. The gallery is supported by a 5-inch-thick soapstone deck 14 feet in diameter that cantilevers one foot beyond the face of the masonry tower. Black painted cast-iron railings surround the gallery with three sections of horizontal rails that bolt to eight vertical stanchions attached to the stone coping. The eight cast-iron vertical stanchions curve above the horizontal rails to attach to the vertical lantern room window mullions.

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**Recommendations:** Abrasive-blast and restore or replace deteriorated sections of gallery railings. Repaint railings. Examine and repair the deck surfaces, as required.

11. **Roof:**
   
   **Evaluation:** Significant/deteriorated.
   
   The original copper roof canopy, copper cornices and bronze ventilator ball remain and appear to be in fair condition when viewed from the ground. We were unable to gain access to view the outside of the canopy and ventilator ball. We anticipate minor pinhole leaks are present at the canopy and some standing seam canopy joints are probably opening up from exposure.

   **Recommendations:** Inspect copper roofing from scaffolding. Chemically remove paint coatings. Patch and repair holes and leaks and panel joints. Repaint all surfaces.

12. **Electrical System:**

   **Evaluation:** No electrical system remains.

   Previous underground electric power to island was damaged and is no longer in service.

   **Recommendations:** After restoration is complete, provide electrical power to the lighthouse to operate lights at the interior of the lighthouse.

13. **Lightning Protection System:**

   **Evaluation:** No lightning protection system

   A footprint of a previous lightning ground wire remains on the east exterior side of the lighthouse. There is no lightning protection system at the lighthouse.

   **Recommendations:** Install a new master label lightning protection system with one lightning rod mounted at the top of the ventilator ball.

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14. *Probable Cost For Restoration:*

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<th>Description</th>
<th>Cost</th>
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<td>Metal Restoration and Replacement</td>
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<td>Masonry &amp; Stucco Restoration</td>
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<td><strong>Total Probable Cost for Restoration</strong></td>
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15. *Recommendations for Future Use:*

Cape St. George Lighthouse on Little St. George Island is maintained by the Apalachicola National Estuarine Research Reserve. The island is only accessible by boat. The office of Coastal & Aquatic Managed Areas takes groups of people to study birds and native vegetation on the island. There are no doors or windows in the lighthouse to secure the lighthouse from vandals or the weather. Initial restoration should stabilize the lighthouse by protecting the interior of the structure from the weather.

The United States Coast Guard is willing to relight the lighthouse as a historic structure if the lighthouse is restored and in stable condition. Stairs, windows, and an entry door need to be reinstalled on the lighthouse. Afterwards, the lighthouse could be open for public visitation. The remains of the keeper’s house chimney and the remains of the oil storage building should be stabilized.

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REMAINS OF OIL STORAGE BUILDING NORTHWEST OF LIGHTHOUSE

NORTH VIEW AT TOP OF LIGHTHOUSE

COLLAPSED ROOF AND BRICK WALLS OF OIL STORAGE BUILDING
TYPICAL WINDOW OPENING AT INTERIOR OF LIGHTHOUSE

EAST VIEW OF LIGHTHOUSE

NEW CONCRETE FLOOR AT BASE OF LIGHTHOUSE
TWO OF FOURTEEN BRICK CORES DRILLED OUT OF BRICK LIGHTHOUSE FOUNDATION DURING THE 1999 STABILIZATION PROJECT

FIBERGLASS REBAR USED DURING THE 1999 STABILIZATION PROJECT TO REINFORCE NEW CONCRETE BASE
Name: Carysfort Reef Lighthouse

Location: Seaward edge of Carysfort Reef, 12 miles NE of South Channel, Key Largo

Type: Iron (iron screw piles, octagonal 50' wide pile-to-pile. Rises to 5-story octagonal pyramid to the light 106 feet above mllw.

Height: 112 feet, focal plane 106 feet

Daymark: Dark red wrought iron skeletal screw-pile tower, dark red circular integrated dwelling, dark red staircase

Year Built: 1852

Owner or Operator: U.S. Coast Guard

National Register Status: Listed

Active: Yes

Visitor Access: Proximity access by boat, no direct access.

Contact: Brenda Atmeier: Brenda.atmeier@noaa.gov

Facilities: Two story circular keeper's quarters is 24' above the foundation level of the tower. NOTE: Located in Key Largo National Marine Sanctuary. Keeper's dwelling used as a marine laboratory.

1. History

Carysfort Reef Lighthouse was named for the twenty-eight ton frigate HMS Carysfort that ran aground on the reef on October 23, 1770. This area has numerous dangerous shoals and sunken rocks and presented a great danger to ships navigating the area. Because of the extreme conditions here and the many ships that were lost, the U.S. government established a lightship in this location in 1824. This lightship did not last due to rot and was replaced by a second lightship after five years of service. These lightships, however, were not adequate to serve the navigational needs of mariners and many complaints were received by government agencies regarding the poor conditions and insufficiency of the navigational aids. Funding for the construction of the Carysfort Reef Lighthouse was approved in 1848. During this time there was a Congressional investigation of the office administering lighthouses and due to this investigation a Light House Board was established by Congress on October 9, 1852 in an attempt to improve the quality of lighthouses.

The government decided on a screw pile structure. The tower was manufactured and assembled in Philadelphia, then disassembled and shipped by schooner to the reef site. The coral was not solid as
expected; a soft mass of calcareous sand was discovered under the solid crust. Large cast-iron disks with holes in the center were designed and the foundation screw piles were passed through the center holes in the plates and driven ten feet into the sand, until a collar attached to the piles rested on the disks.¹

The project was delayed a number of times by lack of funds and finally began operating on March 10, 1852. The lightship, Florida, had been in operation throughout construction and was discharged at that time. The Light House Board supplied the light with eighteen lamps, arranged with eleven in one circle and seven in the other, instead of the superior first order Fresnel lens originally intended for this lighthouse. The light therefore was fixed instead of revolving, the same as the Cape Florida Lighthouse forty miles northeast. As a result the lights were easily mistaken for each other. It was in 1855, three year later, that the first order Fresnel lens was installed and the light became flashing. In 1889 the Light House Board added three red sector panels for mariners to be able to more easily identify the line of the reefs.

This lighthouse is the first of the reef lights in Florida, an iron pile lighthouse equipped with broad-bladed screws at the end of each foundation piling, and is the oldest functioning lighthouse of its kind in the United States. The light is located at the easternmost point of the Florida Keys reefs, off the island of Key Largo.

The Carysfort Reef Light has withstood many hurricanes over the years, including the 1935 hurricane when the barometric pressure fell to 29.68. The U.S. Coast Guard manned this lighthouse from 1939 to 1960 when it was automated. During World War II the light was blacked out, the station functioned as a watchtower for enemy submarines, and the Coast Guard reported many sightings.² The lighthouse began to deteriorate after 1960 when it was automated, and missing and damaged windows allowed for weather intrusion and contributed to extensive rusting. In 1962 the Aids to Navigation Team removed the original lens and replaced it with the solar powered Vega VRB-25 rotating optic. This light can be seen from a distance of fifteen nautical miles. The historic Fresnel lens is on display in Miami at the Historical Association of Southern Florida Museum.

Despite the lighthouse aid and modern technologically advanced positional systems, numerous ships have and still do run aground here and continue to cause severe damage to the coral reef. The most severe damage was inflicted by the vessel Welwood in August of 1985, gouging the reef twenty thousand square feet. In 1990 the Florida Keys National Marine Sanctuary was designated to extend from Biscayne

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National Park to the Dry Tortugas to move the shipping lanes further seaward, away from the Florida Keys in an effort to preserve the reef.

2 Ibid. 153

2. **General Description:**

The Carysfort Reef Lighthouse is a 106 foot tall, red iron tower, set on nine iron screw pile foundations, eight around the perimeter and one at the center. An iron framework of beams radiates from the center column to the eight perimeter columns at the top of the vertical screw pile foundations. This system of radiating beams supported an octagonal work platform used for boat handling and management of supplies. The columns taper in to form a conical tower, visually divided into four sections vertically from the work platform level to the watch room. The bottom quarter housed the octagonal work platform. The second quarter housed the keeper’s quarters, a circular two level space enclosed by a steel skin penetrated at both levels with openings for doors and windows. The eight columns penetrate the keeper’s quarter’s flat roof and rise to the top, subdivided horizontally by iron struts at the watch room floor and midway down to the keeper’s quarter’s roof. The struts brace the columns horizontally between them and to the central seven foot diameter cylinder housing the iron spiral stair. Each of the three open bays is braced with two sections of diagonal rod and turnbuckle cross bracing.

A catwalk from the boat landing platform leads to a ship’s ladder stair that penetrates the lower level keeper’s quarter’s floor through a hatch. This level has steel floors, walls, ceiling and fresh water storage tanks in the center. The tower columns pass free of the exterior wall, which is characterized by round porthole windows and shuttered, unglazed, window openings. The ceiling of this space is the underside of the accommodation level floor plates. These panels are cast with reinforcing ribs and are bolted together. Several of these panels are galvanized replacements, identifiable because the paint if flaking from the galvanized surfaces. The ironwork is deteriorated and requires repairs.

A ship’s ladder type stair accesses the keeper’s quarter’s accommodations level in the northwest section from the lower level interior. This room serves as an ante room with access to the stair tower and houses the kitchen separated by a 6’-8” high partition, from the rest of this room. The space is large enough that it probably served as a dining space and includes a pantry. There are three additional rooms, each occupying ¼ of the tower’s circumference. Moving clockwise around the central stair tower, you pass

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through paired 3' x 7' four panel wood doors. This room has a window and paired doors to a small balcony and includes a closet. Continuing clockwise, paired doors access the next room, with the same exterior window and door configuration and closet. The next room is accessed through single 3' x 7' doors to its adjacent spaces. This room was altered to include a bathroom and pump room with a water heater. The bathroom was set to include the window while the exterior doors provide light and ventilation to the remainder of the original room. All of these rooms are finished with tongue and groove wood at the exterior walls and ceiling. Interior partitions are finished with paneling. Floors are vinyl composition tile.

The attic space above the keeper's quarter's accommodations level can be vented by opening any of eight 12" diameter hatches penetrating the roof.

Historically, a gallery circled the tower at this level, but the gallery has been completely removed.

The ironwork throughout the tower is deteriorated and requires repairs.

3. **Site Improvements:**

   **Evaluation:** Altered, Sound

   The lighthouse is sited on the reef about seven miles offshore. A boat-landing platform is situated to the north-northwest with landing access ladders on its northerly and easterly sides. Water depth on these two sides will accommodate boats of about five-foot draft. Access to the landing platform ladders is reasonable.

   **Recommendations:**

   The landing dock should be maintained on a continuing basis. Steel components should be cleaned of rust and painted, and wood should be treated with preservative or painted. Better access to the light is recommended. Additional tie-offs, ladders, and fenders should be added to the dock.

4. **Exterior Structure/Walls:**

   **Evaluation:** Significant, Altered, Deteriorated

   The structure consists of iron columns, beams, braces, floor plates and roof plates. Eight main columns form the outside of the structure, fifty feet in diameter at the foundation level, which tapers as it rises. A single column marks the center of the tower. The keeper's house walls form a circle around the outside of these columns. Three 66" wide plate iron panels between each column form this exterior wall, each ¾" thick with ¾" thick x 4" deep ribs for bolting them together using 1" bolts at 6" o.c. The keeper's quarter's
walls are also cast panels which are bolted together. A single central column supports the stair tower and is braced to each of the eight exterior columns.

At the top of the screw piles, the tower has a 24'-9" radius. Walls are rusted and pitted. While the floor plates show signs of major deterioration, the radiating steel plate beams are reasonably sound. Early photos show that a circular gallery existed around the second level of the keeper's quarters. No evidence of this gallery remains. Historic photos also indicate the presence of a lower platform below the keeper's quarters, which served as a landing dock and storage area. Tanks were suspended from the main platform. This lower landing platform and tanks were a common trait of all the reef lights. Square sections cast into the horizontal tie beams show where the lower platform once stood.

Recommendations:
Many of the iron floor and wall plates of the keeper's quarters will have to be replaced, as they are buckled out of shape. The foundation and columns are relatively sound, but all are in need of periodic maintenance by sandblasting to remove paint, repair by welding in of new material using a M.I.G. welding process, priming and repainting. All rods, pins and turnbuckles should be checked and repaired or replaced if found to be severely deteriorated. Periodic maintenance of metalwork is critical to the long term preservation of all of the reef lights, due to the severe marine environment. This maintenance is described in many sections, but essentially includes stripping of paint to bare metal by sandblasting or chemical removal, repair of pitting and deterioration by magnesium inert gas welding, priming with an inorganic zinc primer within 6 hours of stripping, and repainting using high quality paints. As in all of the reef lights, the most metal deterioration is found at the bottom of the lighthouse, with the deterioration less severe on the metalwork that is higher.

The historic gallery around the keeper's quarters should be reconstructed from cast iron and installed as originally detailed. This is a significant historic detail, but more importantly, the gallery will assist future maintenance of the tower and provide access for securing storm panels over windows and doors.

5. Exterior Openings/Doors & Windows:
   Evaluation: Significant, Deteriorated, Altered
   Access to the first floor housing the water tanks is through a trap door opening 38" wide x 70" long. At this level there are sixteen porthole windows, all with a 12" diameter Plexiglas lite. None of the portholes are operational. There are seven window openings 18" wide x 36" high without any glass or operable sashes, but each has solid wood storm shutters. There is a door opening for lifting items into the tower from the boat-landing platform. This door opening is 48" wide x 60" high with paired shutter doors. The shutters at
windows and doors are fabricated from 1-1/2" thick lumber with 1-1/2" thick lumber backup boards. Fasteners are stainless steel. Shutters are sound and serviceable.

At the main level of the keeper's quarters, there are four sets of historic exterior doors and four historic exterior windows: one set in each of the four quadrants. The windows are paired inswinging casements in a 36" wide x 67" high opening. Each leaf has three vertical glass panes, 13" wide x 19" high. The doors are paired, in-swinging, 2' wide x 7'-10" high. There are remnants of screws and screen doors that had been on the exterior. None of the screen doors exist, but framework and some screening remains. The doors have two vertical panes of glass over a solid lower panel. Each pane is 17" wide x 24" high. Rising up the tower, access to the roof is gained by a cast iron door in the stairwell. The door follows the stair tower curvature, 24" wide x 62" high, supported by three iron strap hinges. The door and hardware are original in appearance and operational. Two of the three hinges are broken and require repair or new castings.

Rising up the tower from the keeper's quarters roof there are ten porthole windows plus eight at the top landing, none of which are operational. The exterior door from the machine room to the watch balcony is iron, 24" wide x 57" high with two strap hinges and two latches. The door is fully operational, but broken in two locations and requires repair.

**Recommendations:**
The porthole windows at the lower level and the stair cylinder should be replaced with functional units to provide ventilation to the lower level. The existing wood shutters on the windows and doors are adequate and functional. If a full restoration is performed, the interior and exterior windows and doors at the second level of the keeper's quarters should be restored, including the wood screened enclosures on the doors. The hinges at the roof door and the watch room gallery door should be replaced and otherwise made functional. Again, if a full restoration is undertaken, the metal doors should be stripped, repaired by welding, primed and painted. All hardware should be restored.

6. **Foundation and Floor Structure:**

   **Evaluation:** Significant, Deteriorated, Unsafe

   Foundations are iron screw piles supporting each perimeter column and the center column. The screw pile columns are tied together into the center column with the beams and "x" bracing. The foundations were not visible due to marine growth, but appear sound.

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Floor plates are cast with 3" deep ribs. These ½" thick plates are supported on ½" thick x 8" deep steel plate beams radiating from the center to the exterior at each column and midway between the columns. Some floor plates at the lower level have been replaced with mild contemporary plate steel. Floor plates at the lowest level are broken and buckled in places. The second level floor plates are in good condition, requiring cleaning and painting only. Historic photos show that a platform once existed at the first tier of columns.

**Recommendations:**

Broken and buckled floor plates should be replaced with plates recast to match the originals. The foundations are currently sound, but periodically should be cleaned of rust and inspected for repairs and repainted. This periodic maintenance is critical to the long term preservation of the structure.

An underwater evaluation of the foundation is recommended.

7. **Interior Openings:**

**Evaluation:** Significant, Altered

There are four main rooms at the keeper’s quarter’s accommodations level, with dividing walls radiating out from the central stair tower. Doors through this wall connect each room. There are paired four panel doors 3’ x 7’ at two walls, and single four panel doors, 3’ x 7’ at two walls. Each of the four rooms has a closet with a 3’ x 7’ four panel door, one of which is missing. The doors to the pump room and bathroom are both later additions. Each door is a five panel door, 2'-4" x 6'-0" at the pump room, and 2'-6" x 6-0" at the bathroom. Both of the doors have been cut down. The door to the stair is missing, but was 3-0" x 7-0". All of the original interior doors were 2" thick.

**Recommendations:**

If a full restoration is undertaken, the doors should be removed, stripped, repaired, patched and repainted. All hardware should be stripped, repaired, and restored. Missing hardware should be replaced in kind. All jambs and door stops should be patched and repainted. Doors should then be reinstalled.

8. **Interior Finishes:**

**Evaluations:** Significant, Sound, Maintenance Required

There are no interior finishes at the bottom level of the keeper’s quarters, only the painted iron plate exterior surface. The upper level served as the keeper’s quarters, and retains its original wood finishes. The southwest room is where the upper level is entered from below. Interior walls are 4-1/2" wide x 3/4" thick beaded tongue and groove. The exterior wall is sloped in at the ceiling. The wood baseboard is 7-

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1/2" high, with a top cap and ¼ round base. The ceiling is flat and consists of 4" tongue and groove running concentric to the circular exterior. There are two cross joists between every l-beam at the ceiling. These joists are lower so all wood is furred out from iron. The ceiling joints are covered with 7" wide wood trim. Joints are further trimmed with edge trim. There are several areas where the painted wood ceiling has begun to collapse. Interior walls are paneled. Panels run +/-12" o.c. and recess +/-1/2". Doors are trimmed with 4-1/2" trim. The steel structure is furred out and boxed at all of the twelve columns. The floors are all linoleum, over a one inch thick wood subfloor, over 1" wood sleepers. The wood floor is isolated from the iron plate. Electrical switches are surface mounted in all rooms. A kitchen sink is at the south corner of the southwest room. The southeast room has a bathroom at the south. Ceilings are all 9'-9" high. The bathroom has a vinyl tile floor, surface mounted plumbing, a shower partition, 3" door trim, plain wood walls (panels) with ¼ round trim and the same ceiling. The bathroom was not original, but probably dates from the first half of the 20th century. A non-original closet marked “Pump Room” is on the southeast wall exterior.

**Recommendations:**

The interior finishes at the second level are, for the most part, original and historic. All abandoned and non-original casework, plumbing, and electrical conduit should be removed and all penetrations should be patched and painted. The missing areas of floor, wall and ceiling sheathing should be refabricated to match the adjacent surfaces. The remainder of the wood surfaces need only sanding, patching, and painting. All windows and interior doors should be restored to operating condition.

9. **Stairs:**

**Evaluation:** Significant, Altered, Unsound and Dangerous

The boat landing platform is about 7'-6" above mean high water. A catwalk leads to the tower itself, then up a contemporary ship's ladder fifteen treads to a landing, then another eight treads to the lower floor of the keeper's quarters. A 33" wide ten tread steel stair leads from the lower level to the upper level of the keeper's quarters. It is historic, rusted, but sound. The two levels of the keeper's quarters are 7'-4" from floor-to-floor.

The main stair begins at the second level, in a cylinder 6'-10" in diameter. The cylinder is trimmed with ¾" by 3-1/2" vertical tongue and groove with ¼ round base. This only occurs up to the top of the keeper's quarters. The center column is 10" in diameter. Twelve wood treads (replacements for broken iron treads) lead to a door at the roof of the keeper's quarters. The wood treads are 1-3/4" thick and rest on battens bolted into the central pipe. Above the door, the treads have iron channel profiles, 1" deep by 32" wide. Tread depth varies from 3-1/2" at the inside radius to 12" at the outside radius.

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A number of treads are missing. The treads have grooves cast in for traction. There are nine iron treads, then an area of eleven wood treads serving as replacements. The original iron treads were connected to each other by rods and brackets. Two gaps in the stairway exist, each four treads wide, and new stair treads are required at these locations. The wood replacement stairs are attached to the outside plate with steel angles. Both the wood and iron treads are barely sound and will require repair shortly or will be unsafe. There are two square holes cut into the 1-1/2" thick central column. One is 5" x 10", the other 8" x 10". They are close together and may compromise the structural integrity of the column. The cylinder stairs terminate at a half circle landing 7'-5" below the watch room floor. A non-original 18" wide ship's ladder leans against the central column, reaching the watch room with nine treads. The landing is 5/8" thick iron plate. All of the stairs and supports are very rusted. Thin metal was used at the supports, and the stair treads have failed at this point.

The outer cylinder is composed of plate iron panels bolted together. The panels are 31" x 75", with a 2-1/2" web on each side, they are bolted through these webs at 6" o.c. with ¾" bolts. Two panels at each level contain portholes 10" in diameter, and eight panels per circle, with the portholes on opposite sides at each level. The stair cylinder is sound on the outside, although there is rust at all bolts. There are 8 portholes at the top landing level.

Halfway up to the watchroom there are eight horizontal supports radiating from a collar on the central column and you must duck and maneuver around these supports while climbing the stair. These supports will make public access to the top difficult.

**Recommendations:**

All of the stairs should be checked for structural integrity. Missing treads should be cast using originals as patterns. The interior and exterior of the stair cylinder should be sandblasted and painted. The holes in the main structural column of the stair cylinder should be repaired with similar material, ground smooth and repainted. In all probability a stairway existed at the end of the main stair where a ladder now climbs to the watch room. This stair should be refabricated from original drawings of the lighthouse. Although very old, the portholes in the stair cylinder may be replacements, and the original drawings should be checked to see if operable portholes were originally installed. If so, they should be replaced to provide fresh air to the stair's interior.

In general, the central stair requires major restoration to bring it to a safe condition.

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10. **Stair Railing:**

   **Evaluation:** Significant, Sound

   The main stair railing consists of a wire rope 3/8" in diameter, strung on brackets at approximately 3'-0" o.c. The cable runs approximately 33" above the tread nosing of the stairs. The cable runs from the level of the roof door to the top landing. The brackets are bolted to the stair plate interior.

   **Recommendations:**

   The age of this cable handrail is unknown, and therefore, it should be retained unless historic research indicates a different handrail is appropriate. The rail is in good condition and only requires cleaning and painting.

11. **Watch Room and Gallery:**

   **Evaluation:** Significant, Sound, Altered

   The watch room gallery consists of diamond pattern mesh over a steel framework. The gallery is octagonal in shape formed by the main supports for the lighthouse at each corner of the octagon. The supports are circular pipes of 6" diameter. They are capped by fluted caps of 20" diameters, 6'-6" above the floor. The guardrail consists of a single pipe rail 1-1/2" diameter, 48" high. The watch room walls are iron plate, divided into 16 panels. The panels are 30" wide x 7'-6" high and each has a 3" diameter ventilator hole located at the base of the panel. These panels are seated in a framework consisting of circular verticals screwed at 20" o.c.

   A door on the south side of the gallery connects to the watch room interior. The door is 23" wide x 57" high composed of ½" iron plate on a 1" iron frame, with three hinges (one missing) and three latches, one of which is operational.

   The interior walls are 4-1/2" wide x ¾" vertical tongue and groove, furred out 2-1/2" from the plate iron exterior wall. There is a 5-1/2" high wood base with cap and bottom trim. The room is divided into sixteen bays with the 1-1/2" x 2-1/2" vertical dividing each bay. There are 2-1/2" diameter ventilators located at each bay, 21" above the floor. All of the ventilator covers are missing. There are many areas of rotted and missing wood tongue and groove especially on the north side. The floor consists of 3" wide wood tongue and groove, which is buckled and rotted in places. The catwalk for the lens room above forms the only ceiling at 6'-10". A modern rack for batteries and a cabinet 5' wide x 22" deep x 29" high are also along the walls, as well as many abandoned electrical panels. The original lens pedestal sits in the center of the room. An 18" wide contemporary ship’s ladder leads to a landing, then down the stairs. The ship's
ladder to the lens room appears original. It has nine treads, 18" wide and is sound, but rusted. There is a wood crown molding at the top of each interior panel, 4-1/2" deep, originally painted green. The watch room floor structure consists of plate resting on eight joists radiating from the center of the column. The joists are 6" deep by 2" wide. All show significant signs of rust where they penetrate the stair cylinder exterior.

A large rectangular catwalk and mount for solar panels and RACON has been added to the south side of the watch room gallery. None of the watch room gallery floor appears to be original. The diamond pattern open mesh at the gallery is severely rusted on the north side and soon will be inaccessible.

**Recommendations:**
The watch room gallery mesh floor will be unsafe shortly, and should be removed and replaced with material fabricated to match the original drawings. The watch room interior should be cleared of all abandoned electrical equipment. All rotted wood should be replaced to match the adjacent original wood, and the historic materials sanded, patched and painted. All metalwork should be stripped and repainted. The watch room door and all hardware should be restored to fully operational and any missing hinges or latches replaced.

12. **Lens Room:**

**Evaluation:** Significant, Sound

The lens room walls are 11'-6" high to the top plate. The room is circular, divided into sixteen bays, with three levels of Lexan glazing, above a 20" high solid panel at the floor level. A rectangular ventilator is centered in each panel. The first row of glazing is 31" high, the second 40", and the third 48". Horizontal mullions are 4-1/2" x 1" channels. Continuous vertical mullions are 4-1/2 x 1" square. The floor consists of a 28" wide iron plate around the original lens pedestal. The pedestal is 4'-8" in diameter and 32" high. It sits on a base mounted in the watch room. One of the sixteen catwalk panels is removed for a ship's ladder providing access from the watch room below. All of the glass is intact. The horizontal panels below the glass have been caulked with sealant. The room is weathertight. The floor plates are rusty, but sound. The hooks for the curtains are still in place, mounted at the top of each continuous vertical mullion, sixteen in all.

There is a gallery around the lens room that does not appear original, consisting of steel angles mounted to the top of the original main structural columns. There are two solar panel arrays mounted to the lens room gallery. The gallery brackets are mounted to the wall of the watch room below. The brackets are 1"
thick, tapering from 2-3/4" to 1-1/2". The current modern VRB-25 beacon sits on a mounting atop the old lens pedestal.

**Recommendations:**
The metalwork in the lens room, including the floor plates, lens base, and wall panels, should be stripped and repainted. The historic photo shows a gallery outside of the lens room. Additional research will probably confirm the gallery details. The gallery should be replaced with materials matching the originals.

13. **Roof Structure and Roof Covering:**

**Evaluation:** Significant, Repairs Needed

The circular roof structure consists of sixteen panels, meeting at the top where the mount for the lens is located. The roof sheathing is probably copper and is painted at the exterior. There is currently no roof access. There are areas of rust at the top of each panel at the interior. The panels have been patched at the top with sealant. The roof appears to be watertight.

The keeper's quarters roof is circular, composed of iron plate sloping from the center about 1'ft. The plate sits atop joists radiating from the central stair cylinder at 11" on center at the closest point. The joists are iron I-beams 22" deep at the highest, interior end, tapering toward the outside to form the roof slope. The iron roof plates are butt jointed together, and have a flange at the end to shed water. There is a circular hatch at every third of the twenty-four roof panels. The panels are wedge-shaped, 12" wide at the stair cylinder, and 58" wide at the outer side. The panels are painted and in good condition due to their slope shedding water.

**Recommendations:**
The lens room roof should be stripped and all leaks should be patched. The roof should then be repainted. All structural members at the inside should be checked for rust and repainted. The keeper's quarters roof should also be stripped and patched as needed, and painted. The ventilation hatches in the keeper's quarters roof should be made operational, as they provide fresh air ventilation for the interior.

14. **Mechanical and Plumbing Systems:**

**Evaluation:**

There are several large freshwater tanks located at the interior of the bottom level. They appear rusted and probably are unserviceable. There is a bathroom and kitchen at the accommodation level of the keeper's quarters. No plumbing is functional. There are no mechanical systems.

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Recommendations:
All of the existing abandoned plumbing lines should be removed, and all holes cut for plumbing penetrations should be patched to match the original surfaces. If the lighthouse is converted for use as a research station or other habitable use, some means of water catchment and storage will be desirable. Composting toilets could be substituted for the current toilets, which drain to the reef below.

15. Lightning Protection System:
   Evaluation:
   A lightning protection cable extends from the roof through the lens room interior down the outside of the watch room gallery and down the lower exterior. The system appears functional.

Recommendations:
The lightning protection system should be checked to make sure it is functioning properly. All cables should be firmly secured to the lighthouse structure at both interior and exterior.

16. Electrical System:
   Evaluation: Required, Minimal Systems in Place
   The lighthouse has no functional electrical systems except for the modern VRB-25 beacon with battery and solar arrays. There are abandoned electrical panels located in the watch room and outlets are located throughout the keeper’s quarters and watch room. Wiring is cloth and metal, some surface mounted.

Recommendations:
All of the abandoned electrical conduit, switches, panels and light fixtures should be removed. This light and all of the other reef lights are ideal candidates for a completely self-contained solar power system. A solar power system is cost effective and environmentally sound, and could provide power for habitation.

17. Probable Cost for Restoration:
   Site Improvements/Docking $10,000
   Exterior Structure Wall Repairs 75,000
   Doors (7 @ $3,500) 25,000
   Windows (18 @ $3,550 + portholes) 64,000
   Floor Structure Repairs (4,000 s.f. @ $100/s.f. avg.) 400,000
   Renovation of Keeper’s Qtrs. Interiors (1,260 s.f. @ $100/s.f.) 126,000
   Renovation of Keeper’s Qtrs. Lower Level (1,260 s.f. @ $75/s.f.) 95,000
   Rebuilding of Keeper’s Qtrs. Gallery (1260 s.f. @ 300/s.f.) 380,000

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Railing at Keeper’s Qtrs. Gallery (200l.f. @ 200/ft.) 40,000
Stair Restoration (Jupiter/Cape Florida costs basis) 100,000
Railing Restoration 10,000
Watch Room Restoration 50,000
Watch Room Gallery Floor / Guardrail (400 s.f. @ 150/s.f.) 60,000
Lens Room Restoration 100,000
Lens Room Gallery Rebuild 40,000
Roof Repairs 20,000
Lightning Protection 10,000
Exterior Paint 95,000
Sub-total $1,700,000
Scaffolding/General Conditions @ 20% 340,000
Remote Site Contingency @ 40% 680,000
Total Construction Cost $2,720,000
Design Fees @ 12% 326,000
Total Probable Cost $3,046,000

18. Recommendations for Future Use:
Due to its proximity to Key Largo and the surrounding coral reefs, the Carysfort Lighthouse area is already heavily visited by boat traffic. The light in its present state would not be safe for public access, due to the several sections of missing stairs, the supports blocking the main stair, and difficult docking access. Once these problems are addressed, it is believed that there would be great interest in limited guided tours of the lighthouse.

In addition to the obvious historic significance of the reef lights, a tremendous opportunity exists for increased use and public access. With fully restored lighthouses, including historic interiors, solar powered lighting, composting toilets, and improved docking facilities, the lighthouses could be used for:

1. Marine Research Facilities
2. Weather Stations
3. Military Training
4. Corporate Retreats
5. Living Accommodations for Maintenance Crews
6. Public Tours on a Limited Basis During Calm Weather Summer Months
and numerous other uses. The demand for these uses is high. The revenue generated from public use would ease the financial burden of maintaining the lights. Public awareness of the role of lighthouses and their importance would be raised.

Public awareness and appreciation for United States Coast Guard, their work and the dedication of the men and women of the Coast Guard would be raised.

The benefits are numerous. The drawbacks are few. It is without reservation that we recommend full historic restoration of the Carya's Reef Lighthouse and the establishment of a program for its future use. This public use plan, if applied to all of the reef lights of the Florida Keys, will generate worldwide interest and support.
CARYSFORT LIGHTHOUSE HISTORIC PHOTO. NOTE GALLERY AT SECOND LEVEL OF KEEPER'S QUARTERS (NOW REMOVED), WOOD WINDOWS BEHIND SHUTTERS, & VARIOUS TANKS SUSPENDED FROM MAIN PLATFORM. AS IN OTHER REEF LIGHTS, A LOWER PLATFORM EXISTS, IMPROVING ACCESS TO THE LIGHT & PROVIDING SPACE FOR STORAGE.
CENTER COLUMN STRUCTURAL SUPPORT AT FIRST TIER OUT OF WATER

FLORIDA LIGHTHOUSE STUDY
EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Corpsford Reef
Lighthouse
Photos
Date: 4/15/02

TYPICAL OUTER COLUMN (1 OF 8) AT FIRST TIER OUT OF WATER
GENERAL VIEW OF KEEPER'S QUARTERS FIRST LEVEL. NOTE WATER TANKS AT RIGHT. TANKS ARE CURVED AROUND CENTER OF ROOM. VENTILATOR IS JUST VISIBLE AT FLOOR IN FOREGROUND.

DETAIL VIEW OF CEILING AT KEEPER'S QUARTERS FIRST LEVEL (SAME AS ABOVE). NOTE LARGE GALVANIZED BOLTS HOLDING PLATES TOGETHER.
KEEPER'S QUARTERS SECOND LEVEL TYPICAL WOOD DOOR

TYPICAL WOOD WINDOW AT SAME LEVEL

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0119
Cape Sable Reef Lighthouse Photos
Date: 4/15/02

TYPICAL INTERIOR VIEW OF KEEPER'S QUARTERS. NOTE Paneled Walls & Doors
MAIN STAIR AT KEEPER'S QUARTERS. NOTE WD. PANELING @ STAIR INTERIOR

MISSING MAIN STAIR TREADS REPLACED BY WD. TREADS

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0119
Cape Sable Reef
Lighthouse Photos
Date: 4/15/02

TYPICAL MAIN STAIR TREADS
Door from Stair Cylinder to Keeper’s Quarters Roof. Note rust around bottom of Stair Cylinder, Porthole Windows of Cylinder

Florida Lighthouse Study
Existing Conditions Photography

General View of Keeper’s Quarters Roof, showing door in open position, structural crossbracing. Wire in background is ground cable for lightning rod.
GENERAL VIEW OF WATCH ROOM. LENS BASE AT LEFT. DOOR TO GALLERY AHEAD. NOTE LOW DOOR HEIGHT

WATCH RM., SHOWING BRACKETS SUPPORTING LENS RM. CATWALK
FLORIDA LIGHTHOUSE STUDY
EXISTING CONDITIONS PHOTOGRAPHY

EXTENSIVE DETERIORATION OF WATCH RM. GALLERY FLOOR
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

LENS RM. HISTORIC LENS PEDESTAL. NOTE VENTILATORS BELOW WINDOWS, RED SECTOR PANELS

LENS RM. GENERAL VIEW
FLORIDA LIGHTHOUSE STUDY
EXISTING CONDITIONS PHOTOGRAPHY

LENS RM. CEILING SHOWING LENS MOUNT, LIGHTNING GROUND CABLE

DETERIORATION AT TOP OF GLAZING IN LENS RM.

LENS RM. EXTERIOR SHOWING BROKEN HANDHOLD
Cedar Key Lighthouse – Common Name: Seahorse Key Lighthouse

Levy County, Seahorse Key near Cedar Key

Conical brick tower and frame house

33 feet

White house structure and white lantern

Ca, 1854-59

US Dept of the Interior, Fish and Wildlife Service
Part of the Lower Suwannee National Wildlife Refuge leased to University of Florida’s Marine Science Laboratory for dormitory facilities.

Eligible

No

Twice a year for two-day open house in June and October.

Lower Suwannee & Cedar Keys National Wildlife Refuge
Ken Litzenberger, Refuge Manager
Kenneth_litzenberger@fws.gov

Brick powder house magazine built during the Civil War is still standing

This report is issued as an addendum to the April 30, 2002, Florida Lighthouse Study completed for The State of Florida Department of State, Division of Historical Resources and Department of Community Affairs, Florida Coastal Management Program. At the time of completion of our initial lighthouse report, Seahorse Island was closed to the public because it was pelican nesting season.

1. **History:**

The need for a lighthouse at Cedar Key grew as the area became an important shipping port for cedar, cypress, and other specialty woods. In 1850, Congress appropriated money to build a lighthouse on nearby Seahorse Key. The brick lighthouse tower was built in 1854 on granite rock pilings and contained a fourth-order Fresnel lens. Later, workers added wood frame housing wing additions to each side of the brick tower for the lighthouse keepers and their families.

A prison constructed on Seahorse Island was used during the Second Seminole War to hold Native American Indians before relocating the Indians to the western section of the United States. During the

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Civil War the government once again used the island as a prison for Confederate troops. After the Civil War, in 1866, the lighthouse was relighted with the original fourth-order Fresnel lens.

As the Cedar Key shipping industry declined so did the need for the lighthouse and in 1915 the Coast Guard decommissioned Cedar Key Lighthouse. The island is currently part of the Cedar Key National Wildlife Refuge that helps to protect endangered birds that live in the area. The University of Florida uses the island for marine biology research and has turned the lighthouse buildings into student dormitories.

2. General Description:
Cedar Key Lighthouse is a small octagonal tower that rises from the center of a square hip-roofed keeper's house. The square hip-roofed keeper's house has similar wing additions on both the east and west sides. The one-story, gable-roofed east and west building wings were built shortly after the completion of the original square hip-roofed keeper's house and were used as separate keeper's houses. Today, the east and west wings contain sleeping quarters, dining/meeting rooms, a work room and a kitchen for University of Florida students. The east and west wings are defined at the interior by a step down in the floor.

Modern gutters on the north and south sides of the house collect water for the cistern. The building is roofed with a 5V metal roof that is in good condition with small areas of rust on the hip roof area near the lighthouse tower. A brick powder house built during the military occupation of the island remains north of the lighthouse.

The one-story keeper's house has wood exterior siding with open wood porches on both the north and south elevations each with modern wood entry stairs. One porch at the north side of the lighthouse has recently been rebuilt. Wood lattice skirting covers brick foundation piers. The building is painted white and is well maintained.

The exterior of the lighthouse tower above the main roof is covered with white painted sheet metal and has one, six-light, wood window on the south elevation. The exterior sheet metal has areas of loose, peeling paint.

The interior of the original hip-roofed sections of the keeper's house has a central hall that contains the cast-iron lighthouse spiral staircase. The lighthouse spiral stair is supported on a cast-iron circular base installed flush with the central hall wood floors. The cast-iron spiral stair has a central support pole with open risers and open diamond-pattern treads. Eleven treads spiral to the watch room level above.

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The watch room level has a cast-iron deck plate. Walls at the watch room level are finished with vertical tongue-and-groove wood siding. Two wood attic access doors and a fixed glass window are located at this level. The spiral cast-iron stair and cast-iron handrail continue up to the lantern room level above.

The lantern room level has cast-iron floor plates. The eight-sided room has painted galvanized sheet metal on the exterior and horizontal wood siding on interior wall surfaces. Glass storm panes are located between cast-iron mullions above the tongue-and-groove wood panels. Cast-iron windowsills are rusted. Vertical cast-iron mullions support the roof framing, tension ring, and tongue-and-groove wood roof sheathing at the lighthouse roof. The fourth-order Fresnel lens has been removed.

The lighthouse is capped with a sheet metal roof canopy and ventilator ball that was not accessible during our visit. The roof canopy and ventilator ball are painted white and appear to be in good condition.

3. **Site Improvements:**

Seahorse Island is situated about three miles west-southwest of Cedar Key between the Gulf outlets of the Suwannee and Waccasassa rivers. The island is about a mile long and, at most, a half-mile wide. The site is 52 feet above sea level and is one of the highest elevations on the Gulf Coast.¹

The lighthouse, sited on top of a prominent dune on the island, is accessible by boat via a new dock built to the north of the lighthouse. A concrete path from the dock leads up the dune to the lighthouse north entry. The site is managed by the National Park Service and is leased by the University of Florida Marine Biology Department. Site amenities for students' use include picnic tables, benches, and volleyball net. The site is landscaped around the keeper's house with a roped-off flowerbed. A brick path curves around the one-story dwelling. The remaining areas of the site contain minimal grass, palm trees and other natural vegetation.

A small brick building north of the lighthouse was built during the military occupation of Seahorse Island. The building has brick walls painted white at the exterior with a wood door and frame also painted white. The brick is cracked above the door. Currently the building is used by the University of Florida to collect rainwater. A large wood cistern is located west of the lighthouse and collects rainwater from the north and south gutters of the keeper's house.

**Recommendations:** Continue current site maintenance.
4. **Exterior Structure/Walls:**

The exterior structure of the lighthouse and keeper’s house is wood frame with wood lap siding that is painted white. The above-grade floor level of the keeper’s house is reached by two sets of wood steps on the north side, two sets of wood steps on the south side, and one set of wood steps on the east side of the building. The wood steps are painted dark green and have simple white painted wood handrails that rise to the covered wood porch areas. The south wood porch and the north center steps have recently been rebuilt. Wood porch roofs cover and protect large areas of the north and south exterior walls. Wood lattice skirting at the base of keeper’s house is loose in areas.

The lighthouse tower rises from the roof of the center square building and is covered with sheet metal that is painted white with large areas of peeling paint. Exterior walls and structural components appear in good condition.

**Recommendations:** The exterior structure is in fair condition with some rusting nails in the wood siding. Wood porches and railings need painting. The exterior of the lighthouse tower should be scraped to remove loose paint and repainted. Wood siding on the one-story dwelling is weathered but is in sound condition. Repaint exterior surfaces. Repair loose lattice at base of keeper’s house.

5. **Exterior Openings/Doors & Windows:**

The main entrance to the keeper’s house on the north side of the lighthouse has three sets of wood double doors that swing inward with full wood screen doors that swing out. The wood double doors have three glass lights in the upper panel openings.

Windows at the east and west wings are six-over-six, double-hung wood windows. Windows appear to be original and are in good condition.

**Recommendations:** Windows and doors of the keeper’s house are in good condition. Continue current maintenance.
6. **Interior Finishes:**

   The interior of the keeper's house has wood floors that are painted dark green, white painted wood bead board walls and white painted tongue-and-groove wood ceilings. Similar finishes are located throughout the keeper's house.

   **Recommendations:** Finishes at keeper's house are in good condition. Continue current maintenance.

7. **Stairs:**

   The light gray painted cast-iron stair is located in the center of the central hall in the keeper's house. Eleven cast-iron steps spiral to a three-quarter circle cast-iron intermediate landing at the watch room level above and twelve more steps spiral from the watch room level to the lantern room above.

   The cast-iron spiral stair has a central cast-iron post, open arched risers, and open diamond-pattern cast-iron treads. Treads have integral cast-iron brackets that bolt to the tread below. Treads overlap at the center to form an 8-inch center post. The spiral stair has 10 1/2-inch high arched risers and the treads are 2 feet in width. The cast-iron stair sets on a circular cast-iron base cut into the wood floor of the keeper's house. The base has areas of peeling paint and areas of rust at the perimeter of the circle.

   Stair treads have worn paint and some areas of surface rust. The center pole has areas of rust at joints. A section of the center pole is loose below watch room level.

   Tapered cast-iron vertical handrail stanchions are mounted to the exterior of each stair tread to support a continuous flat, cast-iron metal handrail. The handrail is 2 feet 3 inches above the stair treads and terminates under the watch room cast-iron floor plate. A second railing located in the watch room at the base of the second flight of stairs terminates at the lantern room above in a decorative flat spiral.

   **Recommendations:** Stairs are in good condition except where loose at the center pole below watch room floor. We suggest the loose section of the stair center pole be secured with a metal clamp. Scrape and remove loose paint and repaint the metal stair and handrail.

8. **Watch Room:**

   Watch room interior walls are covered with vertical wood paneling that is painted white. The octagonal room has 1 foot 5 inch-wide wall panels between vertical metal supports. Vertical wood siding is flush against the vertical supports and contains two wood attic access doors. The vertical wood siding panels
recess 5 1/2 inches at 5 feet 4 1/2 inches above the floor. Above the recessed area, wall panels are finished with horizontal wood siding of varying widths painted white.

Exterior wall surfaces are finished with galvanized sheet metal and have a peeling white painted finish. The only window in the watch room is located on the south side of the lighthouse just below the lantern room gallery. The six-light, fixed, wood window has one cracked glass pane and excess paint on glass surfaces.

The watch room floor has a 1 1/4-inch thick cast-iron floor plate. The light gray painted three-quarter-round, cast-iron deck has areas of surface rust and worn paint.

Eight cast-iron brackets supporting the lantern room gallery above are bolted through the sheet metal sheathing of the tower and connect to the interior vertical supports at the watch room level.

Recommendations: The watch room is in good condition. Remove rust from the cast-iron deck and stair and repaint. Repair broken glass at the window and remove excess paint from glass.

9. Lantern Room:
The lantern room has a 1 ¼ inch thick, three-quarter round cast-iron floor plate. Exterior walls of the eight-sided room are finished on the exterior with white painted galvanized sheet metal. Storm glass panels are located above the metal wall panels. The metal exterior wall panels appear in good condition however they have large areas of peeling paint. The interior side of the exterior walls is finished with horizontal tongue-and-groove wood panels of varying widths. Cast-iron vertical mullions are located at the corners of the room to support the cast-iron roof framing, tension ring members and wood plank roof sheathing. Vertical mullions are painted light gray color. Glass storm panes are located between the cast-iron mullions above the tongue-and-groove wood panels. Six of the eight storm glass panels are broken. Exterior cast-iron window retainer bars are rusting.

The fourth-order Fresnel lens has been removed but the cast-iron center lens pedestal remains along with a raised platform composed of several steps that appear to have been used for maintenance access for the fourth-order Fresnel lens. The steps are of different materials, wood plank and cast iron. One of the cast-iron steps has rectangular cutout openings in the tread.

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Recommendations: Remove rust, clean, and repaint interior and exterior metal surfaces. Remove all loose paint and install new impact resistant glass at all glass storm panels. Remove window retainer bars, clean to remove rust, paint, reseal glass and reinstall bars.

10. Lantern Room Gallery:
Access to the lantern room gallery is through a tongue-and-groove, vertical wood plank access door mounted in one of the cast-iron wall panels. The door has a modern closure mechanism with a hook latch. The outer edge of the door is notched to clear the balcony rail when fully open.

The gallery has wood plank decking supported by eight cast-iron brackets below. Almost all paint is worn off the wood gallery decking. The lantern room gallery railing is a single, flat horizontal metal rail supported by eight metal stanchions bolted through holes in the wood decking to the cast-iron support brackets below. The flat metal handrail has areas of rust and missing paint.

Recommendations: Clean and paint all metal surfaces. Add additional horizontal railings as required for life safety. Paint wood deck and door.

11. Roof:
The original metal roof canopy, cast-iron cornices, and ventilator ball remain in place. We could not fully determine the condition of the roof from the gallery level; however, the roof and ventilator ball appear to be in good condition with small areas of surface rust on the ventilator ball and pinnacle.

Recommendations: Inspect roofing from a ladder or scaffolding. Patch and repair all holes, leaks and roofing panel joints. Caulk holes at base of ventilator ball. Repaint roof and ventilator ball.

12. Lightning Protection System:
A lightning rod is mounted to the cast-iron ventilator ball at the top of the lighthouse and appears to be grounded to the metal structure.

Recommendations: Install a new lightning protection system using the existing pinnacle and new ground conductors. Install new lightning system ground conductors to minimize the visual impact of the lightning protection system at the historic lighthouse.
13. **Electrical System:**

   Electric conduit is surface mounted at the keeper's house. A bare bulb light is mounted to a wood board at the center of the lantern room ceiling with surface conduit to the light.

   **Recommendations:** Remove and replace the electrical system to minimize the impact of the electrical components in the historic lighthouse and keeper's house.

14. **Probable Cost for Restoration:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Stair Restoration</td>
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<tr>
<td>Lantern Room Glass Replacement</td>
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<tr>
<td>Exterior Paint Removal and Painting</td>
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<td>Lightning Protection System and Electrical Improvements</td>
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<tr>
<td><strong>TOTAL PROBABLE RESTORATION COSTS</strong></td>
<td><strong>$138,000</strong></td>
</tr>
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15. **Recommendations for Future Use:**

   The keeper's house currently operates as a laboratory for marine biology students at the University of Florida. The building serves the students' use reasonably well without adverse effects on the historic structure and we do not recommend any change in building use. Should the University determine the building is inadequate for their needs and moves out of the historic lighthouse, we suggest that the building be converted into a lighthouse museum open for public visitation.

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STAIR TO LIGHTHOUSE INSIDE ENTRY HALL AT KEEPERS’ HOUSE

WATCH ROOM CAST-IRON FLOOR AND CAST-IRON SPIRAL STAIR
CAST-IRON FLOOR, CAST-IRON SPIRAL STAIR AND LENS PEDESTAL AT LANTERN ROOM LEVEL

MAINTENANCE ACCESS STAIRS AT LANTERN ROOM LEVEL FOR FORMER 4th ORDER FRESNEL LENS
WOOD DOOR TO LANTERN ROOM GALLERY

WOOD DECK WITH WORN PAINT AND PEALING PAINT ON SHEET METAL AT LANTERN ROOM GALLERY
Name: Crooked River Lighthouse—Common Name: Carrabelle Lighthouse

Location: Franklin County. City Park on Highway 98, Carrabelle, Florida

Type: Iron skeleton tower with enclosed stairwell

Height: 103 feet

Daymark: White lower half of tower, dark red upper half of tower with a black lantern

Year Built: 1895

Owner or Operator: Owned by City of Carrabelle and operated by Carrabelle Lighthouse Association

National Register Status: Listed

Active: No

Visitor Access: The lighthouse site is open for visitation. The lighthouse is secured by a chain link fence and is not open for public visitation.

Contact: Carabelle Lighthouse Association:
Barbara Revell, President at: benbar7@aol.com
MaryAnn Shields, Vice President at: mshie883@aol.com
Website: moniquesimmons.com/carrabelle

Facilities: None

1. History:
The Crooked River Light Station was completed and first lighted on October 28, 1895. Earlier lighthouses built on neighboring Dog Island were victims of coastal erosion and hurricane winds. In 1889, Congress provided funds to build a new lighthouse in Carrabelle. Problems with the land title and a fire that destroyed important papers delayed construction until 1895.

Activity increased in Carrabelle during World War II when a pipeline was built to transport gasoline to Jacksonville from barges docked in Franklin County. The lighthouse helped guide not only gasoline barges to Carrabelle but training recruits for amphibious assault landings near Carrabelle at Camp Gordon Johnson.¹

The Carabelle fourth-order Fresnel lens was removed in 1976 when the lighthouse was automated and was placed on display at the Coast Guard district office in New Orleans. Crooked River Lighthouse was decommissioned on August 23, 1995. In 1999, the Carabelle Lighthouse Association was founded to help

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save the lighthouse. The city of Carrabelle recently acquired the lighthouse from the United States Coast Guard and has a management agreement with the Carabelle Lighthouse Association to restore and open the lighthouse for public visitation when safe for visitors.

2. General Description:
The Crooked River Lighthouse is a skeletal, tubular, cast-iron plate tower similar to the earlier Anclote Key Lighthouse. This construction type was popular in the second half of the nineteenth century for its lightweight, strength, slow deterioration, and ability to be dismantled and relocated if necessary. The structure was also relatively inexpensive. The tower skeletal structure has five tiers topped by a watch room and a lantern room accessible from below via a central spiral stairway enclosed in a cast-iron cylinder. The original light station complex included two keeper’s quarters, a boathouse, cistern, oil storage building, and other support facilities that no longer exist. Partial sections of early concrete walks remain.

The lower one-third of the lighthouse is painted white and the top two-thirds is painted dark red with a black watch room and lantern room.

The central cast-iron cylinder has four original two-over-four, double-hung wood windows. Two windows are located on the south elevation at the second and fourth levels. A metal grille has been installed over the second-tier window opening at the south elevation. The other south elevation window is broken, has been removed, and is stored in the base of the lighthouse. This window opening is covered by plywood. The other two windows are on the third and fifth levels of the north elevation. Window weights are missing at all windows and there is excess paint on all glass panes. Some glass window panes are broken.

The center cast-iron stairs are 2 feet 1/2 inch wide and spiral to the first landing at the fifth tier. A wall-mounted, cast-iron handrail spirals along with the stair and is interrupted only at window openings. A steeper cast-iron stair continues from the first landing to the watch room level. The watch room level has a cast-iron ship’s ladder stair that continues to the lantern room.

The floor of the watch room is constructed with cast-iron floor plates. A support pedestal for the fourth-order Fresnel lens is located in the center of the watch room. Watch room wall panels have peeling and blistering areas of lead-based paint. Paint coatings have worn off the floor and ceiling surfaces and surface rust exists on all surfaces. Several cracks in the cast-iron floor plates should be repaired for visitor life safety.
The watch room gallery handrails are loose and have areas of exfoliation, rust, and pitting. Handrails should be repaired or replaced. Watch room gallery cast-iron floor plates and cast-iron wall panels have peeling black paint and areas of rust and exfoliation. Earlier mounting plates for antenna or other devices remain at the gallery.

A metal ladder located at the watch room gallery provides access to the lantern room gallery above. The lantern room gallery has a single handrail supported by ten vertical handrail stanchions. The lantern room gallery's cast-iron deck panels and handrails are rusted and have loose paint coatings similar to the watch room gallery.

The lantern room is constructed of cast-iron floor plates with ten vertical cast-iron mullions supporting glass storm-panels, cast-iron roof framing, and tension-ring members above. Glass storm-panels are single, full-height panels. Three modern glass storm-panels have been spray-painted to protect adjacent residential areas from the light. The room has been spray-painted silver. Paint spray has covered the floor lights with purple inset glass.

The underside of the roof framing is covered with tin sheathing and a tin reflector is installed above the lantern location. The tin surfaces are painted a silver color and have light surface rust. The lantern has been removed.

One windowsill member is badly rusted and exfoliated and should be removed and replaced.

The lighthouse has a copper dome roof and bronze ventilator ball at the top that was not accessible during our visit.

3. **Site Improvements:**
   **Evaluation:** Significant/good condition.
   The lighthouse is located on Highway 98 approximately one mile west of Carrabelle. The lighthouse site is located near the mouth of the north Gulf Coast’s Intracoastal Waterway on St. George Sound.

   The area immediately around the lighthouse is sand with small patches of grass. Mature pine trees are located to the north, east, south, and west of the lighthouse. A dirt road leads from Highway 98 a short distance north to the lighthouse.

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The lighthouse and a concrete foundation pad for an earlier generator are enclosed by a chain-link fence with barbed wire strands at the top and a locked gate. The fence enclosure is open at corners and bent near the gate opening. Only portions of the foundations remain of the two nearly identical original one-story, clapboard-sided keepers' houses. The keepers' houses were auctioned off by the Coast Guard in 1964 and sold and moved approximately five miles west of the original site. One house burned to the ground a few years ago and the second keeper's house is being renovated as a residence.

Recently the garden club of Carabelle installed oyster shells inside the fenced in area at the base of the lighthouse. They also plan to fill an old dinghy located immediately south of the lighthouse fence area with drought-tolerant plants. Two buoys are being restored to replace two deteriorated buoys at the lighthouse access road entrance at Highway 98.

The original oil storage building was located 625 feet south of the tower and was 10 X 12 feet in plan X 9 feet high. The oil storage building was constructed of brick and could hold approximately 500, five-gallon cans of fuel. Original keepers' houses were located northeast and northwest of the lighthouse tower. The one-story keepers' houses were painted white with green shutters. Original walks between buildings were wood.

Water was drained from the roof of the tower into covered and screened cypress wood cisterns located north of the keeper's houses that held 9000 gallons of water.

The original 7-foot-10-inch-wide wharf south of the lighthouse extended 340 feet into St. George Sound and was constructed with 2 x 12-inch wood decking. The early boathouse housed a 1909, 15-foot-long skiff boat used by the lighthouse keepers. The wharf was located 1145 feet southeast of the lighthouse.

**Recommendations:** Initially, clean weeds and vegetation from around the base of the lighthouse. The fence surround should be repaired at the corners to keep vandals out of the lighthouse area. An access road and parking area should be paved to allow public visitation. Future improvements should include removal of the chain link enclosure and reconstruction of the keepers' houses and a visitor's center.
4. **Metal Cylinder and Tower Structure:**

**Evaluation:** Significant/deteriorated.

Exterior paint coatings are in poor condition and contain high concentrations of lead. Areas of paint have eroded exposing the ferrous metal substrates to the elements.

Eight circular cast-iron foundation disks anchored to a concrete slab foundation support the Crooked River Lighthouse. The two-piece, cast-iron lighthouse foundation disks are anchored to a concrete foundation slab with anchor bolts and support vertical cast-iron columns. Cast-iron horizontal struts and tension rods connect to each disk. Paint has worn off the disks and minor rust accumulation is present.

The exterior structure, struts, tension rods, sockets and cylinder belts of the first through third tier have coating failure that will contribute to metal deterioration.

All central cylinder exterior wall panels are in good condition with weathered exterior coatings. Exterior wall panels join with integral beaded drip edges.

**Recommendations:** Abrasive-blast all metal surfaces to remove remaining paint coatings, rust, scale, and exfoliation. Remove lead-based paint in accordance with state and federal regulations. Contain blast residue and legally dispose of material. Experiment with blast media to find the gentlest media available that will clean the surface for a SSPC "near white" condition. Apply a zinc primer coating to cleaned metal surfaces on the same day they are abrasively blasted. Coat surfaces with a paint coating system designed for marine environments such as the moisture-cure urethane coating system manufactured by Wasser High-Tech Coatings.

Apply a stripe coat of the intermediate coating by brushing on edges, crevices, nuts, bolts, rivets, welds, and tight metal-to-metal areas before joint sealer application. Install joint sealer at all joints and crevices and install paint topcoat.

Inspect and repair all tension rods, turnbuckles, and anchor lugs, and tighten tension rods.

5. **Exterior Openings – Doors and Windows:**

**Evaluation:** Significant/deteriorated.

The cast-iron entry doorframe extends about 4 inches from the face of the stair cylinder. Surface rust and coating failure cover the doorframe and trim.
The exterior door trim and protruding arch/frame is a character-defining feature of the lighthouse. Brackets adorn the top of the doorjamb to support the cornice/head that features a circle arch in the center with a raised five-point star. The pair of metal doors appear to be original to the lighthouse and are in good condition with small areas of rust and corrosion. A chain and padlock are currently used to lock the lighthouse.

The lighthouse has four wood window openings with two on the south elevation and two on the north elevation. All window weights and chains are missing and the window locks do not latch. The window upper sash is approximately one-half the height of the lower sash with a two-over-four light arrangement. When fully open, the top of the lower sash extends above the top of the upper sash.

Window frames consist of cast-iron jambs with parting beads and cast-iron sill and head sections. Window pulleys remain in the jambs.

**Recommendations:** Repair the doorframe and casings to good condition and repaint the doorframe and door. Repair door lock.

Repair window jambs, frames, and sash. Original wood window sash should be repaired if possible or replaced if too deteriorated for repair. Replace pulleys and brass chain sash cords and weights. Remove excess paint from glass and replace sections of broken glass. Replace the missing window sash at the south elevation at the base of lighthouse.

6. **Cast-Iron Stairs:**

**Evaluation:** Significant/deteriorated.

Two cast-iron steps with raised diamond-pattern treads and open risers provide access to the entry door. Both treads are in good condition with light surface rust and areas of mold growing on the concrete base below the stairs. There is no handrail at the entry steps.

The 2 foot-1/2-inch-wide interior cast-iron spiral stair has a cast-iron central slotted column, open risers, raised diamond-pattern treads, and a landing at the fifth level. The stair has minor areas of surface rust and exfoliation and worn gray paint. A narrower cast-iron spiral stair extends from the one-quarter circle fifth-level landing to the watch room, and a spiral cast-iron ship's ladder stair leads from the watch room to the lantern room.

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The cast-iron stair handrail is painted white with yellow paint applied at the start of the stair for safety. The handrail continues the length of the stair with intermediate stops at window openings.

**Recommendations:** The stair and handrail are in good condition but require repainting. Sandblast and paint stair and handrail.

7. **Watch Room:**

**Evaluation:** Significant/deteriorated.

Watch room interior walls are covered with rolled metal panels secured in place by vertical metal battens. Interior walls have white paint coatings that are believed to contain a high concentration of lead. Interior wall surfaces are in poor condition and have areas of blistering and peeling paint.

The watch room floor is comprised of eight sections of gray-painted, raised diamond-patterned, cast-iron panels. There are several cracks in the cast-iron deck plates that create a safety hazard for visitors. Deck sections are heaved and split with a ± 2-foot-long crack parallel to the exterior wall about 3 inches inside the wall near the base of the lantern room stair. Cast-iron floor plates have areas of surface rust.

Exterior architrave beams below the watch room floor have large areas of rust.

A lantern pedestal that supports the lens above is located in the center of the watch room floor and has minimal areas of surface rust. The paint on the pedestal is in poor condition with large areas of peeling and blistering paint. The original turning mechanism for the lens remains inside the pedestal. Pulleys for the original weights, used to rotate the lens, remain below the watch room cast-iron plates. A small metal table that once contained the housing for part of the pulley system is still attached to the central pedestal.

The ceiling of the watch room consists of the underside of the eight cast-iron lantern room floor plates that are painted white. A cast-iron ship’s ladder leads to the lantern room above.

The watch room exterior gallery pair of doors are similar to the entry doors at the base of the lighthouse and appear to be original to the lighthouse. The two panel cast-iron doors extend from above the floor plates to the underside of the cast-iron cornice above. Doors are painted white on the interior and black on the exterior and have areas of rust and exfoliation.
**Recommendations:** Repair the doorframe and casings to good condition. Install weatherstripping and repaint doorframe and door. Repair door lock.

Repair or replace cracked and heaved cast-iron floor plates. Repair or replace architrave beams below watch room floor and corner casting units at top of corner columns.

Abrasive-blast all metal surfaces to remove remaining paint coatings, rust, scale, and exfoliation. Remove lead-based paint in accordance with state and federal regulations. Contain blast residue and legally dispose of material. Experiment with blast media to find the gentlest media available that will clean the surface for a SSPC "near white" condition. Apply a zinc primer coating to cleaned metal surfaces on the same day they are abrasively blasted. Repaint surfaces with historically correct paint colors.

8. **Watch Room Gallery:**
   
   **Evaluation:** Significant/deteriorated.
   
   The watch room gallery has cast-iron handrail stanchions that bolt through the deck and support brackets below. Ball caps screw to the top of each stanchion. The top handrail is a two-piece unit. Intermediate vertical railings are round bars and horizontal rail members are flat bars. Railing sections half-lap at posts with a top rail fitting at the posts.

   Gallery metal railings are in fair condition. Several stanchions have vertical splits and at larger areas of exfoliation. The top rail is heaved and loose in areas. The structural integrity of the railings has been compromised by corrosion. Intermediate vertical pickets at railings are severely pitted with a loss of metal area on south and west sides of the lighthouse.

   The watch room gallery deck is constructed with cast-iron floor plates with a raised diagonal pattern. An out-of-service mounting bracket is attached to one of the floor plates. A metal ladder is attached to the gallery deck for access to the lantern room gallery. The decking has areas of pitting and holes with overall loose and peeling paint. The ladder is in good condition but needs to be repainted.

   A cast-iron soffit and cornice wraps the cylinder below the exterior of the lantern room gallery deck above and is badly rusted and exfoliated. The cornice should be removed and repaired. The cast-iron soffit has scallop-shaped holes that function as air-vents for the lantern room and is badly exfoliated and should be replaced. The cast-iron cylinder is in good condition but is pitted and has rust and exfoliation at joints.

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**Recommendations:** Repair or replace handrail stanchions. Repair holes at the gallery floor deck. Sandblast and repaint all surfaces. Remove out-of-service brackets from deck and fill mounting holes. Remove and repair deteriorated railings.

After abrasive-blasting the interior and exterior wall surfaces, repair exfoliated areas. At the gallery soffit, remove heavily exfoliated soffit panels and restore damaged sections to original conditions or replace entire panels. Reinstall to match original installations. Paint concealed surfaces before reinstalling. Add copper insect screening above ventilation openings in soffit to keep wasps and insects out of the building. Remove the soffit cornice sections, repair to good condition, and reinstall units. Repair cracked and broken sections of the watch room gallery deck plates, or replace deck plates to match original units.

9. **Lantern Room:**

**Evaluation:** Significant/deteriorated.

The ten-sided lantern room has vertical cast-iron mullions that support ten, full-height glass storm panes. Sheetmetal covers the cast-iron roof support ribs and the underside of the copper dome. The sheet metal reflector and cast-iron tension rods and ring have light surface rust. Three glass storm panels on the north side were painted to keep light from the adjacent houses. One of the glass storm panes has a bullet hole. One of the cast-iron windowsills is badly rusted and exfoliated and should be replaced.

The room has been spray painted silver. Floor plates and ventilation grilles are in good condition with light surface rust. The original lighthouse fourth-order Fresnel lens was removed when the lighthouse was automated in 1965. Brass floor vent grilles with sliding dampers and knobs remain but are missing anchor screws. Drapery hooks remain in place above cast-iron mullions.

The lantern room deck is comprised of 10 cast-iron deck plates that form the interior and adjacent exterior gallery flooring. The deck plates have a raised diamond-patterned surface and terminate at a central metal circular grille that is not original to the lighthouse. Deck plates and grilles have light surface rust.

Although the light has been removed, the cast-iron pedestal remains at the center of the metal floor grille. A modern metal table is bolted to the cast-iron floor plates and has four remaining bolts that were used to secure a modern light beacon after 1965. The modern light has been removed.

Original glass floor lights remain but have been painted over with the silver spray paint.

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**Recommendations:** Abrasive-blast, clean, and repaint vertical cast-iron mullion units and brass window stops and pressure bars. Install new impact resistant glass. Replace badly rusted bolts and nuts at the base of the vertical mullions.

Examine the cast-iron floor deck for cracks or loss of structural integrity and repair to good condition. Remove floor lights, clean, and repaint units and reinstall on original locations. Remove paint from glass inserts at floor lights.

Abrasive blast and repaint the cast-iron floor deck with historically correct paint color. Remove the modern metal table and metal floor grille. Install a new modern beacon light or the original fourth-order Fresnel lens.

10. **Lantern Room Gallery:**

**Evaluation:** Significant/deteriorated.

The lantern room gallery cornice has an ogee profile and raised cove mouldings. Cornice areas are rusting. The railing at the lantern room gallery has round cast-iron stanchion posts that support a single horizontal iron flat bar top rail. The top rail half-laps at the post joints with a nut on top of each post above the rail. Railings are rusted and exfoliated. The low, 20-inch-high railing, with open sections below, is a safety hazard.

**Recommendations:** Repair or replace the original railings with rebuilt components to match the original configuration. Add additional horizontal railings as required for life safety.

Abrasive-blast and repair the lantern room cornice.

11. **Roof:**

**Evaluation:** Significant/deteriorated.

The original copper roof canopy, cast-iron cornices, and bronze ventilator ball remain in place. We were unable to gain access to the roof and it was difficult to determine the condition of the roof from the ground or gallery areas. We anticipate pinhole leaks are present at the canopy and some standing seam canopy joints are opening up from exposure.
**Recommendations:** Carefully remove the sheetmetal ceiling below the roof framing. Abrasive-blast the cast-iron framing surfaces and repair structural components to good condition. Paint metalwork. Gently clean the sheetmetal ceiling to remove paint. Reinstall ceiling.

Inspect copper roofing from a ladder or scaffolding. Chemically remove paint coatings from roofing and the ventilator ball. Patch and repair holes, leaks, and roof panel joints. Install copper screening over openings at the roof ventilator to keep wasps out. Repaint roof and ventilator ball. Install new lightning ground rod and conductor and connect to base of pinnacle.

12. **Electrical System:**

   **Evaluation:** Significant/non-historic.

   Electrical panels are located at the watch room level with an electrical conduit that runs underneath the cast-iron ship's ladder stair into the opening at the watch room floor and down the interior cast-iron central stair column. The electric service enters the lighthouse near the second tier. The electric meter is mounted directly to the east side of the lighthouse. The overhead electric service is located directly above the electric meter and is connected to a nearby power pole.

   There is a bare bulb light at the watch room level.

   **Recommendations:** Remove the existing out-of-use electrical system and components. Install a new electrical system designed to provide minimal visual impact of the electrical components in the lighthouse. Add additional lights at interior of the lighthouse for visitor's safety.

13. **Lightning Protection System:**

   **Evaluation:** Significant/non-historic.

   A lightning rod is mounted to the copper ventilator ball at the top of the lighthouse and appears to be grounded to the metal structure.

   **Recommendations:** Install a new rehabilitated master label lightning protection system using the existing pinnacle and new ground conductors. Install the ground conductors to minimize the visual impact of the lightning protection system at the historic lighthouse.

Kenneth Smith Architects, Inc.
and
Bender & Associates, Architects, P.A.
Associate Architects
14. **Probable Cost for Restoration:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Site Improvements</td>
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</tr>
<tr>
<td>Metal Restoration and Replacement</td>
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</tr>
<tr>
<td>Lantern Room Glass Replacement and Mullion Repair</td>
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<tr>
<td>Design Fees</td>
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</tr>
<tr>
<td><strong>Total Probable Restoration Cost</strong></td>
<td><strong>$271,000</strong></td>
</tr>
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</table>

15. **Recommendations for Future Use:** Crooked River Lighthouse provides an excellent opportunity for visitors to tour a historic metal skeleton lighthouse that remains in generally good condition. Paved parking and landscaping should be provided for public visitation.

The Carrabelle Lighthouse Association has plans to open the lighthouse and a gift store for public visitation. After the lighthouse is restored and open for public visitation, a second objective should be to acquire the adjacent land to restore the original light station by building reconstructed keepers' houses, a caretaker's house, visitor orientation center, access walks, and public toilets.

The Carrabelle Lighthouse Association can open the lighthouse for public tours as soon as the lighthouse is restored and life safety improvements are completed. Lighthouse public visitation should generate revenue through ticket and souvenir sales to fund maintenance and convert the light station into a healthy, self-supporting historical site and community asset.

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WALKWAY LEADING TO LIGHTHOUSE ENTRY ON WEST SIDE

VIEW OF LIGHTHOUSE LANTERN ROOM

ONE OF THE ORIGINAL KEEPER'S HOUSES LOCATED 5 MILES WEST OF THE LIGHTHOUSE SITE
ONE OF THE EIGHT LIGHTHOUSE SKELETAL STRUCTURE FOUNDATION DISKS

ENTRY STAIRS AND DOOR AT BASE OF LIGHTHOUSE STAIR CYLINDER
WOOD WINDOW IN CAST IRON FRAME
OPERATIONAL WEIGHTS ARE MISSING

2/4 ORIGINAL WOOD WINDOW
MODERN TABLE AND FLOOR GRILLE AT LANTERN ROOM

CAST IRON SHIP’S LADDER TO LANTERN ROOM

CAST IRON FLOOR PLATES AT LANTERN ROOM. AIR VENTS AND FLOOR LIGHTS REMAIN
WATCH ROOM GALLERY HANDRAIL AND METAL LADDER

DETERIORATED CAST IRON SOFFIT AT WATCH ROOM GALLERY
Name: Dry Tortugas Lighthouse at Loggerhead Key
Location: Monroe County / Dry Tortugas. 70 miles west of Key West
Type: Conical brick tower
Height: 157 feet
Daymark: Conical brick tower, lower half white, upper half and lantern black.
Year Built: 1858
Owner or Operator: U.S. Coast Guard
National Register Status: Not listed
Active: Yes
Visitor Access: Grounds only. Boat access from Key West.
Contact: National Park Services Mike T Ryan@nps.gov

1. History
Loggerhead Key is located three miles west of Fort Jefferson in the Dry Tortugas. The Garden Key Lighthouse, completed in 1826, was insufficient to adequately protect ships from going aground on the reef surrounding this area. For many years, navigation interests had complained about the inadequacy of the Garden Key light, and as early as 1836 it was suggested that additional lights were required to solve these navigational problems. Only after the reorganization of the administration of the U.S. lighthouses were any plans made to add or improve the conditions in the Tortugas. In 1856, $35,000 was appropriated for construction of the lighthouse at Loggerhead Key and construction of the tower took place from 1856 to 1858. The station occupied the center of Loggerhead Key, the entire island being about 4,200 feet long and 700 feet at its widest point.1 Brick was used throughout the light station and contained the 151 foot tower, a two story keepers’s house, a separate cookhouse, two cisterns and an oil storage building. This lighthouse was equipped with a first order Fresnel lens and greatly improved navigation in the area, providing 28 mile visibility. The lighthouse on Loggerhead Key has a firm foundation. It consists of beams laid crosswise underwater and a three foot high concrete foundation that
used expensive, hard bricks that could resist the harmful sea air better than cheaper bricks from the North.²

Life at the isolated lighthouse was monotonous; fishing, swimming, turtle hunts and gathering bird eggs occupied the inhabitants’ time. While the military was stationed at Garden Key, various social activities were organized, including music and parties. The mosquitoes were always a discomfort and annoyance, but in 1867, an outbreak of yellow fever, caused by a certain species of mosquito, took a heavy toll, and the army set up a quarantine station on Loggerhead Key for military personnel. Because of this quarantine, necessary repairs to the Loggerhead Light went undone until 1871 when the quarantine was lifted. At that time, workmen made the necessary repairs, built a new boat house, and repainted the tower in its original colors; white on the bottom half of the tower and black on the top half, including the lantern. In October of 1873, a dangerous hurricane passed through the area and seriously damaged the tower on Loggerhead Key. An inspector determined that the damage to the tower was so severe that the lighthouse should be replaced. Due to another yellow fever quarantine, the lighthouse keepers executed temporary repairs and the Light House Board ordered substantial repairs at Loggerhead when the quarantine was lifted, to keep the lighthouse functioning until a new one could be built. Masons executed meticulous repairs and soon after, in September 1875, the area was struck by another high intensity hurricane. The Loggerhead Light withstood the storm so well, apparently because the repair work was excellent, that during inspections over the next few years, inspectors determined that the tower was in good condition and plans for a replacement light were never implemented.

In 1899 extensive repairs and renovations were ordered for Loggerhead Key Lighthouse. Metal work on the lantern was scaled and painted, new storm doors and windows were installed, a new ceiling was built in the watch room, new floors laid throughout the keepers’ quarters, the roof was replaced, the boathouse enlarged by ten feet and walkways were constructed between the buildings.³ In 1893 a red sector was added to the lantern, with the red light illuminating dangerous areas. In 1909 a new first order bivalve lens with an incandescent oil vapor system replaced the old system and this changed the characteristic of the light from fixed to flashing.

From 1904 until 1939, lighthouse keepers shared Loggerhead Key with scientists from the Carnegie Marine Biological Laboratory. The lab conducted some of the first research on coral reefs and mangroves in the Western hemisphere and also took the first ever black and white and color underwater photographs.⁴ In 1921, when the harbor light was discontinued at Fort Jefferson, modernization of the lightstation on Loggerhead Key was undertaken. A new house was built for the principal light keeper and concrete cisterns replaced the brick cisterns originally built in 1858. In 1926 a radio beacon station was
placed at Loggerhead Key. The oil house was converted to hold the electronic equipment necessary to operate the radio signal and a structural steel tower was erected. A new oil house was designed in keeping with the original design. Generators were installed and electricity was available for the station and the light. In 1986 the Fresnel lens was removed because the mercury float had become disabled. The Coast Guard Aid to Navigation Team installed a modern optic Directional Code Beacon 24, that is 24 inches in diameter and creates a flashing white beam of light at twenty seconds that can be seen from twenty-four miles. The light was automated in June 1987. In July 1996 the DCB-24 was replaced with the VRB-25, twelve volt rotating beacon with solar powered batteries. The light characteristic is now flashing white six seconds and the range of the light has decreased from twenty-four to nineteen miles.

The Dry Tortugas Lighthouse at Loggerhead Key is still providing aid to ships passing offshore and is operated by the U.S. Coast Guard, although the island and buildings are part of the Dry Tortugas National Park and maintained by the National Park Service.

3 Dean, 91-92

2. General Description:
The Loggerhead Key Lighthouse is a 151 foot tall, brick tower, 29 feet in diameter at its base, painted white on its lower half and black on its upper half. Three windows are stacked vertically on its east northeast side. The door to the tower, and two windows stacked vertically above it are directly opposite on the west northwest side. The lens room is iron set on top of the brick watch room walls. Overall the brick and mortar is in good condition with some repointing and repainting of the entire tower required. The most serious visible damage is at the watch balcony where the concrete walk surface is cracked and spalled. Original iron spindles have been cut off at this surface and a new railing installed that replicates the lens room balcony rail. The new railing is anchored by bolts into the deck with cracks and spalling radiating from each bolt. A stainless steel band has been installed around the perimeter of the watch landing to hold the spalled brick in place. The copper dome and ventilator ball show signs of deterioration with the ventilator ball dented and deteriorated through at a number of the holes.

The tower interior is a 10 foot 6 inch diameter shaft rising vertically the full height to the tower. A central hollow brick column housed the clockwork weights and supports the inside end of the granite treads.

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Through access ports, the column was determined to have an 8" diameter shaft and 9" thick walls for an overall diameter of 26". Granite treads are 4" thick with a 4'-2" clear span to the outside wall.

The tower was linked to the original brick oil house by an enclosed breezeway constructed of concrete in the later part of the 20th century, with doors on each side.

3. Site Improvements:
   
   **Evaluation:** Significant Historically and Archaeologically

   Loggerhead Key is a 30 acre island 2 nautical miles west of Fort Jefferson at Garden Key, currently under the stewardship of the National Park Service. The site is reasonably well maintained. The National Park Service has removed exotic plant species including Australian pines and is in the process of installing solar panels so that the island will no longer be dependent on fossil fueled energy sources. The site is accessed by boat with a wooden pier and dock on the island's southeast side. A concrete sidewalk leads directly to the lighthouse, with concrete walkways accessing various other site elements; a one story brick keeper's quarters cottage to the north of the tower, dating from the 1920's or 30's, the oil house to the west and the original cook house to the south of the tower. A diesel fuel tank is sited east of the cookhouse in the area of the original keeper's quarters, where remnants of the original foundations are visible. Various contemporary small storage buildings, tanks and a radio tower exist on site.

   Vegetation consists of coconut palms, manicured grass, and thicker native plants around the island perimeter including dune grasses to the northwest. Original brick cisterns are intact, but are filled with sand. There is a high probability of archaeological artifacts on site.

   **Recommendations:**

   Continued site maintenance is recommended. An archaeologist should assess the site for potential artifacts and further archaeological mapping.

4. Exterior Structure / Walls
   
   **Evaluation:** Significant, Sound, Weathered

   The tower is solid brick, 9 feet thick at the base. The interior of the tower is 10 feet 6 inches in diameter and maintains this diameter for its full height. The tower walls need painting and repointing in selected areas, but appear sound. No major cracks or areas of severe stress were noted.
**Recommendations:**

Repoint as needed and repaint the tower. Repointing mortar should match the original lime based mortars, based on an analysis of existing historic mortar.

5. **Interior Brick Walls:**

**Evaluation:** Significant, Deteriorated Finish & Mortar

The interior walls of the tower are brick, with evidence of previous parge coatings and paint. Mortar joints are deteriorated in various locations and require repointing, although the walls appear structurally sound. At the top of the tower there is a crack, 4 to 5 feet long, starting below the corbel of the exterior wall under the rotation room. The brick walls near the top of the tower have a plaster finish which deteriorates from the area of the fourth landing down to the tower bottom. Repointing is required in this portion of the tower, and is especially severe in the area of the second landing.

**Recommendations:**

Additional evaluation is recommended to determine the source of mortar and surface deterioration near the bottom half of the tower. This information should be evaluated prior to replacement of plaster coatings. Based on this evaluation, a determination will be made as to replacement of the plaster coating. Repoint mortar using a lime based mortar compatible with the characteristics of the historic mortar. Repaint using a breathable coating.

6. **Stairs:**

**Evaluation:** Significant, Sound With Repairs Needed

Granite treads rise the full height of the tower and are painted. The granite bears into brick exterior walls and interior column. There are 9 iron steps to the lens room from the rotation room. The top tread of this stair is wood and is supported by the exterior wall and beam supporting the floor above. There are six iron steps from the rotation room floor to the gear platform. The steps appear to be original.

There are thirty-one steps from the landing below rotation room down to 5th landing. The 2nd step from the bottom is damaged and clamped with plywood at the top and bottom as a repair.

There are thirty-one steps from 5th floor landing down to 4th floor landing. Step 16 down is damaged and repaired using wood and steel angles clamped top and bottom. The underside of the bottom ¼ of stairs show substantial pitting and deterioration.

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Recommendations:
Broken granite treads should be repaired using a less intrusive method. Alternatives could include stainless steel dowels drilled and epoxied to both pieces or support plates under treads.

7. Stair Railing:
   Evaluation: Non-Original, Compatible
   The main stairs have contemporary galvanized tube railings and supports that have been painted. This replacement railing is consistent with the style of railing common to this period.

Recommendations:
The handrail is serviceable and compatible with the historic characteristics of the tower. The railing should be retained and repainted.

8. Foundation and Floor:
   Evaluation: Significant, Sound
   Historic references indicate that a wood grillage was used below the water table and brick was used above the water table. Floors are granite. There is no evidence of settlement or foundation distress.

Recommendations:
No work is required at this time.

   Evaluation: Altered
   The tower is accessed from its west-northwest side through a solid wood door, 2'-9" wide x 7'-8" high x 2" thick with 5 panels. The top and bottom panels are solid with the 24 inch long x ½" thick strap hinges bolted through them. The three center panels are raised decorative panels with the bottom one modified to accommodate a lockset now missing. The door has a hasp and lock to secure it and is pulled open by a rope where the lockset used to be. The door is heavy and binds, but is serviceable. The 5 windows in the tower, 2 stacked vertically over the door and 3 stacked vertically on the opposite side are aluminum single hung units painted black. The first landing window is not operational, but the other four are. At the watch room / machine room, an aluminum awning window exists on the east southeast side. The steel arch top door to the watch balcony is directly opposite over the first floor door. This door at 24" wide x 5'-10" high is decorated with 4 panels, is non-operational, bound open at 45° and rusted through at the bottom.

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Recommendations:
The ground floor entrance door is serviceable, but requires repairs to hardware and its fit to the frame. This door and associated hardware should be repaired. All windows should be replaced with units based on historic research. The door at the top should be removed for repairs and reinstalled after restoration.

10. Watch Room:
   Evaluation: Significant, Deteriorated
   The watch room walls are brick with a plaster coating on interior and exterior surfaces. The floors are cast iron and the room contains one window facing Fort Jefferson to the east, and one door to the watch balcony, opposite the window on the tower’s west side. There are five circular thru-wall bronze vents that have been painted. Electrical lines are run through two of these vents to the exterior solar panels and antenna. The lens pedestal base is in place, but the original Fresnel lens has been replaced with a contemporary Coast Guard lens. The walls of the watch room show signs of spalling and through wall cracks.

   Four I-beams support the watch room floor, limiting access to the watch room from the tower stairs below. The I-beams show signs of rust and deterioration, especially where they bear at masonry walls. Additional inspection by removing adjacent brick would reveal the soundness of these members and whether repair and/or replacement is needed.

   Recommendations:
   Repairs to the watch room walls are required. Repairs may include brick replacement at thru-wall cracks and/or filling cracks with mortar, grout, or an epoxy injection method, although epoxy would be the least preferred method. Finish coatings should be restored. Steel beams should be repaired or replaced as needed. All surfaces should be painted.

11. Watch and Lens Galleries:
   Evaluation: Significant, Altered, Deteriorated
   The outside gallery consists of a cement wash floor over corbelled brick below. Cast iron railing supports and base have been replaced with galvanized components, but the railing replicates the original. Old support locations in the concrete deck are apparent and cut off flush with the spacing of new supports the same as original, but offset from their original location. Spalling of new post anchors is similar to the original with spalling occurring consistently at all new railing connections and at most old connection
locations. This railing matches the lens balcony railing. Contemporary solar panels on the south side obstruct circulation on the watch balcony. A stainless steel compression ring has been added around the perimeter of the gallery floor to contain spalling concrete and brick.

The lens room gallery is accessed by an external caged ladder. The gallery railing replicates the original. An antenna with associated cables has been mounted to the top of the ladder cage. A galvanized steel beam spans across the east side facing Ft. Jefferson, cantilevering over the balcony.

**Recommendations:**
Repairs to spalling brick and concrete surfaces are required. Replacement brick and mortar should match the historic materials. Remove anchors from masonry and replace with stainless steel epoxied into the tower structure or use lead shields. Repair or replace damaged bricks and stabilize the watch gallery surface. Repair metals at the lens room gallery.

12. **Lantern Room:**

**Evaluation:** Significant, Deteriorated

The cast iron floor is cantilevered out from the walls in 14 sections that are bolted together. This floor is rusted and requires extensive restoration. Glass lites are 3 panels high and there are 16 sections for a total of 48 lights. Rectangular iron muntins separate glass with bronze stops on the exterior. The original first order Fresnel lens has been replaced with a marine rotating beacon dated June 1996. The roof framing is concealed on the inside by the painted tin cladding. Tin sections screw to roof framing members, but have come loose at many locations and seams are buckled. The bell shaped tin vent over the lens platform remains (and is 6' in diameter). All glazing has been replaced with Lexan panels and a colored sealant adheres the Lexan to the framework. Clear silicone caulk has been applied around each pane at the exterior. The lens pedestal is still in place.

**Recommendations:**
All rust and scale should be removed from metal components, to bare metal. Repairs should be made using a M.I.G. welding method. After cleaning, and within 6 hours of obtaining bare metal, prime with an inorganic zinc primer. Repaint as appropriate.

13. **Roof:**

**Evaluation:** Significant, Deteriorated

The roof is an iron framework clad in copper, and painted black. The ventilation ball is deteriorated and dented, with several vent holes deteriorated through.

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Recommendations:
Repair the roofing and ventilator ball. Repaint as appropriate.

14. Electrical System:
Evaluation: Required, New
A photovoltaic installation to power the entire island is in progress, with plans to abandon the existing diesel generator. The lens is on a separate photovoltaic system. Surface mounted conduit and contemporary light fixtures have been installed throughout the tower.

Recommendations:
The photovoltaic system is a new installation and no work is required.

15. Lightning Protection System:
Evaluation: Serviceable
A lightning rod is mounted on the ladder cage, with the cable coming down on the exterior on the north side.

Recommendation:
The system appears serviceable, but should be tested by a qualified lightning protection specialist.

16. Probable Cost for Restoration:

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<tr>
<th>Description</th>
<th>Cost</th>
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<td>Interior &amp; Exterior Wall Repairs &amp; Repointing</td>
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<td>Interior &amp; Exterior Paint</td>
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Kenneth Smith Architects, Inc.
and
Bender & Associates, Architects, P.A.
Associate Architects
Sub-total $232,000
Scaffolding/General Conditions @ 20% 46,000
Remote Site Contingency @ 40% 93,000
Total Construction Cost $371,000

Design Fees @ 12% 45,000
Reimbursable Expenses @ 5% 19,000
Total Probable Cost $435,000

18. **Recommendations for Future Use:**

The lighthouse is currently maintained by the Coast Guard, but the island itself is maintained by the National Park Service. The light is in fair condition, and should undergo a historic renovation based on the work outlined in this report. While the grounds are open to visitors, the tower is not. However, the light could be opened to limited public access on a regular basis. Regular ferry service is provided to Fort Jefferson every day, and this service could be extended to include access to Loggerhead Key on a smaller boat. Most of the surrounding outbuildings on the island are also historic and involved with the lighthouse, and should be restored in the future and maintained as housing for National Park Service employees. The outbuildings should be maintained on a continuing basis until funds are available.

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LOGGERHEAD LIGHTHOUSE HISTORIC PHOTO, SHOWING LIGHTHOUSE AND VARIOUS KEEPER'S QUARTERS BUILDINGS. DATE UNKNOWN
AERIAL PHOTO OF LOGGERHEAD KEY LIGHTHOUSE. NOTE DETERIORATED KEEPER'S QUARTERS BUILDING AT LEFT WITHOUT ROOF
BRICK IN NEED OF REPOINTING AT LANDING LEVEL TWO

FIRST FLOOR ENTRY DOOR
WATCH ROOM GALLERY DOOR EXTERIOR

FLORIDA LIGHHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

WATCH ROOM GALLERY DOOR INTERIOR
GENERAL VIEW OF LENS ROOM INTERIOR

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0119
Loggerhead Key
Lighthouse
Photos
Date: 4/15/02

CEILING OF LENS ROOM SHOWING SUPPORT FOR LENS. NOTE PANEL INSTALLED OVER MODERN BEACON TO SHED RAIN
VENTILATOR BALL AND LIGHTNING ROD AT ROOF. NOTE DETERIORATION AT BASE OF BALL

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
Loggerhead Key Lighthouse Photos
Date: 4/15/02

GENERAL VIEW OF ROOF
Name: Egmont Key Lighthouse
Location: Hillsborough County. Egmont Key, entrance to Tampa Bay
Type: Conical brick and concrete tower
Height: 87 feet
Daymark: White tower (no lantern)
Year Built: 1848. Rebuilt 1858
Owner or Operator: United States Coast Guard and operated by Florida Park Service
National Register Status: Not Listed
Active: Yes
Visitor Access: Yes, grounds accessible by boat, base of lighthouse is open for public visitation on special occasions.
Contact: Egmont Key Alliance, Inc., Richard Johnson, President at captr7@aol.com
Facilities: Oil Storage building, radio and generator building, and modern staff quarters

1. **History:**
The first lighthouse on Egmont Key was constructed in 1848 and was located approximately 100 feet northeast of the existing lighthouse. Congress decided to appropriate funds for a new lighthouse to be built farther inland when the lighthouse was severely damaged by two hurricanes. The new current lighthouse was built in 1858 and contained a fourth-order Fresnel lens. A one-story brick oil storage building was built in 1895 east of the lighthouse.

During the Civil War Union forces occupied Egmont Key. The lens had been removed several months earlier by Confederate sympathizers and sent to Tampa for safekeeping. The lighthouse was relighted in 1866.

A buoy depot was built on the island in 1872. Two, one-story buoy depot buildings were located near the east dock. This buoy depot stored, serviced, and painted all marine buoys between Key West and the St. Marks River.

A decision to replace the fourth-order Fresnel lens with a brighter third-order Fresnel lens with red sector insert in 1896 was recorded in the keeper’s log.

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Egmont Key was claimed by the military in 1898 as Fort Dade Army Base. Between 1898 and 1923, the lighthouse keepers shared Egmont Key with Fort Dade, one of the U. S. Army's primary coastal defense installations in the Gulf of Mexico.¹

A second, one-story concrete building was constructed between the lighthouse and the oil storage building in the 1920s to house radio equipment for the local Tampa airfields.

The original keeper's house was located north of the existing lighthouse. An assistant keeper's house was constructed south of the lighthouse at a later time. In the 1940s, the Coast Guard made some changes to the light station. In 1944, the lantern room was removed from the lighthouse due to excessive water damage. Portions of the top of the remaining brick tower were removed and the brick tower was capped with a concrete roof deck. The original 87-foot-high lighthouse was reduced to 70 feet 3 inches in height. The first keeper's house was removed at this time. The Coast Guard used the second keeper's house as a place for officers on lighthouse duty. The existing radio tower east of the lighthouse was also built during this period.

Later, the Coast Guard demolished the second keeper's house and built a one-story, concrete-block, house currently used as office space for the park service.

Egmont Key Lighthouse was the last Florida lighthouse to be automated in 1989.¹ In 1974, Egmont Key became part of the National Wildlife Preserve and, in 1978, the lighthouse, along with the island, was placed on the National Register of Historic Places.

Today, Egmont Key is co-maintained by the Florida Park Service and the U.S. Fish and Wildlife Service. The island contains native vegetation and a large population of gopher turtles, snakes, lizards and birds. Egmont Key Volunteer Association is slowly uncovering the remains of Fort Dade, including several miles of brick streets and building remnants while maintaining the natural environment on the island. The organization has recently restored the old Fort Dade prison that will be used as a new visitor's center. Visitors frequent the island to enjoy the beautiful beaches and tour the historic lighthouse, Army base, and fort remains. Visitors access the island by tour and private boats.
2. **General Description:**

The lighthouse is constructed of brick masonry in a conical shape with tapered exterior and interior cylinders. Exterior walls have a cavity between interior and exterior sections of masonry. The lighthouse sets on an 18-foot-2-inch-diameter concrete base that is approximately 4 feet 7 inches in height. A 7-inch, quarter-round, concrete water table surrounds the top of the foundation. (National Register Nomination Form.) Exterior surfaces have a one-eighth-inch-thick cement coating finish that is painted white. Interior masonry walls were originally whitewashed or painted and have been sandblasted to reveal the natural brick color.

Modern concrete steps with wood handrails provide access to the northeast lighthouse entrance door just above the concrete base. At the interior of the lighthouse, arched alcove openings, 9 feet 3 inches high, are located at both the north and south sides of the cylinder. The arched openings contain two opposing arched brick, semicircular niches at the east and west sides of the alcoves. The niches have plaster wall finishes and were used for oil storage.

The interior stair spiral is constructed with cast-iron treads that stack on top of one another to form the center support. The cast-iron stairs are bolted together at the exterior becoming self-supporting along the exterior brick wall with cast-iron dowels set in the brick wall below treads for additional support. There are three groups of 24 treads leading to one-quarter circle landings at window openings. The gray painted, cast-iron, stair treads have an open diamond pattern. A rope handrail is threaded though metal eyebolts attached to wood blocks inserted into the masonry wall. The handrail is interrupted at window openings.

The masonry tower has four modern, six-over-six, aluminum, double-hung windows with wood surround blocking set 90 degrees apart from one another. The windows have a direct relationship to the interior stair risers and treads. The modern replacement windows are smaller than the masonry openings. Wood surround blocking and plywood panels have been used to fill in the openings around and at the base of the windows.

The Coast Guard removed the original watch room, lantern room, exterior galleries, and roof from the Egmont Key Lighthouse in the 1940s. A 9-inch-thick concrete floor slab was cast inside the lighthouse to create the current watch room floor. A 9-inch-thick concrete roof slab was poured over the watch room to cap the top of the brick walls and support the modern light. The concrete roof slab extends approximately one foot beyond the exterior masonry walls below.

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The concrete watch room floor forms a one-half circle platform at the center of the fourth window. The 8-foot-2-inch-diameter watch room level is located below the original lighthouse watch room level. The current watch room is filled with surface-mounted electric boxes and batteries and has a metal pedestal in the center of the room. A metal ladder on the south side of the room leads through a steel roof hatch in the concrete roof slab to the roof above.

The modern beacon light flashes every 15 seconds, 24 hours a day. The light is mounted to a central concrete base above the roof slab. A deteriorated steel pipe handrail set in blocks of concrete surrounds the roof deck level. The concrete roof slab is finished with worn and peeling red paint.

The original lighthouse lantern room galleries had cast-iron deck plates and railings. The original lantern room had full height storm panes supported by cast-iron mullions. The original copper dome had a bronze ventilator ball with lightning rod mounted at the top. Remains of these components are located on the ground a short distance from the lighthouse and are partially covered by vegetation.

A detailed condition assessment on an item-by-item basis is as follows:

3. Site Improvements:
   Evaluation: Significant/good condition.
   Egmont Key Lighthouse stands at the northern end of Egmont Key. The island is located a few miles west of Fort deSoto Park in St. Petersburg, Florida where Tampa Bay flows into the Egmont Channel to join the Gulf of Mexico.

   Egmont Key is about two miles long and about a half-mile wide. Vegetation on the island consists principally of sabel palms and various types of native plants and grass. The lighthouse is located on the northeast corner of the island. It was the only lighthouse between Key West and St. Marks when originally constructed.

   Egmont Key light station consists of an oil storage building, a compressor/storage building, an abandoned radio tower and a one-story, concrete block, keeper’s house constructed in the 1950s.

   The oil storage building, built northeast of the lighthouse in 1895, is a small, white painted, one-story, brick structure that originally was approximately one-half the current size. The interior floors of the oil storage building are brick and the gabled, galvanized metal roofing is supported by wood framing. The original oil
storage building entry door opening at the southeast side of the building has been filled in with brick and a new entry door opening has been installed on the west side of the building. The building sets on a red painted concrete foundation. There are cracks in the brick walls on the south side of the building.

The compressor building northeast of the lighthouse and southwest of the oil storage building was built in the 1920s to house a radio beacon for communication with small commercial aircrafts flying into nearby Tampa airfields. The walls of the one-story building are white painted stucco over concrete construction. Wood frame roof construction supports a built-up roof on this building.

The Coast Guard built a modern, one-story, concrete block, keeper’s house south of the lighthouse in 1957. The house contains several amenities, including a kitchen, workshop, and pool table for the Coast Guard officer on duty. The two-week lighthouse duty included turning the light on at night by switching a breaker at the base of the lighthouse, operating the radio, and maintaining the lighthouse. The modern house is now used as office space for the National Park Service.

The light station has several worn, red painted, concrete walks that lead to the different buildings on the site. The primary vegetation in the area consists of small patches of grass and sand. Natural vegetation has grown close to the compressor/storage building. A palm tree is located near the entrance of the lighthouse.

Egmont Key and the lighthouse site are open to the public daily. Visitors are permitted into the base of the lighthouse, occasionally, when volunteers are present.

Chartered tourist boats dock directly northeast of the lighthouse. Visitors must walk through the light station complex to reach the northwest beach. A number of visitors passed by the site during our visit and many of them were interested in touring the lighthouse.

**Recommendations:** Property and grounds should be maintained.

4. **Masonry Walls:**

**Evaluation:** Significant/ fair condition.

Exterior brick masonry walls have a one-eighth-inch-thick, white painted, cement coating finish with areas at the base that are delaminating and cracking. A hole has been cut into the base of the masonry tower for the lightning ground cable that has damaged the masonry surface. Other holes remain in the brick.
construction where wires were formerly mounted. Rust from metal surfaces and mildew has stained exterior wall surfaces. A loose metal pipe is mounted over the first window opening. On the interior the same disconnected pipe is loose over the window.

Paint on the interior of the lighthouse has been sandblasted off to reveal the natural brick of the masonry walls. At the base of the lighthouse, arched alcoves, 9 feet 3 inches high by 3 feet 3 inches wide, are located at both the north and south sides of the interior cylinder. Each arched alcove contains two, 2-feet-7-inch-wide, opposing arched brick niche spaces located at the east of west sides of the alcove. The interior walls of the niche spaces have a rough plaster finish. A section of brick is missing from the north alcove arched opening. The niches were probably used for oil storage.

**Recommendations:** Remove and reroute conduit and lightning ground wires at base of the lighthouse. Repair holes and damaged areas at brick. Gently pressure-wash exterior surfaces to remove rust and mildew. Repair missing and loose areas of the exterior cement coating and repaint all areas. Remove metal pipe at north brick window opening. Repair brick cracks and open mortar joints around interior window openings. Repair cracks in brick walls at the watch room area. Replace missing brick at north alcove opening.

5. **Stair:**

**Evaluation:** Significant/good condition.

The interior gray painted, cast-iron, spiral, stair is constructed in three groups of 24 treads and with one-quarter circle, cast-iron, landings at window openings. Each tread stacks on top of the tread below at the center of the stair to form the center support. Treads are bolted together at the exterior of the stair to be self-supporting. The stair is not attached to the exterior brick wall but several metal dowels have been installed in the brick walls below the treads to help support the stair. Stair treads have an open diamond pattern and an open arch at each riser. There are small areas of rust on treads and landings. Stairs are 3-feet-5-inches wide with an average riser height of 8 inches. Treads are 14 inches wide at the exterior brick wall and taper to approximately 4 inches wide at the 10-inch-diameter center support. The center support has access panels located throughout the height of the stair. In some locations, the center support has been filled with wood debris.

The third one-quarter-circle, cast-iron, stair landing has cracked in the past and has been repaired with a sheetmetal overlay. There is a crack in the north stair landing and treads and landings have minor voids and missing chips.

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A modern rope handrail is threaded though metal eyebolts that are screwed into wood blocks inserted into the masonry wall. The handrail is interrupted at window openings and has metal turnbuckles at the start of each section of handrail.

**Recommendations:** Repair openings and cracks in north landing. Sandblast and repaint stair. Fill major voids in stair. Consider adding stair brackets for increased public safety. Remove debris from center pole.

6. **Interior Base of Lighthouse:**

**Evaluation:** Significant/good condition.

A modern concrete stair with seven treads and a green painted wood handrail provides access to the lighthouse entrance door. The entry stair risers have been painted a bright yellow with black strips.

Interior masonry walls were painted at one time and have been sandblasted to reveal the natural brick color. The red painted concrete floor is peeling in areas and the arched entrance shaft of the lighthouse has been splattered with paint.

Underneath the cast-iron spiral stairs is a 16-inch-square wood hatch for access to the interior wall cavity.

Two 9-feet-3-inch-high arched openings are located on the north and south sides of the lighthouse. The arched openings contain two opposing semicircular brick niches at the east and west sides with a 6-inch raised brick platform at only the north alcove. Interiors of the semi-circular niches are stucco and have an arched top. A section of brick is missing at the north arched alcove opening.

**Recommendations:** Repair brick at arched alcove opening. Repoint brick where needed. Replace entrance steps and handrail with reproductions of original entry stair.

7. **Exterior Openings- Doors and Windows:**

**Evaluation:** Significant/non-historic/replace.

The main entrance door to the lighthouse has a modern oversized metal door and metal frame.

The lighthouse has four, six-over-six, modern, double-hung, aluminum windows with wood blocking surrounds that occur at every twenty-fifth step which terminates at a one-quarter landing. The windows are 10 inches shorter than the original openings. Plywood panels have been installed as in-fill at the
remaining space at the bottom of the windows. The arched brick window openings in the lighthouse masonry walls have ventilator openings to the interior wall cavity cut in each side of the window returns. Brick above window openings is supported by one-inch, cast-iron lintels that have rusted. Window openings have curved brick stools and floors. Glass at the window at the base of the lighthouse is cracked.

Originally, wood shutters covered the original six-over-six wood windows. At one time, the shutters were replaced with awnings that were removed when the current aluminum windows were installed. Wood blocking around the windows is deteriorated and needs to be replaced.

**Recommendations:** Replace the modern metal entry door and doorframe with a historically accurate wood door and wood frame. Replace aluminum windows with six-over-six, double-hung, wood windows with wood frames fabricated to match the original windows. Remove cast-iron lintels from above window openings, sandblast, repair, and reinstall. Install wood shutters to replicate original shutters at window openings. Repair cracks in brick masonry around cast-iron lintels.

8. **Watch Room:**

**Evaluation:** Significant/non-historic.

Due to a severe water leak problem at the lantern room in the 1940s the Coast Guard removed the watch room, lantern room, exterior galleries and roof and replaced the watch room floor with a concrete slab. The lighthouse was reduced from the original height of 87 feet to 70 feet 3 inches by removing a section of the watch room’s exterior brick walls. A new concrete watch room floor was poured in the interior of the tower at the center of the fourth window opening. The new watch room concrete floor forms one-half of a circle platform and has areas of deteriorated red paint.

A concrete beam was installed inside the window opening and connects to another perpendicular concrete beam that was installed to span back to the concrete beams at the center pole. Two other concrete beams connect to one another at the center pole and span out to the exterior brick wall. Several cast-iron stairs were removed when the concrete floor was poured lower than the original watch room height. A yellow caution sign is painted on the underside of the 9-inch thick concrete slab.

The lighthouse interior cylinder is 8 feet 2 inches in diameter at the watch room level. The cast-iron stair terminates at the south side of the room; a metal pedestal sets in the center of the room at the edge of the
concrete slab; and a metal pipe handrail is secured to the concrete slab protecting the remaining opening. The metal pipe handrail terminates at the top of the window opening on the north side of the room.

A white painted, 9-inch-thick, concrete slab ceiling of the watch room forms the roof area above. A hole is cut in the ceiling for the pole support of the first modern light. The first modern light and pole have been removed and the light is exhibited southeast of the lighthouse. The second modern light now in place does not require a pole support. A metal ladder leads from the watch room level through a steel roof hatch to the roof level above.

A crack in the exterior brick wall at the watch room level extends almost around the room. Remaining footprint outlines, holes and brackets once used for equipment remain on the brick walls. Two modern copper lightning cables feed through holes in the concrete roof slab and are routed with electric conduit down the interior of the lighthouse.

The watch room is filled with modern electrical equipment including batteries, surface mounted electric boxes and chargers.

**Recommendations:** Repair masonry cracks around window head. Repair the crack in the brick wall. Repoint brick at holes. Sandblast concrete ceiling to remove peeling paint, repair concrete, and repaint.

A long-term restoration goal should be to remove the concrete watch room slab and reconstruct the original watch room.

9. **Roof:**

**Evaluation:** Significant/non-historic.

The roof is accessed through a metal roof hatch mounted above an opening in the concrete roof slab. The concrete roof slab caps the top of the original brick walls and extends approximately one foot beyond the brick walls. Red paint on the concrete roof surface is peeling and missing in areas. The center of the roof has a raised concrete base covered with a metal panel that supports the modern light. The modern light, with DCB-24 4RPM 24-inch rotation optic, continuously rotates and flashes a light every fifteen seconds.

A single, black-painted, metal pipe handrail with support stanchions cast into raised concrete pier circles around the outside concrete edge of the roof slab. A modern backup beacon light is mounted to the southwest side rail and four lightning rods are mounted to the north and south railing. The lightning rod
ground wires are routed down through holes in the concrete roof slab. A flat copper lightning ground strapped to the concrete roof is routed down the metal hatch opening into the interior of the lighthouse. Metal eyebolts located around the perimeter of the roof deck are badly rusted and deteriorated.

**Recommendations:** Install a weatherproof coating on the roof deck surfaces. Replace the deteriorated metal handrail with Code compatible railing. Seal openings for lightning rod ground cables.

A long-term restoration goal should be to remove the concrete roof slab and reconstruct the original lantern room and exterior galleries.

10. **Electric System:**

**Evaluation:** Significant/ non-historic.

A surface-mounted electrical box is located at the base of lighthouse near the base of the cast-iron spiral stair. A screw-in fluorescent light fixture is mounted on the wall above the surface-mounted electrical box.

Electric panels are surface mounted on the interior of the exterior walls at the watch room level. Batteries, battery chargers, and other miscellaneous equipment are also located in the watch room. Evidence of previous electrical panels remain on the watch room brick walls. A screw-in light fixture is located at the watch room level.

Electric conduit is routed down the interior of lighthouse and out through a hole in the exterior wall near the base of the lighthouse.

**Recommendations:** Remove and replace the electrical system to minimize the impact of the electrical components in the historic lighthouse.

11. **Lightning Protection System:**

**Evaluation:** Significant/non-historic.

Four modern lightning rods are mounted to the cupola railing at the top of the lighthouse. Modern copper ground wires connect to the lightning rods and are routed through holes in the concrete roof slab and down the interior of the lighthouse. A flat copper ground is attached to the roof hatch and handrail and routed down the inside of metal hatch to the watch room wall, and down the interior lighthouse wall, and along the lighthouse floor. Lightning grounds are routed out through the brick wall near the base of lighthouse.

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**Recommendations**: Replace the lightning protection system when the top of the lighthouse is restored.

12. **Probable Cost For Restoration**:

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<tr>
<th>Item</th>
<th>Cost</th>
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<tr>
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<td>Selective Demolition</td>
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<tr>
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<tr>
<td><strong>Total Probable Restoration Cost</strong></td>
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</tr>
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</table>

13. **Recommendations for Future Use**: Egmont Key Lighthouse is located on historic Egmont Key near St. Petersburg, Florida. Tourists and local residence enjoy the natural habitat and white sandy beaches of Egmont Key. Visitors to the island pass by the lighthouse site to reach the nearby beach. The Egmont Key Association could take advantage of this opportunity to sell lighthouse and other miscellaneous items to help fund the restoration of the lighthouse.

The long-term goal should be to reconstruct the lighthouse watch room, lantern room and exterior galleries to the original configuration. Remaining debris from the original lantern room and galleries should be preserved to be used for patterns for the reconstruction.

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Currently visitors to the island are only allowed to view the base of the lighthouse when volunteers are present. Early photographs of the lighthouse site are on display in the southern alcove of the lighthouse. The lighthouse could be open for public visitation when restored. During our visit to the lighthouse a large number of visitors expressed interest in seeing the lighthouse.

WEST VIEW OF LIGHTHOUSE

NATIONAL ARCHIVE PHOTOGRAPH OF EGMONT KEY LIGHTHOUSE c.1890 (JOHN HAIR, FLORIDA Lighthouses, ARCADIA PUBLISHING, GREAT BRITAIN, 1999, p.92)

SOUTHEAST VIEW OF LIGHT STATION
MODERN CONCRETE ROOF CAP AT TOP OF LIGHTHOUSE

ONE-STOREY OIL STORAGE BUILDING NORTHEAST OF THE LIGHTHOUSE

EGMONT LIGHT STATION WITH OIL STORAGE BUILDING, COMPRESSOR BUILDING AND LIGHTHOUSE
CONCRETE STAIRS TO LIGHTHOUSE ENTRANCE

ELECTRIC CONDUIT ROUTED OUTSIDE LIGHTHOUSE AT CONCRETE BASE

CRACK IN 1/8" THICK COATING AT CONCRETE BASE
HATCH IN CAST-IRON STAIR CENTER POLE

CAST-IRON SPIRAL STAIR AND ¼ LANDING

DEBRIS FROM 1940'S REMOVAL OF LANTERN ROOM AND WATCH ROOM
VIEW EAST FROM LIGHTHOUSE ROOF

ROOF AREA SHOWING STEEL HATCH AND CONCRETE BASE FOR MODERN LIGHT
Name: Fowey Rocks Lighthouse
Location: Dade County, 6 miles off coast of Key Biscayne
Type: Wrought iron skeletal screw-pile tower with integrated keeper's quarters
Height: 125 feet
Daymark: Brown octagonal pyramidal skeletal tower enclosing white octagonal 2 story keeper's quarters and white stair cylinder
Year Built: 1878
Owner or Operator: U. S. Coast Guard
National Register Status: Not listed
Active: Yes
Visitor Access: Proximity access by boat, no direct access
Contact: Florida Keys Reef Lights Foundation, Brenda Atmeier, P.O. Box 0831, Key Largo, FL 33037, E-mail: brenda.atmeier@noaa.gov
Facilities: None

1. History
Fowey Rocks is the fifth iron pile lighthouse to be constructed in the Keys and was first lit on June 15, 1878. The 110-foot tall skeletal brown tower is distinguishable from its twin, American Shoal, only because Fowey has a white dwelling and stair cylinder, and a more ornate roof. It was named after a British warship, H.M.S. Fowey that shipwrecked nearby and acquired the nickname “Eye of Miami” for safely guiding ships into that important port.

During construction, weather hindered progress, sometimes marooning men for days. They also watched in horror as several ships came close to demolishing their platform. This gave them a sense of pride in their work as they saw first hand the need for a navigational aid.

The original lighting apparatus was a first-order revolving Fresnel lens. It had sixteen sides that sheltered the lens and lamp. The lens had been seen by thousands of people at the 1876 Philadelphia Centennial Exposition and it can still be seen on display today at the Coast Guard's Aids to Navigation School in Yorktown, Virginia. The lighthouse became automated in 1974. The present optic is a VEGA VRB-25 rotating beacon, powered by solar batteries. Fowey Rocks still flashes a white, ten-second light, with red flashes over the coral reefs.

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Of the many keepers/assistant keepers on Fowey Rocks, Jefferson B. Browne spent his spare time there studying law only to go on to law school. He later became a Supreme Court Justice for the State of Florida. His book, *Key West: The Old and the New*, is one of the most significant histories of the City. (Monroe County Public Library).  

Fowey Rocks has survived many hurricanes, the most famous being the hurricane of 1935. It took almost a direct hit from Hurricane Andrew in 1992, but survived the storm with minimal damage. In July 1994, a team of engineers and architects inspected the lighthouse to document needed repairs. Such repairs included replacement of the lantern glass and the installation of two modern (Lexan) panels of red glass behind the north and south light sections needed to mark the reefs. Their report indicated that “given its age and exposure, Fowey Rocks Lighthouse is in fair condition.” Some corroded brackets in the galleries “require immediate replacement,” and some rods in the foundation “exceed safety margins”; however, what was needed most to slow the lighthouse’s deterioration included sandblasting and painting.

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2. Ibid. 233

2. **General Description:**

The Fowey Rocks Lighthouse is an iron tower sited five miles east/south-east of the Cape Florida Lighthouse on Key Biscayne. The octagonal tower is set on screw piles with its landing dock on the westerly side. Access from the landing platform to the main level is by way of a ladder through a hatch. The deck surrounding the keeper’s quarters is cast iron checker plate with reinforced ribs cast in. The keeper’s quarters is a two story octagonal building with the second level designed as a mansard roof with dormers. The mansard includes battens and details are characteristic of the Second Empire. Access to the lens is via a spiral stair housed in an eight-foot boilerplate iron tower. Although severely deteriorated with sections missing (removed to accommodate the generator installation), the original guardrails are intact. Where railings are removed, chains have been placed across the opening for protection. The watch room is octagonal in plan with windows in each face of the octagon. Above the watch room is the machine room with the access to the watch balcony. The lens room, glazed with triangular lites, is capped by a domed roof.
3. **Site Improvements:**

**Evaluation:** Non-Significant, Altered, Sound

Fowey Rocks Lighthouse is sited about five miles east/south-east of the southeast tip of Key Biscayne. The northernmost of the reef lights, Fowey Rocks is the only one that has navigable approaches on all sides. The landing platform is set on the westerly (W/S.W.) side of the tower with the dock and ladder on its south side. Placing the same ladder and dock bumper components on the west and/or north sides of the landing platform would greatly enhance docking options and improve safety.

**Recommendations:**
Ladders, tie-offs and bumpers should be placed at the west and north sides of the landing dock. The access dock should also be periodically maintained by repainting and sealing wood with preservative.

4. **Exterior Structure/Walls:**

**Evaluation:** Significant, Sound, Areas of Deterioration.

The structure is iron with 12" diameter columns at the main level, reducing in size as they progress up the tower. Each of the eight sides is braced with iron rod cross-bracing, tensioned by turnbuckles. There are four vertical bays of this bracing – three from the main platform level to the watch room floor and one between the top of the screw pile foundations and the main level floor plates. The central stair tower is braced to the exterior columns with a round horizontal strut at each joint and diagonal rods tensioned by turnbuckles between the struts. The exterior keeper’s quarters, stair tower, watch tower and lens room are all metal. Wall surfaces are painted. Rust and peeling paint is apparent on all surfaces, but not excessive. Fascias, mansards and dormer windows all show signs of deterioration.

**Recommendations:**
Areas of deterioration should be treated by removal of paint by sandblasting and welding in of new plate using a M.I.G. welding process. The areas should be primed and painted with high quality paint. Periodic maintenance of this type is essential to the preservation of the lighthouse.

5. **Exterior Openings/Doors & Windows:**

**Evaluation:** Altered, Significant

The main level has two exterior door openings, an original to the northwest side and a door to the south/southeast side. The original door opening had paired in swing doors and paired out swinging storm shutters, as evidenced by hinge marks on the frame. Currently, this opening is covered by sheet steel doors, fabricated from 3/8" x 1" bar stock on the inside face. The second exterior door at this level was

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originally a window; removed to accommodate installation of a diesel generator. (This is also when the guardrail was removed.)

Two wood double hung windows with four over four sashes flank the main entrance doors. These units are 25" wide x 55" high, with 10" wide x 12" high glass lights and had 2" thick solid board storm shutters hinged on one side and swinging away from the door. Directly opposite this wall, in the room housing the generator, was the exact same configuration of doors and windows, including the 1876 date above the door. Remnants of one window remain on the inside while gypsum board covers the other openings on the exterior. Sheet steel is inset in the door opening. The remaining six walls each have a wood six over six double hung window 34" wide x 54" high with 10" wide x 12" high glass lights. Five of these units remain. Some have broken glass or missing muntins. All are painted shut and all five appear restorable. All of the existing windows at this level are covered with sheet steel, bolted and welded in place. All eight dormer windows are wood, double hung with four over four sashes, 24" x 54" high. The glass lites are 10" x 12" and sash frames are iron. Seven of these windows are covered with steel plate. All appear to be restorable. Single hung windows with four over four wood sashes, 20" wide x 54" high overall and 8" x 12" glass lights, are located in the stair tower at the first, second and third landings above the keeper’s quarters. The first landing is restorable, but the second and third windows require replacement.

There are eight double hung windows in the watch room. The originals were two over four wood sashes with 8" x 10" glass lights. Five of these remain. The other three have modified sashes. The machine room has no windows, but it has the access doors to the watch balcony - a pair of 16" x 78" steel doors, which are rusted though in places. While probably replacements, they are compatible and similar to the original.

**Recommendations:**

The current door and window coverings are adequate for protection of the lighthouse. When a restoration is undertaken, either full or partial, all of the doors and windows should be restored as most of the material still remains. Severely deteriorated units can be replaced in kind. Protection of the windows can be accomplished with storm shutters.

6. **Foundation and Floor Structure:**

**Evaluation:** Significant, Sound, Altered

The foundations consist of iron screw piles set into the reef. Floors are framed with iron beams radiating from the central column to the eight perimeter columns. The floor plates are cast with reinforcement and support ribs. Various components require repair including M.I.G. welding of cracked floor plates. As with
all of the reef lights, a lower platform once existed at the first structural tier. The platform was used for storage and boat handling, and has been removed. Historic photos show that several hoists were also located at the keeper’s quarters level for handling of boats and supplies. These historic photos also show that several tanks were once suspended below the level of the keeper’s quarters platform. A hoist consisting of an I-beam is situated on the south side of the keeper’s quarters platform; the hoist is no longer sound and should be removed.

**Recommendations:**
At present the foundation and floors are sound, but rusted. They should all be sandblasted down to bare metal to remove rust and primed within six hours of initial cleaning. Deteriorated sections should be repaired by welding, and the structure should be primed and repainted. The hoist should be removed from the south side of the keeper’s quarters.

7. **Interior Openings:**

**Evaluation:** Significant, Sound

Interior doors divide the main spaces of the keeper’s quarters at the upper level; two doors access these spaces from the stair tower. These two doors have six glass lites over two raised panels. They are 2" thick, 2'-6" x 6'-8" and are hung in iron frames. The two doors between the three main rooms are 2" thick, 2'-6" x 6'-10" and four panels. Two of the rooms have four panel closet doors 2'-6" x 6'-10" x 1'-3/8" thick. A 2'-0" x 6'-0" two panel door was hung at the bathroom. Interior doors at the first level of the keeper’s quarters include the door to the stair tower at the generator room doors, including a closet door. These doors match the upper level doors, although the generator room doors have been modified by the addition of Masonite panels over some faces for fireproofing.

**Recommendations:**
All of the interior doors should be stripped and repainted. Much of the hardware is original and should be restored and made functional. The doors at the generator room all have Masonite panels mounted over them. These panels should be removed and the doors should be restored to their original painted wood finish. **A number of the reef lights have lost their interiors. Therefore, these doors have gained extreme significance and their preservation should be given a high priority.**

8. **Interior Finishes:**

**Evaluation:** Significant, Sound

The lower level of the keeper’s quarters is divided into four rooms. The northwest room is trimmed with 4" wood vertical tongue and groove boards, furred out from the exterior iron plate walls. Each room has 7 1/2"
high wood base molding. The ceiling is furred in the same manner, with 4" wide painted wood T&G. The flooring throughout the keeper's quarters is 9" x 9" linoleum flooring over the original wood flooring. Window trim is wood, 4-1/2" wide, with molding in three parts. The southwest room has the same floor, walls, and ceiling. The northeast room has a kitchen counter along the exterior wall. The room has the same wall, ceiling, flooring and crown molding finishes. The southeast room is converted to a generator room with diesel generator. Masonite paneling has been added to the walls, ceiling, and doors over the original wood. The doors are original. The stair cylinder walls are all painted iron plate.

The second level has the same 9" x 9" linoleum flooring, 4" vertical tongue and groove ceiling, 7-1/2" wood base molding and some crown-molding (2-1/2") in each room. All the rooms contain electrical outlets and lighting, all of which are surface mounted. Some rooms contain painted wood chair rail molding at 29" above the floor. All of the doors are wood. Four tie rods with turnbuckles are visible at the outside of the stair cylinder and are painted to match the wall color. All interior finishes appear original except some partitions on the second level and generator room.

**Recommendations:**
Most of the interior finishes are intact and only in need of sanding and repainting. All doors should be refinished and all hardware made functional. Missing wall, ceiling, and floor finishes should be replaced to match originals. The generator room should be converted back to a functional living space, with finishes matching the other rooms. The generator, the masonite panels lining the walls, and all abandoned electrical panels and wiring should be removed.

Most reef lights have lost their interiors. Therefore, this historic interior has gained extreme significance and its preservation and restoration should be given a high priority. This interior should be considered irreplaceable.

9. **Stairs:**

**Evaluation:** Significant, Sound

The main stair cylinder is composed of cast iron steps, which stack over the main support column. The treads are 36" wide, 3-1/2" at narrowest and 14" at widest. The stair units bolt together at top and bottom. The central column is 8-1/2" wide. The stair cylinder is 86-1/2" wide and is composed of eight curved panels bolted together. Panels are 33-1/2" wide x 64" high and consist of curved plate iron attached to a frame of flat bar 3-1/4" deep x 1/2". The frame has two equal horizontal stiffeners and one vertical stiffener. The panels are attached together with 1/2" bolts at 10" o.c., both ways. The cast iron stair is original and very sound. From the watch room level, seventeen treads lead down to a half circle landing with a
window. Fifteen treads then lead down to a landing with a window. Thirteen treads then lead down to the upper level of the keeper’s quarters. Twelve treads lead down to the lower level of the keeper’s quarters. The structure of the cylinder extends all the way down to the lower level of the keeper’s quarters. The second level floor framing of the keeper’s quarters is framed into the structure of the stair cylinder, as well as the roof of the keeper’s quarters. At the level where the keeper’s quarters roof frames in, the plate of the stair cylinder is thickened to 1-1/2” thick, with 3-1/2” thick frame. This level is 28” high. Holes are cut out for ventilation of the keeper’s quarters roof, including wood furring. There are two wood doors leading out of the stair cylinder at the upper keeper’s quarters level, and one at the bottom.

**Recommendations:**
While all of the metalwork is currently sound, the metalwork in the cylinder, including the stairs, should periodically be sandblasted, primed, and repainted at the interior and exterior.

10. **Railings:**

**Evaluation:** Significant, Sound

The stair rail is a 2” metal pipe rail, set 34” above the tread nosing, and has brackets at approximately every 88 inches. The brackets return to the stair cylinder structure and are bolted in with angles. The rails are sound, but rusty. They appear to match the original. The rails break at the windows.

The exterior guardrail at the lower platform appears original. Verticals are 44” high, composed of 1-3/4” pipe rail. Each vertical has a ball finial at its top. The bottom and intermediate rails are flat bar, 2” x ½”, located at 6” and 29” above the floor. Verticals run between the bottom and intermediate rails. They are composed of ¾” diameter iron rod at 6-1/2”o.c. The top rail has a curved profile, 2-3/8” wide x 1-1/8” thick. The railing is significantly rusted and broken off in places and in need of repair.

The guardrail at the Rotation Room Gallery is described in that section.

**Recommendations:**
The missing sections of rail should be replaced with new sections matching the originals. Rusted rail sections should be either repaired by welding or replaced with new iron sections to match the originals. The entire rail should be primed and repainted.

11. **Lower Watch Room:**

**Evaluation:** Significant, Sound

The watch room is at the top of the stair cylinder. It is octagonal, with eight windows, one at each side.
The ceiling is composed of the iron plate of the machine room above. The ceiling is 8'-0 1/2" high. Two ceiling I-beams run east west, supporting the plate. They are stamped "Phoenix Ironworks, Philadelphia" and are 8-1/2" deep x 5" wide. A 10-1/4" deep x 8" wide ventilation soffit runs along the ceiling. The soffit is perforated with 2-1/2" x 6" curved holes at 6" o.c. There are circular holes on the other side of the exterior. The exterior cast iron brackets supporting the gallery are visible through the ventilation holes. The brackets are severely rusted. The gallery extends over the holes, protecting them. The floor of the watch room is iron plate, painted black. The main stair runs down from the center of the watch room, from a half circle shaped opening. A guardrail 36" high surrounds the hole. It has a top rail 2" in diameter, with ¾" verticals at 5" o.c., and a flat bar bottom rail. The vertical supports are fluted iron at 24" o.c. The guardrail is sound and original. There are 3" diameter columns at each corner of the room (8), which terminate at the bottom of the gallery. This appears to be structural bracing (additional) which was applied later. The columns have 16" high x 23" wide bases which appear to be concrete. The watch room walls are cast iron plate 24" wide x 68" high, screwed to the outer wall at 16" o.c. The bottom panels at the floor angle out +/- 3". The bottoms of all the floor panels are rusted. The windows are identically sized, 19-1/2" wide x 33-1/2" high, with sills at 38" above the floor. Many of the sashes are different – some two over four, with the larger bottom sash 2/3 of the window. Frames are all cast iron. All windows have been welded and bolted shut. All have missing panes. All have sash weights, mostly intact. The iron window frames protrude 1-3/4" into the interior with supporting fins attached. A curved cast iron stair winds up to the machinery room. It is 27" wide with a cast iron original handrail at the inside. It has open risers and cast iron treads with raised perforated patterns. The rail for this stair ties into guardrail for the opening at the main stair with a 2" diameter pipe rail.

Recommendations:
All of the metalwork in the lower watch room, including the stairs, should be periodically cleaned of rust, including sandblasting, and repainted at the interior and exterior. The windows should be refurbished and made functional, including hardware and sash weights. Functional exterior shutters should be fabricated and installed at each window. The exterior brackets supporting the gallery above should be further inspected. If they are found to be beyond the level of repair by welding, they should be refabricated and replaced.

12. Lens Room:

Evaluation: Significant, Sound

The lens room is circular 11'-6" in diameter with 10 feet high sidewalls and 16 facets to the circle. The ceiling is composed of metal paneling attached with battens. Sixteen tie rods extend horizontally from every vertex to support the lens top collar at the top plate. The room is painted white.

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The walls are composed of three levels of glazing. The first is 34" high, the second 40", the third 47". The lens room glazing is attached with 3/8" x 1-1/4" battens, screwed to the vertical frames at the exterior. There is an exterior handhold at every vertical frame, at 8'-2" above the floor, and a horizontal pipe handhold extends around the top plate. There are two knobs at the top plate of the lens room interior, for hanging curtains. The vertical window frames are structural, and are 5" deep x 1-1/4" thick. Each glazing panel is 27" wide and has been replaced by tempered glass with sealant. There is a ventilator at the base of every other window – eight in all. Standing water has collected in a recess located at the windowsills between the ventilators. Major rusting is occurring and this should be addressed soon.

There is a 27" deep historic cast iron catwalk around the lens platform. The catwalk is composed of 14 panels with 2 missing for the stairwell, each with a 14" glass skylight. The lens pedestal is 79-1/2" wide, and now serves as the mount for the VRB-25 beacon. Much of the glass has been removed with the rest painted over. The floor plates are supported by brackets at the machine room below. The ventilators at the windowsill lead to the machine room below.

The lens room has a 26" wide circular exterior gallery around it, surrounded by a 30" high guardrail. The gallery is accessed from a ladder at the watch room gallery, 19" wide, rusted, but sound, and extends 5' over the machine room walls, protecting them. The guardrail for the gallery is composed of sixteen stanchions, topped by a \(\frac{1}{2}\)" x 2" flat bar. The guardrail is sound and appears newer.

The gallery is sound, with only surface rust. It has a raised diamond pattern for traction.

**Recommendations:**
All of the metalwork in the lens room should be cleaned and painted. The glass in the floor plates should be replaced where broken. The glass at the lens room should be inspected for leakage and sealed. Water is entering the lens room at some point and collecting at the windowsill. The source of this leak should be found and repaired.

13. **Rotation Room and Watch Gallery:**

**Evaluation:** Significant, Sound

The rotation room is located below the lens room at the gallery level. It contains the lens pedestal base, the door to the gallery, and a small closet. It also houses the modern batteries for the beacon, as well as three electrical panels. The room is circular and contains a vestibule leading outside to the gallery and

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down the stairs. A steep iron stair to the lens room has closed risers and forms the ceiling of the vestibule. The stair is in excellent shape.

The original lens pedestal is mounted to the floor. It is 14” wide at its base and tapers gracefully as it rises. The floor is iron plate with a raised diamond checker plate pattern. The room is circular, 14” – 3” diameter. Sixteen iron panels, 34” wide x 87” high, connected by 3/8” x 2” battens and screws form the walls. A small curved closet is on the north side of the room. 14” wide x 43” deep with a historic iron panel door 70-1/2” high. This door has 2 hinges and no hardware. All of the iron panel walls are painted and sound, though there is rust at the floor, and much of the modern equipment is rusting.

There are 2 doorways at the vestibule, both 26” wide x 76-1/2” high, but the doors have been removed. There is another closet at the vestibule with an iron panel door 17” wide x 70-1/2” high.

The cast iron stair leading down to the watch room is 26” wide; both the stair and handrail are original. A set of double doors leads to the gallery. They are each 16” wide x 78-1/2” high, iron, four panel with iron plate battens, 3/8” x 2”. The door has an iron threshold 5-1/2” wide. The doors are rusted through at the bottom. Each door has two hinges, both operable.

The gallery is octagonal in plan; 53” wide at widest. The floor is raised diamond pattern iron plate showing rust, but sound. The guardrail is 44” high with ball finials at the eight corners, very rusted and broken at places, although sound. The guardrail has three horizontal flat bars at +6-1/2", +35" and +44" above the floor and vertical spindles at 6-3/4" o.c. between the bottom flat bars. The exterior walls of the gallery are painted iron plate, without battens.

The mount for modern solar panels is bolted to the south side of the gallery with sections of the guardrail removed for this installation. A ladder runs up the south side of the gallery to the lens room gallery. Coast Guard equipment, surface mounted wiring and electrical panels are mounted to the gallery and walls. There is rust at the top of the iron panels in the outside wall of the vestibule. The underside of the gallery can be viewed from the keeper’s quarters roof and is badly rusted and deteriorated.

**Recommendations:**
All of the metalwork at the interior and exterior should be cleaned and painted. The doors’ missing hardware should be made functional. The main doors to the gallery should be repaired by welding if possible; if not they should be refabricated to match the originals. The cast iron ventilators should be

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replaced at the exterior where they have rusted away. The brackets supporting the gallery should be
inspected and replaced if necessary.

14. Roof Structure and Roof Covering:
   Evaluation: Significant, sound
   The roof structure at the lens room interior is composed of 16 painted metal panels attached with copper
   roof battens. The roof above was not accessible. There are no signs of leakage or rust on the interior.
   The roof appears to be mostly watertight. The roof structure was topped with a ventilator, now missing,
   below which hang eight iron tie rods extending down to the lens mount. The roof itself is circular with 16
   facets and a cornice overhang of approximately 12".

   The roof of the keeper’s quarters is composed of iron plate, sloped very slightly. The roof is built in a
   second empire mansard style popular at the time. The roof appears to be watertight and sound, although
   there is significant rust at the edge of each plate. The cornice on the top of the mansard contains a gutter
   with slats that direct down the mansard to a gutter at the bottom of the mansard, where it was collected via
   downspouts to the cistern. The gutter is rusted, but sound.

   A water tank sits on the north side of the roof, tied to the iron support structure. The iron paneling of the
   roof runs concentric with the exterior of the building.

   Recommendations:
   The lens room roof should be sandblasted and inspected for leakage. A new ventilator ball and spire,
   fabricated to replace the original, should be installed. Any leaks should be sealed and the roof and
   ventilator should be painted. The keeper’s quarters mansard roof should be inspected for leakage, made
   watertight and painted. The water catchment system should be made functional again by replacement of
   any rusted gutter and downspout. This will prevent standing water in the gutters.

15. Mechanical and Plumbing Systems:
   Evaluation: Significant, Some Deterioration
   There are gutters and downspouts for a water catchment system leading below the lowest platform where
   the tanks were suspended. The tanks are gone. There is a kitchen at the lower keeper’s quarters level
   and toilets at the lower and upper levels, all of which drained out to the sea. All of the piping is old and
   not functional. There is no plumbing above the keeper’s quarters. There are no mechanical systems.
**Recommendations:**
The water catchment system should be made functional again by replacement of rusted gutter and downspouts. This will prevent any standing water in the gutters and greatly increase their life. The water can either drain out or tanks can be provided to retain water again for usage. This will be useful if the light is manned again for any purpose. If plans are made to restore the light for overnight use, a composting toilet can be installed, or a holding tank for periodic pump-out can be utilized.

16. **Lightning Protection System:**

**Evaluation:** Sound, Significant

The lightning cable extends down the inside wall of the lens room, out the gallery and down to the south main column above the keeper's quarters where it is attached. It appears to be functional.

**Recommendations:**
The lightning protection system should be tested to guarantee that it is functional. The wire should be firmly attached to the exterior structure of the light.

17. **Electrical Systems:**

**Evaluation:** Altered, Non-Significant, Required

Functioning electrical systems consist of current VRB-25 beacon, RACON, and NOAA weather station, all solar powered. There are many abandoned electrical panels in the rotation room. Three functional panels line the south side of the machine room. Electric lighting is surface mounted in both the machine room and the watch room, as well as up the stair cylinder. Surface mounted electrical and lighting is also located throughout both levels of the keeper's quarters. An outdated diesel generator is located at the southeast room of the lower level keeper's quarters. The room is sheathed in masonite panels and contains a halon fire extinguishing system which is no longer functional.

**Recommendations:**
All abandoned electrical panels and wiring throughout the lighthouse should be removed. The generator, and all associated electrical panels, conduit and fire suppression systems should be removed, and the room converted back to its original wood finishes. Most of the wood is still intact behind the panels. This light and all of the other reef lights are ideal candidates for a completely self contained solar power system. A solar power system is cost effective and environmentally sound, and could provide power for lighting and pumps, should the light be restored for use as a manned facility.

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18. **Probable Cost for Restoration:**

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<th>Item</th>
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<tbody>
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<td>Site Improvements/Docking</td>
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<td>Exterior Structure Wall Repairs</td>
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<td>Doors (3 @ $3,300)</td>
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<td>Window Restoration &amp; Storm Shutters (26 @ $1,250 each avg.)</td>
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<td>Floor Structure Repairs (4,000 s.f. @ $100/s.f. avg.)</td>
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<td>Interiors/Reconstruct Keeper’s Quarters (2,600 s.f. @ $100/s.f.)</td>
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<tr>
<td>Railing Restoration/Reconstruction (64 l.f. @ $200 + $7,000)</td>
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<td>Watch Room Restoration</td>
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<td><strong>Total Probable Cost</strong></td>
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19. **Recommendations for Future Use:**

Due to its proximity to the City of Miami and the surrounding coral reefs, the Fowey Rocks Lighthouse area is already heavily visited by boat traffic. Miami’s awareness and enthusiasm of lighthouses has been demonstrated by the historic restoration of the Cape Florida Lighthouse, and it is believed that public visits would be greatly attended. At present, the lighthouse could be opened for limited, guided public visits by general cleaning of the lighthouse and improving the access to the dock. However, it is recommended that the light undergo a full historic restoration, including restoration of the historic wood interiors, most of which are still intact.
In addition to the obvious historic significance of the reef lights, a tremendous opportunity exists for increased use and public access. With fully restored lighthouses, including historic interiors, solar powered lighting, composting toilets, and improved docking facilities, the lighthouses could be used for:

1. Marine Research Facilities  
2. Weather Stations  
3. Military Training  
4. Corporate Retreats  
5. Living Accommodations for Maintenance Crews  
6. Public Tours on a Limited Basis During Calm Weather Summer Months

and numerous other uses. The demand for these uses is high. The revenue generated from public use would ease the financial burden of maintaining the lights. Public awareness of the role of lighthouses and their importance would be raised.

Public awareness and appreciation for United States Coast Guard, their work and the dedication of the men and women of the Coast Guard would be raised.

The benefits are numerous. The drawbacks are few. It is without reservation that we recommend full historic restoration of Fowey Rocks Lighthouse and the establishment of a program for its future use. This public use plan, if applied to all of the reef lights of the Florida Keys, will generate worldwide interest and support.
TYPICAL STRUCTURAL CONNECTION AT FIRST TIER ABOVE WATER. NOTE EXTENSIVE DETERIORATION AT VERTICAL COLUMN NEAREST WATER

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Fowey Rocks Lighthouse Photos
Date: 4/15/02

BACKSIDE OF SAME STRUCTURAL CONNECTION AS ABOVE, SHOWING TURNBUCKLES
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
Fowey Rocks Lighthouse Photos
Date: 4/15/02

KEEPER'S QUARTERS GENERAL VIEW OF EAST SIDE

KEEPER'S QUARTERS GENERAL VIEW OF SOUTH SIDE
FLORIDA LHIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

TYPICAL MANSARD WINDOW AT SECOND FLOOR

DETAIL OF TYPICAL MANSARD WINDOW AT SECOND FLOOR
Exterior entry door with date in raised letters. Doors appear to be replacements. Note sealed windows at both sides of door.

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No.: 0119
Fowey Rocks
Lighthouse
Photos
Date: 4/15/02

Exterior entry door at other side. Note original doors have been removed & opening sealed with plate. Windows also sealed with steel plate.
INTERIOR DOOR AT SECOND LEVEL INTERSECTED BY TURNBUCKLE

TYPICAL DOUBLE HUNG WINDOW AT INTERIOR

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

TYPICAL INTERIOR OF KEEPER'S QUARTERS SHOWING TYPICAL WALL, CEILING & FLOOR FINISHES

Project No. 0119
Fowey Rocks
Lighthouse
Photos
Date: 4/15/02
MAIN STAIR AT BASE. NOTE BOLTED CONSTRUCTION OF STAIR CYLINDER

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

WINDOW IN STAIR CYLINDER. STAIR RAIL IS BROKEN FOR WINDOW. CAST IRON TRIM AROUND WINDOW.

Date: 4/15/02
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
Fowey Rocks
Lighthouse
Photos
Date: 4/15/02

WATCH ROOM SHOWING TYPICAL FINISHES & VENTILATION SOFFIT AT CEILING

DETAIL OF CAST IRON NEWEL POST AT TOP OF MAIN STAIR

WATCH ROOM SHOWING STAIR TO ROTATION RM. & GUARDRAIL AROUND MAIN STAIR
ROTATION ROOM SHOWING BRACKETS SUPPORTING LENS RM. CATWALK. NOTE VENTILATORS AT EVERY OTHER PANEL & MISSING SKYLIGHT GLASS

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No.: 0119
Fowey Rocks
Lighthouse
Photos
Date: 4/15/02

ROTATION ROOM SHOWING CAST IRON STAIR TO LENS ROOM & HISTORIC LENS PEDESTAL & BASE
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Fowey Rocks
Lighthouse
Photos
Date: 4/15/02

CORNICE AT TOP OF WALL AT GALLERY. HEX NUT IS HOLDING REPLACEMENT STANCHION FOR LENS RM. GALLERY ABOVE
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
Fowey Rocks
Lighthouse
Photos
Date: 4/15/02

LENS ROOM FLOOR. NOTE SILL IS FILLED WITH RUSTY WATER. HISTORIC PEDESTAL AT LEFT CORNER. SKYLIGHTS ARE MISSING / PAINTED OVER

LENS ROOM. NOTE RUST AT SILLS & PAINTED OVER SKYLIGHTS

LENS ROOM GALLERY. GUARDRAIL IS A REPLACEMENT
Name: Hillsboro Inlet

Location: Broward County / Pompano Beach City Park. On a three acre section of property adjoining the Hillsboro Country Club at Hillsboro Beach

Type: Iron octagonal, pyramidal iron skeleton tower with central stair cylinder

Height: 142 feet, focal plane 132 feet

Daymark: Bottom half painted white, top half including lantern painted black

Year Built: 1907

Owner or Operator: Purchased by U.S. Coast Guard in 1903

National Register Status: Listed

Active: Active

Visitor Access: Periodic tours are available

Contact: www.hillsborolighthouse.org

Facilities: Keeper's quarters occupied by the caretaker. Recreation quarters are used to house senior Coast Guard officers and was built in 1907. One story frame structure built in 1907 is used for crews' barracks. Garage building built in 1907. Timer and generator building built in 1942 used to house equipment to operate the light.

1. History

The Hillsboro Light is an octagonal pyramidal iron skeleton tower with a metal cylinder housing the stairs. The lighthouse is set on the north side of the channel at Hillsboro Inlet, located between Boca Raton and Fort Lauderdale. It marks the northern end of the Florida Reef. Here, as well as along the whole reef, many ships had been wrecked and it was recognized early that a lighthouse would be helpful to navigational interests. Every year from 1885 until 1901, the Lighthouse Board submitted the same recommendation: "The establishment of a light at or near Hillsboro Point, Florida, would be of great assistance to all vessels navigating these waters. Steamers bound southward, after making Jupiter Inlet light, hug the reef very closely to avoid the current. The dangerous reef making out from Hillsboro Inlet compels them to give it a wide berth, and to go out into the Gulf Stream. Vessels coming across from the Bahama Banks would be able to verify their position if a light were placed here, a difficult matter in case they fail to make Jupiter Inlet. The establishment of this light would complete the system of lights on the Florida Reefs. The Board therefore renews the recommendation that $90,000 be appropriated for this purpose."¹ Funds were finally released from 1902 to 1905, construction began early in 1906 and the lighthouse was completed in 1907. Hillsboro Inlet Lighthouse became one of the few lighthouses

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constructed in the twentieth century. Mariners could now pass from one Florida east coast light to the next without ever being out of range of a lighthouse.

The bottom third of the lighthouse is painted white and the top two thirds is painted black to show up during the daylight sky. The lantern room housed the second order clamshell Fresnel lens. New in 1906 was the curved-glass design of the exterior of the lens room, with diamond shaped glass panes. It is for that the lighthouse tower was nicknamed “Big Diamond.” The enclosed cylindrical stairway served as protection from the weather while the open framework of the lighthouse structure allows wind and waves to pass through without harming the tower.

During a severe hurricane in 1926, six hundred feet of land between the lighthouse and shore was washed away by the 132-mile-per-hour winds, exposing the lighthouse foundation. To protect the foundation from future storms, a 260-foot stone breakwater was built in 1930. In 1932, workers changed the oil lamps to electricity and increased the candlepower to 550,000, making it one of the most powerful lights on the east coast at that time. During World War II German submarines patrolled offshore, one was grounded offshore, two were sunk off Hillsboro Beach and in 1943, one was captured. After the war a radio beacon was added. In 1992 various problems began with a broken gear. Different lighting was installed, some with problems, but today the tower beams a white flash every 20 seconds and can be seen on a clear night about 28 miles out to sea.

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3 McCarthy, 39

2. **General Description**:

The 146 foot iron pyramidal tower, painted white on its lower half and black on its upper half, is an impressive landmark. Standing on a well maintained site, it is accessed through a private club. The lighthouse is located directly adjacent to the inlet with 6 outbuildings, two keeper’s quarters, a cottage, a garage and the radio room. The iron tower is accessed from the east by concrete steps consisting of 3 treads and a landing one step below the floor. The tower construction is iron with 8 columns rising to the watch room landing. The tower tapers as it rises. The central tower is cylindrical, 8'-4" in diameter containing a central iron stair. Each side of the octagon is 15'-3" long. Each column is cross-braced to the tower and each other at 5 locations rising up the tower. The grade around the tower has been raised to the center of the lowest braces. These braces are showing signs of severe rusting which needs to be

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repaired. All iron elements are showing signs of rusting, but the braces below the raised grade are severe. The rod cross braces are 3" in diameter at the bottom turnbuckle. There are 2 windows above the door and 2 on the opposite side of the tower.

3. **Site Improvements:**
   **Evaluation:** Good Condition
   The site is well maintained and landscaped with grass, palm trees and pine trees. Sea grape hedges on the ocean side serve as a windbreak. Sand beaches separate the water from the tower base. Fill consisting of gravel and sand around the base is contributing to deterioration of the iron braces and column base plates. Access is good with paved parking and sidewalks on site.

   **Recommendations:**
   All of the fill surrounding the structure should be removed, as the moisture is contributing to the rusting of the horizontal structural members. Deteriorated sections of bracing should be sandblasted to bare metal and primed within 6 hours of initial cleaning with an inorganic zinc primer. Deteriorated metals should be patched by welding with a M.I.G. welding process, or replaced. The sections should then be primed and repainted.

The site around the tower should be graded to drain away from the tower base.

4. **Foundations and Floor Structure:**
   **Evaluation:** Significant, Deteriorated
   There are no signs of distress in the tower, indicating that foundations are sound. The concrete first floor is in good condition.

   The most serious structural deterioration occurs at the bases of the perimeter columns, where they meet the ground. The round steel braces between column base plates and the tower are severely deteriorated and rusted through. This condition was caused because the grade around the tower has been raised above the column foundations, trapping and holding moisture at these struts.

   **Recommendations:**
   Grades need to be lowered to provide a minimum of 6 inches clearance between the ground surface and horizontal steel braces, as well as keeping steel base plates above grade. In general, these members are rusted beyond being repairable and must be replaced.

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After lowering grades, all iron base plates and bolted connections will need to be inspected and assessed as to structural integrity. Final grades should slope away from the tower. With lower grades, the struts will negatively impact tower access by requiring people to step over them. If this is a concern, then a bridge from the sidewalk to the steps and landing at the door can be installed.

5. **Stairs:**

**Evaluation:** Sound, Significant

The iron stairway from the watch room to the machine room is 24" wide with 17 – 8 ½" risers wrapping around the outside wall. The treads are 8" wide at the interior edge and 12" at the exterior edge. Handrails and guardrails are 39" high with ¾" spindles. From the watch room down to the 7th landing, there are 11 – 8 ½" risers with treads at 9" on the inside edge and 14" on the outside edge. The same 11 riser configuration continues down to the 6th landing with 8 ½" risers. Treads taper from 9 ½" to 15".

Continuing down the stair riser height and tread tapers are as follows:

- 6th to 5th landing, risers @ 8" with treads tapered from 9 ½" to 15".
- 5th to 4th landing, risers @ 7 ½" with treads tapered from 9 ¼" to 15".
- 4th to 3rd landing, risers @ 7 ¼" with treads tapered from 9" to 15".
- 3rd to 2nd landing, risers @ 8 ½" with treads tapered from 9 ½" to 16".
- 2nd to 1st landing, risers @ 7 ½" with treads tapered from 9 ¼" to 15".
- 1st landing to ground level, risers @ 7 ¾" with treads tapered 9 ½" to 15".

The riser heights are consistent between landings and all runs are comfortable to use.

**Recommendations:**

All of the stairs are sound and in good condition. They should be periodically maintained by cleaning and painting.

6. **Stair Railing:**

**Evaluation:** Significant, Sound

The cast iron stair railing extends from the base of the tower to the watch room floor. All of the components are historic and in good condition, needing only periodic cleaning and painting.

**Recommendations:**

Periodic maintenance of the railing should be continued, including cleaning and painting.

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7. **Interior Finishes:**

**Evaluation:** Significant, Sound, Good Condition

Tower interiors are iron painted white. The machine room is now painted white. The watch room is wood painted white, with natural varnished dark floors. All of the finishes are in excellent condition.

**Recommendations:**

All of the interior should be periodically maintained by cleaning and painting.

8. **Exterior structure – Walls**

**Evaluation:** Significant, Sound

The tower walls are iron as are the 8 iron columns and cross braces. Entrance to the tower on the east is through a 5 foot square vestibule. Fixed glass lites, 15" high x 32" long are set in north and south walls. Access to the tower from the vestibule is through a 30" wide door. The tower is supported by 8 iron columns braced to each other and the central tower. The 8 columns forming the octagon reduce in size at each of the 5 vertical bays and taper as the tower rises, terminating at the underside of the watch room. The iron elements show signs of rusting and deterioration.

**Recommendations:**

All of the iron elements should be periodically cleaned and painted. Rusted areas should be sandblasted down to bare metal and primed with inorganic zinc primer within six hours of sandblasting. The deteriorated sections should be patched by welding in of new sections with a M.I.G. welding process. The entire structure should then be primed and repainted.

9. **Exterior Openings – Doors and Windows:**

**Evaluation:** Significant, Sound

Entry to the tower at grade is through paired doors. These 1'-6" x 7'-0" doors are steel, replacing the original iron doors and date from 1998 according to C.W.O. Joe Cocking. Each door is supported by 2 strap hinges and braced on the inside face at both edges, top and bottom, at mid-height and 13 ½" from the top and bottom with 2" wide x ¼" thick steel forming 4 panels. The door from the vestibule to the tower is a 30" wide x 6'-9" high wood door with 4 glass lites, 10' x 18", over 2 side-by-side panels of 9" wide x 24" high.

A 2 over 2 single hung window faces southeast. This window is 24" wide by 48" high. The upper fixed sash is 17" high and the lower sash is 32" high. The second window rising up the tower is at the 2nd landing and is directly over the door. The third window is at the third landing and faces west. The fourth
window is at the fourth landing and is directly over the door. The fifth window is at the sixth landing. On
the south side there are 4 windows in the octagonal watch room, on the northeast, northwest, southeast
and southwest sides. The 5 windows rising up the tower are identical. The four at the watch room are
single hung, 2 over 2, with equal sashes of 32" wide x 27" high. None of the windows have their original
sash weights and all have been modified. There are 3 door openings at the machine room level. Paired
steel doors, 14" x 6'-6" high access the gallery. The interior landing in front of these west facing doors has
a door opening to the north, but no door. This door swung onto the landing in front of these wood doors.
Continuing north is a 5 panel wood door, 27 ½" wide x 6'-8" high, that swings in to the machine room.
Based on hardware, this door had previously been installed at the frame, adjacent to the entrance door.

Recommendations:
Windows and doors should be restored to a fully operational historic configuration, including repair of sash
weights and pulleys.

10. Watch Room:
Evaluation: Significant, Sound, Good Condition
The watch room is octagonal with windows on the northeast, northwest, southeast and southwest sides.
The floor is oak tongue and groove, walls are beaded tongue and groove with a 20" high flush base.
Ceilings are 1 x 6 v-groove T&G, windows are trimmed with 5 ¾" casings with 5 beads at the middle third.
This casing is installed under the window stool and across the head. Bull's eye trim is set at the top
corners. This woodwork is in good condition and was replaced in 1998 per C.W.O. Joe Cocking. Copies
of original construction drawings are on the walls and this work matches the historic configuration.

Recommendations:
The finishes in the watch room should be maintained in their present historic configuration.

11. Machine Room and Gallery:
Evaluation: Significant, Some Damage
The machine room is located just below the lens room. The walls are painted white boilerplate iron
attached with screwed battens, divided into 16 parts like the lens room above. The room contains the
pedestal base for the rotating mechanism (original) and modern electrical motors used to rotate the lens.
The floor is diamond pattern iron, painted gray. Five brass circular ventilators vent the room. The room is
naturally lit by the lens room above and by circular skylights in the lens room floor plates. The main
electrical panels for the beacon are on the west wall.

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A historic iron 24" wide stairway leads to the watch room below. A wood 5 panel door leads to a small inner landing where a set of double iron doors leads out to the lower gallery. The original rotating mechanism is painted green and is in excellent condition. A wood beadboard cabinet approximately 48" high x 46" wide x 18" deep, holds maintenance equipment. Battens divide the wall into 16 parts. A cast iron bracket to support the lens floor plates is located at the top of each wall batten. All electrical conduit is exposed, and runs along the inside of the machine room, at 6'-6" high.

The octagonal gallery floor is iron with a raised diamond pattern. A ladder 1'-6" wide extends to the lens room gallery above. The historic gallery guardrail consists of 24" high solid panels in a 3" deep frame. The bottoms of the guardrail panels are deteriorated. A steel pipe guardrail extends another 1'-7". The exterior wall of the machine room is circular, painted black, with five bronze ventilator outlets 2'-4" high. The perforated metal cover plates measure 9 1/2" x 5". The gallery is 3'-6" at its narrowest; 4'-5" at its widest. The lens room gallery brackets are visible above, and show significant rust and pitting, especially the bolts.

Recommendations:
While the guardrails are sound, they will eventually require cleaning and repair. The remainder of the gallery is sound with minor areas of deterioration. The interior of the machine room is in good condition, and should be maintained in its current historic condition. All metals should be cleaned and painted regularly.

12. Lens Room:
Evaluation: Significant, Some Deterioration
The lens room is approximately 9’ in diameter, and is generally in good condition. The room's floor structure is divided into 16 sections. Each section contains a 14" wide circular skylight in the floor. Three sections are left out to accommodate a 24" wide circular stair leading down to the machine room. The floor is cast iron with a diamond pattern and shows signs of rust. The lens room has a gallery 2'-8" wide, with a simple handrail of iron rod and top flat bar. The exterior paint is in fair condition. A steel stand is set up on the gallery to accommodate a temporary beacon. A ladder links the lens gallery to the machine room gallery below, and a deteriorated handhold runs around the gallery.

The lens room walls are 9'-9" high glass panels. Hooks for window curtains run along top of glazing. Glass muntins are diamond shaped, 42" wide. All of the mullions are naval bronze. The mullions are structural, measuring 4" deep x 1" thick. The glass is attached at the outside by battens bolted onto the structural mullions. Glazing panels are a combination of Lexan, wire glass, and plate glass. Each lens

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pane is curved. Many are cracked from bullets and bird strikes. Although none are leaking, many of the bolts holding the exterior glass have broken and the battens are sealed with black sealant.

A glass door framed in bronze leads out to the exterior gallery. It measures 5'-4" high x 29" wide and curves with the wall. The hinges are in need of repair and the door does not swing smoothly. The sealant in the glass is generally sloppy and peeling. The painted lens and lens mechanism is historic and in excellent condition. The base for the bivalve lens is painted cast iron, approximately 6'-4" in diameter. A tin sector screen blocks the light from shining west at neighboring buildings.

The original second order Fresnel lens is in place. The original mercury ball for the lens has been replaced by ball bearings. As a result, the lens sits approximately 4" higher than its historic configuration.

**Recommendations:**
The ladder to the roof should be repaired to provide inspection access to the roof. The lens room gallery door hinges should be repaired, as well as the glazing at the door. The handhold at the gallery is deteriorated and in need of repair. Eventually, the wire glass should be repaired with impact resistant glazing.

**13. Roof Structure and Roof Covering:**

**Evaluation:**
Significant, Sound

The lighthouse roof is sheathed in copper. It is watertight and in good condition. The lens room roof structure is circular, divided into 10 parts. The roof interior has a tin sheathing with tin battens covering the 3 ½" deep rafters. A 12" wide ventilator grate is at the top of the ceiling. The lens holder is suspended from 10 vertical tie rods, ending in a collar that is also braced horizontally to the walls. The interior of the roof structure is painted and in good condition. The top ventilator is functioning. The exterior roof has a circular handhold on the top, which is rusted, and in need of repair. A pole ladder leads to the roof from the lens room gallery. The visible roof exterior cornice is painted black. Parts of the iron cornice are pitted and show signs of rust. The roof was primed in 1998. The structure is topped by a ventilator ball 2'-7" in diameter and a spire.

**Recommendations**
The roof is in good condition and needs only continued maintenance. Eventually rusting at the cornice will require repair by sandblasting, welding in of patches, priming, and repainting.

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14. **Electrical System:**

**Evaluation:** Significant, Sound

The electrical system consists of electric lighting and motors to run the current lens. Panels are located in the machine room mounted on the wall. Conduit is surface mounted. The system is in good condition and needs only to be maintained in its current condition.

**Recommendations**

The electrical system appears to be in good condition and should be maintained periodically to insure its function.

15. **Lightning Protection System:**

**Evaluation:** Significant, Sound

The lightning protection system consists of a lightning rod located at the top of the ventilator ball, connected to a cable extending from the rod to the ground.

**Recommendations**

The lightning protection system should be checked by a certified lightning protection specialist to verify its function. Any loose cable should be secured firmly to the structure of the tower.

16. **Probable Cost for Restoration:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Site Improvements</td>
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<tr>
<td>Foundation Strut Replacement: 24 @ $2,000</td>
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<tr>
<td>General Metal Restoration Budget</td>
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<tr>
<td>Window Maintenance Improvements Budget</td>
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<td>Painting of Entire Tower</td>
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<td>Scaffolding and General Condition</td>
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<td><strong>Subtotal Budget</strong></td>
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<tr>
<td>Design Fees @ 12%</td>
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</tr>
<tr>
<td><strong>Total Probable Restoration Costs</strong></td>
<td>$213,000</td>
</tr>
</tbody>
</table>
17. **Recommendations for Future Use:**

Located directly adjacent to busy Hillsboro Inlet, the lighthouse is sited on a Coast Guard property with very limited access through a private country club. The light is already open for limited public tours, and it is doubtful that it could be opened on a more frequent basis, due to the surrounding private residences of Coast Guard personnel. The keeper's quarters buildings appear to be maintained on a regular basis, and none of the historic fabric is presently in danger of destruction. Aside from the minor maintenance in this report, the site and lighthouse should continue to be maintained in its current state.
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Hillsboro Lighthouse Photos
Date: 4/15/02

EXTERNAL VIEW OF LIGHTHOUSE

BASE OF LIGHT AND ENTRANCE

STRUCTURAL RUSTING AT BASE OF LIGHT
BASE OF MAIN INTERIOR STAIRCASE

FLORIDA LHIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

WATCH RM. INTERIOR SHOWING STAIR LEADING UP TO ROTATION RM.

Project №: 0119
Hillsboro Lighthouse Photos
Date: 4/15/02
WATCH ROOM GALLERY. LADDER LEADS TO LENS ROOM GALLERY ABOVE
Name: Jupiter Inlet Lighthouse

Location: Palm Beach County. Juncture of Loxahatchee River and Jupiter Sound

Type: Brick. Conical tower 105' high. No major alterations since its construction. In 1928, the light was converted to electricity.

Height: 105 feet. Focal plane 147 feet above msl. (Tower on hill)

Daymark: Red washed brick conical tower with black lantern

Year Built: 1854-1860

Owner or Operator: U.S. Coast Guard – Seventh District – Miami. Operated by Florida History Museum

National Register Status: Listed

Active: Yes

Visitor Access: Sunday - Wednesday, 10 am to 4 pm

Contact: www.gopbi.com/community/groups/Flhistory/

Facilities: Museum, Gift Shop

1. History

On March 3, 1853, the United States Congress appropriated $35,000 for the construction of a lighthouse at Jupiter Inlet, Florida. Although there was sufficient government support for the project, it would take over seven years to complete the construction of the tower. Lieutenant George Gordon Meade, topographical engineer, was to supervise the design and construction of the Lighthouse in South Florida and surveyed the site in April of 1854. Six months later, President Franklin Pierce reserved 61.5 acres for the Light Station at Jupiter Inlet. A map of the parcel was sent to the Secretary of the Treasury estimating the parcel at over 50 acres. Meade submitted his plans for construction of a 90' masonry tower in December of 1854. Meade had convinced the Lighthouse Board to purchase very expensive Fresnel lenses for all the South Florida towers. It was important that the lighthouse at Jupiter Inlet display a distinctive characteristic; therefore Meade selected a revolving apparatus, which was quite unusual with a novel design.

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From 1856 to 1859, work was started and delayed. The project finally commenced at full speed with a full crew in December of 1859. Project costs continued to escalate during the course of construction due to the need for additional supplies to accommodate design changes affected by the revolving apparatus. Although the project seemed to be on a "fast track" for completion, there was trouble when installing the lantern and watch room. The iron tops of lighthouses were cast in Philadelphia and then sent to the construction site. Often alterations had to be made to make the fixture conform to the cone of the tower or there were problems understanding how the ironwork fit together.

By May of 1860, work on the tower was drawing to a close. The lighthouse at Jupiter Inlet was lit for the first time on July 1, 1860. The final cost of the project was $60,858.98. Despite the best intentions, the lighthouse at Jupiter Inlet continued to be plagued by its location. The light went out due to the inability to get oil to the site and then in the summer of 1861, a group of "lawless rebels" extinguished the light. Damages to the lens were reported and a new lens was requested from Henri Lepaute on May 28, 1863 at a cost of $14,941.18. On June 28, 1886 the tower was placed back into operation.

Correspondence during the 1870's & 1880's demonstrates a gradual decline in the property. This was due to the reported "laziness of the keepers according to the Inspectors, and the continued difficulty in obtaining supplies and technical support for the keepers. By the close of the 19th century, correspondence relating to the station was limited to replacement parts for the rotating mechanism and other problems with the illuminating apparatus. General maintenance took place with little comment except for the construction of a new keeper's dwelling. A small telegraph building was erected on the reserve in 1887 and in 1890 the Station was transferred from the 7th to the 6th Lighthouse District with the hopes of improving the routing of supplies to the site. The only exciting news from Jupiter Inlet was a brush fire contained by the Keeper that damaged the storehouse and the discovery of a shell mound believed to contain objects of "ethnological interest". This site was documented for protection.
The early 1900's saw requests for regular site maintenance and no major changes to the compound. Original material was replaced with popular building material, for example the tin roof of the oil house was replaced with asbestos shingles in 1915. Tower railings were rusting and in 1917, the handrail around the lantern gallery was reported as being "very dangerous". A modern water distribution system was installed in 1917 and in 1925 the materials were ordered to "electrify" the Keeper's Quarters.

By June of 1925, discussion was in place about changing the characteristics of the light by upgrading the antiquated system and providing a light with much stronger candlepower. Recommendations included removing all the fixed-light elements of the lens, reassembling the flash panel, and changing the rotation of the lens. In 1926-1928 changes were made altering the characteristics of the light, including the electrification of the tower.

In 1939, the United States Lighthouse Service was eliminated and the responsibility of maintaining the lighthouses went to the United States Coast Guard. In July 1994, the Florida History Center & Museum signed a lease with the Coast Guard to maintain the lighthouse and open it to the public for tours, but the Coast Guard operates the light.

Restoration of the Jupiter Inlet Lighthouse was completed in 2000 and the Tower relit on April 28, 2000.

2. **General Description:**

The Jupiter Inlet Lighthouse is a circular brick tower, 20 feet in diameter at its base, tapering to about 14 feet in diameter at the top of the main brick tower, just below the watch room floor. Above the iron floor of the watch room, 16 inch thick brick walls rise an additional 6 feet 8 inches in height to enclose the watch room. A single wood door accesses the exterior gallery and a contemporary ladder from this balcony provides access to the exterior of the lens room and roof.

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With exterior brick surfaces painted red and metal components painted black, the 108 foot tower, situated on a midden, is a dramatic landmark. Entrance to the tower is through an arched iron door. Four wooden double hung windows rise up the tower, each marking its own landing. The ground level door is on the south side of the tower and the ground level window faces east. Ascending the central stair in a counter clockwise direction, three more landings occur, each with its own window facing a point of the compass, north, west and finally south, directly over the ground floor door. There are twenty-five risers of 9 inches each between landings, twenty-four treads plus the landing, for 18 feet and 9 inch heights between landings. The first riser is only 4-1/2 inches, with this condition occurring during the renovations of 1915 when the floor was raised to drain the water from the tower. The final rise from the fourth window to the watch room floor is 23 feet 1 inch.

The watch room houses the lens base with its rotating mechanism and a stair to the lens room. Access to the exterior is from the watch room. The lens room is fabricated from iron components with triangular glass panes, matching Meade's previous work at Cape Florida Lighthouse.

With three porthole windows and wood wainscoted walls, the watch room retains its historic characteristics. However, contemporary motors, panels and switchgear have been installed, intruding on the space. Overall, the tower is in good condition and is well maintained following its recent renovation in 1999.

3. Site Improvements:

   Evaluation: Significant, Well Maintained, Non Original, Major Archeological Significance

   The Lighthouse is situated on an ancient Indian midden, approximately 48 feet above sea level, at Jupiter Inlet on the Loxahatchee River between US Highway One and the Indian River. The site is part of a Coast Guard Reservation, has good drainage and is well maintained with primary vegetation consisting of manicured lawns and mature trees. The site is accessed by paved roads off State Road 707 on the north. Non military personnel are required to park at the Visitor's Center and walk about one quarter mile to the lighthouse over an asphalt paved path. Chain link fencing separates the military areas of the site from public areas, with access to the lighthouse being through a locked, rolling gate. Access to the base of the lighthouse and its adjacent oil house is gained by climbing concrete steps dating from the nineteenth century. In 1915, the sidewalls of these steps were raised 2 feet. Gazebos and benches were placed on site at the base of the midden below the tower, and updated during the 1999 restoration, but their locations are far enough from the tower that they do not intrude on the historic structures.

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**Recommendations:**
Ongoing maintenance should be continued and the existing character of the site should be maintained. No work involving disturbance of subsoils should be conducted without archaeological supervision.

4. **Exterior Brick:**
**Evaluation:** Significant, Structurally Sound, Well Maintained.
The exterior shell of the lighthouse is double wall brick with brick bulkheads between the inner and outer shells. No major structural distress is apparent and the materials appear to be of high quality. The tower was first painted after the turn of the century in order to stop moisture intrusion through the walls. Painting and general maintenance of the exterior brick continued throughout the tower's history and is presently the responsibility of the US Coast Guard. A newspaper article dated April 12, 1973 describes renovations undertaken at that time, including sandblasting and repainting of the exterior. The paint was modified at that time to include the present black band at the base. Sandblasting brick, while not an acceptable preservation approach, was common during this time period. Damage to the brick from the 1973 work was addressed during the 1999 restoration. The exterior of the tower is in excellent condition with paint holding up well. Several minor spots of concrete or brick spalls due to lightning strikes were noted. The tower exterior was coated with Keim paints, manufactured in Germany which are guaranteed to retain their color for 15 years and are holding up well.

**Recommendations:**
The ongoing monitoring and maintenance program appears successful and should continue.

5. **Interior Brick:**
**Evaluation:** Significant, Sound, Well Maintained
The interior brick surfaces are structurally sound and painted. Very little distress is visible. The structural shell is double wall construction with the exterior tapered in as it rises to the top. The interior brick is 8 inches thick, tied to the exterior with bulkheads, and is 8 feet and 6 inches in diameter for its full height. It is not known if the interior brick was sandblasted during the 1973 renovations. Historic documents indicate that the interior brick surfaces were whitewashed well into the twentieth century. The present day paint is a contemporary gloss finish.

**Recommendations:**
The interior paint is holding up well and the current monitoring and maintenance program should continue.

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6. **Metal Stair:**

**Evaluation:** Significant, Restored, Well Maintained

The central cast iron stair dates from the original 1856 to 1860 construction period and, in general, is in good condition. There are twenty-five risers at 9 inches each, twenty-four treads plus a landing, between each of the first, second and third landings. The first riser is the only exception to this and is only 4-1/2 inches at its outermost edge. This modification occurred in 1915 when a concrete slab was installed to drain the tower. The present handrail, mounted to the brick wall, was installed in 1917. Other work completed at that time included installation of ten sections of gallery handrail.

A number of broken or missing iron stairs were replaced in 1999 and are marked with an asterisk. Support pins in the walls are deteriorated, but are serviceable. Steps from the watch room to the gallery are constructed of wood.

**Recommendations:**

The central cast iron stair requires no work at this time. The current monitoring and maintenance program is working well and should be retained.

7. **Exterior Openings/Doors and Windows:**

**Evaluation:** Significant, Restored, Well Maintained

There are two exterior doors and seven operable windows in the lighthouse tower. The ground floor iron door has eight glass lights and is original to the tower. The door handle and latch is missing. The door from the watch room to the gallery is a wood replacement dating from 1999.

Four wooden double hung windows exist in the tower. Each of these are six over six sashes and each is located at a different level in the tower. The first is on the ground floor and faces east. The second is on the north side in line with the first landing. The third window rising up the tower faces west and the fourth faces south directly over the entrance door. These windows were installed during renovations in 1915. All of these windows were restored in 1999. The wooden watch room door is in good condition, but hardware squeaks and has surface rust where paint has worn off.

There are three porthole windows in the watch room, placed on the west, south and east sides, with the door on the north. These windows are eighteen inches in diameter with bronze sashes and cast iron frames. All of these window components are painted.
Recommendations:
All doors and windows were restored in 1999 and are being well maintained. The current monitoring and maintenance program should be retained. All hinges and door hardware should be oiled and rusted areas of iron hardware should be cleaned and painted.

8. Watch Room and Gallery:
The watch room is accessed through a hatch in the floor and contains the lens base, gears, motors, panels, switches and other equipment necessary for the operation of the light. A set of wooden steps extends to the lens room above. Access to the outside gallery is through a wooden door. The interior brick walls are covered with a tongue and groove wood on furring strips, which extends into the porthouse windows. This wainscoting was completed in 1875 and historic references indicate that the woodwork was painted at that time. The watch room floor is covered with two layers of wood over the original iron plates.

The exterior gallery around the watch room consists of a cast iron floor cantilevered from the brick tower. The ten sides of the gallery are enclosed by an iron railing of simple vertical pickets with flat top and bottom bars, which run horizontally. The exterior brick is presently painted black. Rusting of railing components exists throughout, but is most noticeable on the south and west. Exterior ferrous metal components at the watch room and lens room were restored in 1999. A ladder extends from this gallery level to lens room balcony.

Recommendations:
Rust needs to be cleaned from the railings to bare metal. The metal should be primed with rust inhibiting inorganic zinc primer within six hours of cleaning and the railings should be repainted with the same black paint currently in use. Woodwork is in good condition. The ongoing monitoring and maintenance program should be retained.

9. Lens Room:
Evaluation: Significant, Restored, Well Maintained
The Lens Room consists of an iron floor, iron dome and enclosing metal framework with triangular glass lites. It houses the original first order Fresnel Lens supported on its cast iron base with bronze gears for rotating the lens.

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Recommendations:
The ongoing monitoring and maintenance program is successful and should be retained.

10. Roof:
   Evaluation: Significant Structural Components, Restored, Well Maintained.
   The roof of the Jupiter Lighthouse is framed with twelve iron ribs radiating from the midpoint of the tower and are bolted together around a central collar. Consisting of four sections, the perimeter is tied together with an integral ring. The roof dome was restored in 1999 and the original central cast iron ventilator was replaced with a replica fabricated from sections of lead coated copper in 1983. The current ventilator is an iron replica of the original.

Recommendations:
The restored roof is in excellent condition and no work is required.

11. Electrical Systems:
   Evaluation: Non Original but Required
   Electrical systems were replaced in 1999 and are serviceable.

   Recommendations:
The existing electrical components comply with current codes and the installations are compatible with the historic characteristics of the lighthouse. No work is required.

12. Lightning Protection System:
   Evaluation: Serviceable
   Since completion of the restoration in 1999, several questions have arisen concerning the adequacy of the lightning protection system. Bert Bender, of Bender & Associates Architects, made several inspections after lightning strikes and consulted with two separate lightning protection specialists. It was concluded that the system is properly installed, operating as it should and will continue to have a useful service life.

   Recommendations: No work is required.

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13. **Oilhouse:**
   **Evaluation:** Significant, Restored, Good Condition
   The Oilhouse is a rectangular brick building, 11 feet wide x 20 feet long, with plastered walls inside and out. The floor is concrete. The roof is structured with steel trusses and purlins and covered with asphalt impregnated corrugated sheathing. The structure has been modified several times during its history, most significantly in 1905 and 1973. The 1973 remodeling removed historic details, including the 1905 parapet, and altered interior finishes. The Oilhouse was completely restored in 1999 to its 1905 appearance. The interior casework housing artifacts and displays have glass doors and no back panels to allow the historic walls to serve as a backdrop to the display. A ductless split air conditioning system and track lighting are installed in this building, allowing it to serve as a mini-museum and staging area for tours.

   **Recommendations:**
   No work is required at this time. The ongoing monitoring and maintenance program should be retained.

14. **Probable Cost for Restoration:**
   The recently restored lighthouse is holding up well. Maintenance should be continued as noted above. No cost for restoration is needed.

15. **Recommendations for Future Use:**
   The Jupiter Lighthouse is open to the public for tours four days a week and managed by the Florida History Center. This tower is a local landmark and extremely popular with the public. If concurrence with the United States Coast Guard can be obtained, it is recommended that tour hours be expanded to more than four days a week.
OILHOUSE DIRECTLY ADJACENT TO LIGHTHOUSE. CURRENTLY A MUSEUM
MAIN DOOR TO LIGHTHOUSE. NOTE LIGHTNING GROUND FROM TOP OF TOWER

TYPICAL EXTERIOR DOUBLE HUNG WINDOW

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

MINOR DAMAGE AT TOWER BASE FROM LIGHTNING STRIKES
ALCOVE AT GROUND FLOOR. MAIN STAIR COLUMN AT LEFT

WOOD FURING AT PORTHOLE, WATCH ROOM INTERIOR (PHOTO IS SIDEWAYS)

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0119
Jupiter Lighthouse Photos
Date: 4/15/02

TYPICAL TREADS OF MAIN STAIR
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

WATCH ROOM SHOWING HISTORIC LENS PEDESTAL STILL IN USE. LADDER AT RIGHT LEADS TO LENS ROOM
Name: Key West Lighthouse
Location: 938 Whitehead Street, Key West, Monroe County.
Type: Conical Brick tower with black lantern. Originally, 60 feet, but in 1894, was heightened 20 feet and a balcony provided. Official records say it is 92 feet above water, 86 feet from ground to top of the tower.
Height: 86 feet. Focal plane 91 feet above msl.
Daymark: White conical tower with black lantern
Year Built: 1847
Owner or Operator: Key West Art & Historical Society. Present use: Museum
National Register Status: Eligible
Active: No
Visitor Access: Yes, 9:30 am – 5:30 pm www.kwahs.com//lighthouse.htm
Contact: Key West Art & Historical Society, 938 Whitehead St., Key West, FL 33040, Lori Reid, E-Mail: LReid@KWAHS.org
Facilities: Gift Shop, Museum. Adjacent to the lighthouse is a masonry oil house with gable roof and shaped parapets. Restored Keeper's Quarters, cistern, well.

1. History
The Key West Light Station site, located at the corner of Truman Avenue and Whitehead Street in the heart of the Key West Historic District, was acquired following the destruction of the Key West and Sand Key Lighthouses in the hurricane of October 11, 1846. The new 66-foot tower was constructed on higher ground further inland than the original lighthouse to protect it from storms. The lighthouse tower, completed in 1848, was an important component in a system of lights operated and maintained by the U.S. Seventh Lighthouse District to guide vessels around and through the treacherous reefs located off the length of the Florida Keys. Prior to the establishment of the lights, wrecks were common along the Keys, and wreck salvaging was a major industry, especially in Key West, which was the major port in the region and thus had heavy shipping traffic.

Barbara Mabrity, who had succeeded her husband as lighthouse keeper of the destroyed lighthouse, became the first keeper of the new lighthouse and continued to serve in that position until 1864 when she was eighty-two years old. She had served a total of thirty-two years at the Key West Lighthouses and a
number of Barbara Mabry’s descendents also became lighthouse keepers, both of the Key West Light Station and other lighthouses in the area.

During the Civil War, Key West was retained by the federal government and used as a naval base during the entire war. In 1873 a new third-order lantern was placed on the lighthouse, raising the tower and the focal plane 5 feet and greatly increasing visibility. In 1876 a new cistern was constructed and in 1887 a keeper’s dwelling was rebuilt.

The characteristic of the Key West light was changed on April 30, 1893 from a fixed white to fixed white with three fixed red sectors. In this year, plans and specifications were prepared for increasing the height of the tower to better serve navigational interests. The work of increasing the height of the tower 20 feet was completed February 5, 1895. A temporary light was shown from a pole during the construction. The lighthouse was automated in 1915 and the keeper’s quarters occupied by the superintendent of the Seventh Lighthouse District. In 1927 electric lights were installed to replace the gas lights.

The lighthouse was decommissioned in 1969, after 121 years of service.¹ The Key West Art and Historical Society took it over as a museum. On exhibit there are the first order Fresnel lens from Sombrero Key Lighthouse, ship models, old photographs, military uniforms and nautical charts, all of which give a good picture of the island’s maritime traditions.² The work of restoring the Key West Lightstation to its turn of the century appearance was completed in 1989. This site has numerous visitors throughout the year.

¹ Thomas W. Taylor, Editor, Florida Lighthouse Trail, (Sarasota, Florida: Pineapple Press, Inc. 2001) 81

2. General Description:

The Key West Lighthouse is a circular brick tower, 20 feet in diameter at its base. The tower was built in two phases, the first in 1847 to a height of 60 feet, then heightened in 1894 to 86 feet, with a focal plane of 91 feet above sea level. The lower (phase 1) portion of the tower tapers from a diameter of 20’ at the ground to a diameter of 13’-4" at a height of 43’. The second phase remains at a diameter of 13’, and rises another 21 feet. The brick is corbeled outward at the top, increasing the width by about 18”.

Both the watch room and the lens room are constructed of painted iron, and both have circular exterior galleries.

The original tower has (3) windows. The iron door faces roughly south, and a rectangular window is

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located at the east elevation of the tower’s base. The next window up faces north, the last faces west. The
1894 addition to the tower has a series of 3 circular windows at the same level, each approx. 24" in
diameter. The windows face east, north and west, and are located just below the corbeled portion of the
tower. The brick portion of the tower is painted white; the iron watch room and lens room are black.
Maintenance work was completed on the tower in 2001, including cleaning, priming, and painting. Overall
the tower is in good condition.

3. Site Improvements:
   Evaluation: Significant, Well Maintained, Restored to Ca. 1917
   The Lighthouse lies on a plot of land in downtown Key West measuring 174’ x 192’. The light is located
approximately 5 blocks from shore. The property also contains a restored historic one story keeper’s
quarters, a reconstructed oil house, a privy, a cistern, and a museum gift shop in the ca. 1926 garage
buildings, all surrounded by a concrete and wood fence. The property currently serves as a museum with
self guided tours of the lighthouse. The keeper’s quarters lie to the south of the lighthouse, and the oil
house sits adjacent to the lighthouse to the west. The oil house was reconstructed on its original
foundation from photos and historic drawings in 1990, and is a brick masonry structure with a slate gable
roof and plaster finish. The entire site is elevated approx. 3 feet above street level. As a result site
drainage is good. Entrance to the site is from the east (Whitehead St.) for pedestrians, and from the south
(Truman Ave.) for vehicles. The site is very well maintained, and landscaped with fruit trees of the era.

   Recommendations:
   Ongoing maintenance should be continued and the existing character of the site should be retained.

4. Exterior Brick:
   Evaluation: Significant, Structurally Sound
   The exterior shell of the lighthouse is composed of plaster over solid brick. The lower (phase 1) portion of
the tower tapers from a outside diameter of 20’ at the ground to a diameter of 13’-4” at a height of 43’.
This level was at the top of the original lighthouse. The 1894 extension remains at a diameter of 13’, and
rises another 21 feet. It is composed of painted brick. The brick is corbeled outward at the top to support
the watch room gallery, increasing the width by about 18”. No major structural distress is apparent and
the materials appear to be of high quality. The walls are 4” thick at the base of the tower, tapering to 1’-11”
thick at the top of the 1894 extension to the tower. The brickwork was inspected and repaired during
maintenance in 2001. Several cracks at the top of the 1894 extension were repaired.

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Recommendations:
Ongoing maintenance should be continued and the existing character of the site should be maintained.

5. **Interior Brick:**

   **Evaluation:** Significant, Sound

   The interior brick surfaces are structurally sound and painted. Very little distress is visible, most notably where handrails or other metals anchor into the walls. The tower interior is 12' wide at the base of the stair, and tapers to a width of 8'-4" at the top of the brick portion of the tower.

   **Recommendations:**
   Ongoing maintenance should be continued and the existing character of the brick should be maintained.

6. **Metal Stair:**

   **Evaluation:** Significant, Sound

   The tower has a circular cast iron stair with two landings. The lower portion of the tower has a spiral stair approximately 5'-6" in diameter, leading to a landing at the top of the older portion of the tower. The stair is braced back to the tower with iron rods, located approx. every 3' in height. The 1894 addition has a 24" wide metal spiral stair directly attached to the inside of the tower, and rises to a second landing at the level of the (3) circular portholes. The handrail for this stair runs along the inside. A metal door frame is located at the top of this landing. A third metal spiral stair climbs to the floor of the watch room. It is about 24" wide, and also runs along the inside wall of the tower, with the handrail on the inside. Finally, a narrow metal stair leads from the watch room to the lens room. This stair has no handrails, except for a handhold at the top of the lens room. All of these stairs are in good condition, but all need painting due to heavy museum traffic.

   **Recommendations:**
   The stairs should be painted.

7. **Exterior Openings — Doors and Windows**

   **Evaluation:** Significant, Sound

   The main iron door to the lighthouse is composed of iron with iron straps, and is painted black. The door faces roughly south. Three slate treads with brick risers lead to the main door. The lower portion of the tower has (3) windows with wood shutters. The first window is at the ground floor facing east. It is a 12 lite metal window with a metal frame. The window has a stone surround. The next window up faces north, and is a wood 6 lite window in a wood frame. The third window faces west, and is a 4 lite wood window with a
wood frame. The 1894 addition to the tower has a series of 3 circular metal porthole style windows at the same level, each approx. 14" in diameter. These windows are hinged at the side, with brass hardware. The windows face east, north and west, and are located just below the corbeled portion of the tower. A contemporary guard of stainless steel wire in a metal frame protects these windows. The bottoms of these iron windows all show signs of rust under the paint, from standing moisture. The hardware is also broken and in need of maintenance.

**Recommendations:**
The porthole windows should be stripped, repaired, primed, and repainted. All broken hardware should be repaired.

8. **Watch Room and Gallery:**

**Evaluation:** Significant, Sound

The watch room is accessed by the third circular stair, leading from the lower watch room with 3 exterior portholes. This lower watch room has an iron floor, and a door leading downward. A beaded wood tongue-in-groove enclosure covers the stair below, and serves as a shelf to store equipment. This wood is in good condition, but needs general maintenance and paint. The ceiling of this room is the iron floor of the watch room above, structured with two iron channels running SW-NE. The ends of the channels are recessed into the brick wall of the tower. The brick wall of the tower ends at the watch room floor. Both the watch room and the lens room are structured in iron and painted black.

The watch room is accessed from the lower watch room via a painted iron staircase. The walls of the watch room are composed of 10 sections of plate iron, attached with iron battens. The interior walls are painted white; the floor black. The base for the rotating lens sits in the center of the room. A 14" wide iron stair runs along the wall to the lens room above. Brass ventilators for the room are centered on every other wall panel (4 in all). The watch room has no ceiling, only the underside of the lens room catwalk above. The catwalk is described in the lens room section. Skylights in the catwalk allow light into the watch room. A set of double iron doors lead out into the watch room gallery. The gallery is supported by corbeled brick of the tower. It is approx. 30" wide, and consists of 10 sections of iron platform. A 36" high historic guardrail surrounds the gallery, with a contemporary wire rope guard above this. The rope is strung vertically from the guardrail through metal eyes welded to the historic rail. A ladder leads from the gallery to the lens room gallery above. The historic guardrail consists of flat top and bottom bars, with vertical rods at approximately 6" o.c. Another flat bar runs along the top of the guardrail.

**Recommendations:**

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The exterior and gallery of the watch room has just been painted. The interior is in need of painting. The brass ventilators are currently frozen, and need to be restored to working order and polished.

9. **Lens Room:**

**Evaluation:** Significant, Sound

The lens room consists of an iron floor, iron framed windows, and an iron structured dome. The walls, floor and roof are structured in 10 sections. Two sections of the iron catwalk around the lens are omitted for the curved stair from the watch room. Each remaining section contains a 12" circular glass skylight to illuminate the watch room below. Each glazed wall section measures approx. 30" in diameter x 6 feet high. The glass is contemporary clear wired glass. Two red sections of glass are located roughly at the light’s north and south, marking dangerous sections of the reef. The red panels are contemporary plastic with brass frames, located within the interior of the lens room. The Fresnel lens is intact, and occupies most of the lens room. The lens is approx. 4 feet in diameter, and is surrounded by contemporary plastic panels. The roof of the lens room is concealed by a series of sheet metal panels attached to the iron structural ribs. The panels are dented but in fair condition. Ten horizontal rods extend to the center of the roof to support the top of the lens. A narrow gallery runs along the exterior of the lens room, accessed by a ladder from the watch room gallery. This gallery has a 12" high guardrail consisting of iron rods and a flat top bar.

**Recommendations:**

The exterior of the lens room has been freshly painted. The interior is in need of a coat of paint from heavy museum use, and the plastic panels protecting the lens need to be re-secured.

10. **Roof:**

**Evaluation:** Significant, Sound

The roof structure consists of 10 cast iron ribs leading to a central collar. The roof is a half-dome sheathed in copper, approx. 4' in radius, topped with a ventilator ball and lightning rod. The dome is covered at the interior by tin ceiling panels attached at each rib. As a result the ribs were not visible. All of the metalwork at the interior is sound, but needs general cleaning and painting. The exterior of the roof was just painted.

**Recommendations:**

There is no evidence of roof leaks, and the roof was painted in 2001. The interior tin ceiling should be reattached and painted.
11. Electrical System:

   Evaluation: Non-Original but Required
   The tower’s electrical systems consist of lighting in the brick portion of the tower, and a contemporary electrical lamp in the lens. The tower’s rotation mechanism has been removed. The exposed conduit enters the tower from the window at the tower’s base. It runs up the side of the tower’s brick interior to the watch room, where it runs up the lamp base and into the lamp. Some electrical wire is exposed at the lower watch room.

   Recommendations:
   The electrical systems are required, and are installed in a manner sensitive to the historic characteristics of the building. The exposed wire at the lower watch room should be covered.

12. Lightning Protection System:
   The lightning protection system consists of a lightning rod at the top of the ventilator ball, with a wire leading to the ground. It appears to be functional.

   Recommendations:
   The lightning protection system should be checked to ensure its function, and maintained on a continuing basis.

13. Probable Cost for Restoration:
   The Key West Lighthouse was completely restored in 1989 and a maintenance project was completed this past year. Interior work, including miscellaneous minor metal restoration, masonry repairs and painting was deferred due to a budget shortfall. The remaining work should be budgeted for the next fiscal year at $50,000 plus design fees at 12%, or $6,000.

   Recommendations for Future Use:
   Presently the entire lighthouse grounds are maintained as a museum by the Key West Art & Historical Society. Both tower and outbuildings are generally in excellent condition. Only continued maintenance is recommended.
KEY WEST LIGHTHOUSE, CA. 1905

FLORIDA
LIGHTHOUSE
STUDY

EXISTING CONDITIONS
PHOTOGRAPHY

Project № 0119
Key West
Lighthouse
Photos
Date: 4/15/02
FLORIDA LIGHTHOUSE STUDY
EXISTING CONDITIONS PHOTOGRAPHY

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Date: 4/15/02

WINDOW AT BASE OF LIGHTHOUSE
DETAIL VIEW OF MAIN STAIR

VIEW OF MAIN STAIR AT 1894 ADDITION

FLORIDA LIGHTHOUSE STUDY
EXISTING CONDITIONS PHOTOGRAPHY
Project № 0119
Key West Lighthouse Photos
Date: 4/15/02
CEILING OF WATCH ROOM SHOWING SKYLIGHTS IN LENS RM. FLOOR

STAIR FROM WATCH ROOM TO LENS ROOM
TYPICAL VENTILATOR AT WATCH ROOM

PORTHOLE STYLE WINDOW AT LANDING BELOW WATCH ROOM
FLORIDA
LIGHTHOUSE
STUDY

EXISTING CONDITIONS
PHOTOGRAPHY

Project #: 0119
Key West Lighthouse Photos
Date: 4/15/02

GUARDRAIL AT WATCH RM. GALLERY
WATCH ROOM GALLERY DOOR

UNDERSIDE OF LENS ROOM GALLERY SHOWING BRACKET
TOP OF LENS ROOM WALL - HOOK FOR CURTAIN VISIBLE ABOVE WINDOW

LENS ROOM WINDOW SILL. NOTE SKYLIGHT, WIRE GLASS IN WINDOWS. LENS GALLERY GUARDRAIL OUTSIDE WINDOW
FLORIDA LIGHTHOUSE STUDY
EXISTING CONDITIONS PHOTOGRAPHY

LENS ROOM EXTERIOR WALL SHOWING EXTERIOR CORNICE

LENS SUPPORT AT CEILING OF LENS ROOM

Project No: 0119
Key West Lighthouse Photos
Date: 4/15/02
Name: Pensacola Lighthouse
Location: Escambia County, Pensacola Naval Air Station, north side of entrance to bay.
Type: Conical brick tower
Height: 150 feet
Daymark: Conical tower with lower one-third painted white and upper two-thirds painted black with a black lantern
Year Built: 1858
Owner or Operator: United States Coast Guard
National Register Status: Listed
Active: Yes
Visitor Access: Access to grounds only. The interior of the lighthouse is open to the public during weekends from May to September and on special occasions.
Contact: Coast Guard Station, BM1 James Dillon at: jdillon@antpensacola.uscg.mil
Website: cyberpensacola.com/cgaux/lighthouse
Facilities: Adjoining two-story keeper's dwelling (1869) and passageway structure between the lighthouse and keeper's dwelling

1. **History:**
The first Pensacola lighthouse was constructed near Pensacola Bay in 1822. After construction, the new lighthouse received criticism from navigators that the light was outdated and too dull to be seen well at sea.

In 1857, a second Pensacola Lighthouse was built one-half-mile west of the original structure to replace the 1824 Lighthouse. The first-order Fresnel lens in the second lighthouse was officially lighted on January 1, 1859. The lighthouse was automated in 1965 and continues in operation today.

The Pensacola Lighthouse was built on a 50-foot bluff and stands 150 feet tall. The brick tower originally was painted completely white but in 1869 the upper two-thirds of the lighthouse was painted black to help the lighthouse stand out in the distance against the blue sky.

During the Civil War, the first-order Fresnel lens was removed by the Confederate army in fear that Union troops would use the light to guide their ships. The lighthouse was hit by gunfire during an attempt by Union troops to gain control of the land. The tower survived and was relighted by the Union army in 1862.
with a temporary fourth-order Fresnel lens. After the war, the lighthouse was restored and the first-order Fresnel lens was replaced. The lens magnifies the light up to 40,000 candlepower, which is visible 27 miles to sea.¹

The lighthouse was automated by the U.S. Coast Guard in 1965. Plans to tear down the keeper’s house were defeated by preservation groups. Today, the keeper’s house is used as office space for Navy officers.

The Pensacola lighthouse was listed on the National Register for Historical Places in 1974.

2. **General Description**: The Pensacola lighthouse is constructed of brick in a conical shape and sets on a base of granite. The lower third of the lighthouse is painted white and the top two-thirds of the lighthouse is painted black. Paint and whitewash have been removed from the interior masonry cylinder to reveal the natural brick color.

A two-story oil storage building is attached to the west side of the lighthouse. A modern one-story addition links the oil storage building with the two-story wood keeper’s house.

At the time of our visit, the United States Coast Guard had closed the lighthouse to public visitation to make several repairs. These repairs include: interior and exterior painting of the lighthouse; repairing the windows; reinforcing handrails, stairs and supports; and providing a ramp for wheelchair access to the base of the lighthouse. At the time of our visit they had just started to paint portions of the lighthouse interior rotation room.

The base of the lighthouse is reached through an arched interior brick hall between the oil storage room and the log room. The rough troweled concrete floor continues from the arched interior brick hall to the base of the lighthouse. The Coast Guard plans to construct a ramp in this area for wheelchair accessibility to the base of the lighthouse.

The interior black-painted, cast-iron, spiral stair has ornamental scrollwork on both the treads and the risers. The spiral stair is constructed with the outside edges of treads and risers set in the brick wall and the inside stair edges stacked to form the center pole.

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A black cast-iron handrail continues to the watch room level with intermediate stops at windows. Cast-iron brackets mounted to the brick wall support the cast-iron handrail. A black rope is wrapped around the cast-iron handrail at the base of the lighthouse.

The Pensacola Lighthouse has five, six-over-six, double-hung wood windows with wood frames. The windowsill is brick with granite lintels and floor. Windows are placed in a semi-random pattern with a direct relationship with the interior stair. Hurricane shutters are constructed of wood tongue-and-groove in a diagonal pattern and open from the interior.

Original wood panel doors with transom lights are located on the south side of the keeper's house. Several interior door openings have been filled in with heavy thick oversized wood doors that cover the entire original doorframe including the transom light. The windows of the keeper's house are modern vinyl replacements.

The interior of the watch room has an unpainted exterior brick wall that needs to be patched and repainted in areas. The watch room floor consists of gray painted cast-iron floor plates. A small opening in the cast-iron floor allowed the original weights to the lowered just below the watch room level. Weights, used to rotate the lens, had to be re-wound every couple of hours. A detachable piece of wood now covers the opening. A wood center pole supports the rotation room cast-iron deck plates above. A small wood table attaches to the wood pole. The spiral stair cast iron handrail wraps around the watch room stair opening and connects to the cast-iron ship's ladder-type stair to the rotation room.

The rotation room is reached by a black painted ornate cast-iron ship's ladder-type stair through a small hatch opening in the cast-iron floor plates. The top of the cast-iron floor plates is covered with wood boards that have been painted gray. A cast-iron pedestal in the center of the room supports the first order Fresnel lens above. Cast-iron mullions separate the ten cast-iron panels on the exterior of the rotation room. A masonry coating has been applied to the interior of the cast-iron panels. One of the panels serves as the access to the rotation room gallery.

The rotation room gallery consists of ribbed cast iron floor plates that are supported by the corbel brick of the masonry tower. A round handrail with round support stanchions and round railings wraps around the outside edge of the gallery. A ball cap is mounted to the top of the support stanchions.
The lantern room is accessed by a cast-iron ship's ladder-type stair through a break in the lens room cast-iron floor plates. The ribbed cast-iron floor plates of the lantern room continue through to the outside gallery deck. Exterior walls are glass storm panes that extend the full height of the lantern room. Vertical cast-iron mullions support the storm panes and cast-iron ribs and tension ring above. Three panels to the north have been covered with black out panels to keep light from the nearby airfield.

The roof surface is covered with a copper dome with a bronze ventilator ball at the roof peak.

The lighthouse is in good condition with maintenance repairs in the process of being made by the Coast Guard.

3. **Site Improvements:**

   **Evaluation:** Keeper's house/significant/historic/good condition.

   The Pensacola Lighthouse is located on the Pensacola Naval Air Station at the coast of the Gulf of Mexico and Pensacola Bay. A gravel road north of the lighthouse leads to a visitor's parking area. The gravel road continues south of the lighthouse to another parking area. The site mainly consists of gravel, small patches of grass, and mature trees.

   The lighthouse, oil storage/museum, keeper's house, and a utility building are located within a white wood picket fence enclosure. The grounds within the fenced area are above the existing grade of the parking areas. A concrete ramp to the south and the north of the fence enclosure provide access to the enclosed lighthouse grounds. Primary vegetation within the fence enclosure consists of grass and small trees.

   Picnic tables are set up south of the lighthouse outside the wood fence enclosure. A metal range light is located at the south fence facing Pensacola Bay. Two one-story board and batten wood buildings are located west of the wood fence enclosure.

   A two-story oil storage building/museum is attached to the west side of the lighthouse. Entrance to the lighthouse is through a brick arched hall that separates the log office from the oil storage room. The oil storage room is constructed of brick in a U-shape. A concrete generator stand and electrical wires currently in the oil storage building are not historically accurate.

   A modern one-story addition connects the oil storage building and keeper's house. The interior finishes for the modern addition includes VCT, vinyl base, and plaster walls. Wood stairs in this area lead to the

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basement of the keeper’s house where the electrical panels are located. There is a change in floor height in this area and therefore necessitates the construction of a ramp for wheelchair accessibility from the Navy artifact room in the keeper’s house to the base of the lighthouse.

A two-story keeper’s house west of the lighthouse connects to the modern one-story addition. The porch wraps three-quarters around the first and second floor of the house with wood tongue-and-groove decking on the floor and ceiling. The wood rail and posts do not appear to be the original to the porch. The slate tile gable roof has four brick double flue chimneys. The louver at the west gable end of the two-story keeper’s house is broken. Paint is peeling at the skirtboard of the house.

The interior first and second floors of the keeper’s house have heart pine wood floors and bead board walls and ceilings. Miscellaneous electric equipment for the offices has been surface mounted. One-half of the first floor is devoted to Navy artifacts and is part of the lighthouse tour. The interior of the keeper's house is in good condition.

**Recommendations:** Repair wood louver at west gable. Remove peeling paint at skirtboards and repaint. Property and grounds maintenance should be continued.

4. **Masonry Walls:**

   **Evaluation:** Significant/good condition.

   The exterior masonry walls are painted brick with the lower one-third painted white and the upper two-thirds painted black. The lighthouse sets on a base of granite. The brick corbel at the top of the lighthouse supports the cast-iron floor plates of the rotation room gallery. The exterior brick needs to be repainted.

   Paint and whitewash have been removed on the interior to reveal the natural brick color. The brick needs to be repointed in areas but overall is in good condition.

   There is a crack in the exterior masonry structure above the northeast window.

   **Recommendations:** As part of the current repairs to the lighthouse the interior and exterior brick will be repointed in areas where needed and the exterior of the lighthouse will be repainted.
5. **Cast Iron Stair:**
   **Evaluation:** Significant/good condition.
   The central lighthouse stair is constructed of cast-iron stair units that stack together to form the center support pole. At the outside edge the ornate cast iron spiral stair anchors into the brick wall. There is a broken stair tread at the entrance to second floor alcove. Metal and plywood are used on earlier stair patches.

   A cast-iron handrail spirals to the watch room where it connects to the watch room balcony rail and then continues up the cast-iron ship’s ladder-type stair to the rotation room.

   Stairs are 1 foot 5 inches wide at the brick wall and taper to 2 inches at the center cast iron pole and are approximately 5 feet wide.

   **Recommendations:** The stair is in good condition and requires only routine maintenance. The stairs and handrail will be repainted by the current maintenance project. Areas of cracked cast-iron stair will be repaired with wood plywood boards bolted to the top of the treads.

6. **Interior at Base of Lighthouse:**
   **Evaluation:** Significant/good condition.
   The base of lighthouse is concrete with a rough troweled finish.

   An opening in the lighthouse brick wall at the second floor of the spiral stairs provides access to a room over the oil storage building. The walls have modern wood paneling over beaded board panels. The beaded board ceiling needs repair. Recently removed asbestos tile revealed a concrete floor below. The United States Coast Guard has plans to restore the 18-foot-square room into a museum space for the lighthouse in the future.

   **Recommendations:** The scope of work in progress includes the installation of a new accessibility ramp that extends from the modern one-story addition to the base of the lighthouse.

7. **Exterior Openings – Doors and Windows:**
   **Evaluation:** Significant/good condition.
   Original wood doors with transom lights remain at the south entry of keeper’s house. Several of the original wood panel doors on the interior between the modern one-story addition and oil storage building

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have been replaced with heavy oversized wood doors that cover the original wood frame and transom light. A new metal door has been placed at the north entry of the light station.

Windows for the light station are six-over-six, double-hung, with 45-degree diagonal tongue-and-groove wood shutters. The keeper's house has modern vinyl replacement windows. The lighthouse wood windows are a mix of different periods set in wood frames with granite headers and brick sills. The floor of the window opening is constructed with brick and granite.

**Recommendations:** Glass in the five lighthouse windows will be replaced and all of the windows will be made operable by the current maintenance project. The shutters will be repaired and will open from the interior.

8. **Watch Room:**

**Evaluation:** Significant/good condition.

The watch room, located at the top of the brick tower, has gray painted cast-iron floor plates. A wood center pole supports the cast-iron deck plates for the rotation room above. A wood table is mounted to the wood center pole. The exterior brick watch room wall is not painted and contains areas that need to be patched and repointed.

A hatch has been cut into cast-iron floor plate so that the weights could drop just below the rotation room level. Weights had to be rewound every two to three hours.

The cast-iron stair railing curves around the stair opening to the cast-iron ship's ladder-type stair. There is a crack in the brick wall at the top of the ship's ladder-type stair.

**Recommendations:** Cracks at masonry walls and the wood center pole will be repaired as part of the current maintenance contract.

9. **Rotation Room:**

**Evaluation:** Significant/good condition.

The rotation room has gray painted wood floors over cast-iron deck plates. The walls are comprised of black painted cast-iron wall panels on the exterior, and masonry coating in-filled panels on the interior. Access to the rotation room is gained through a small opening in the lantern room cast-iron floor decking.
The first-order Fresnel lens is accessed at the rotation room level by a series of cast-iron stairs that attach to the lantern room main cast-iron ship’s ladder-type stair.

**Recommendations:** The rotation room was being repainted at the time of our visit.

10. **Rotation Room Gallery:**
    **Evaluation:** Significant/good condition.
    The rotation room gallery has round cast-iron handrails with round cast-iron support stanchions. The cast-iron stanchions bolt through the handrail and cast-iron floor plate. Ball caps screw to the top of each stanchion. Intermediate round railings terminate on a flat horizontal toe-rail located just above the cast-iron floor plates. The railings have some pitting at the lower rail.

    Exterior wall panels of the rotation room gallery are cast iron with cast-iron retainer bars. The cast-iron floor plates have ribbed panels. The door to the gallery is the size of one cast-iron wall panel. As scope of this work, areas between the panels will be cleaned and recaulked.

    **Recommendations:** The rotation room gallery will be repaired as part of the current maintenance contract.

11. **Lantern Room:**
    **Evaluation:** Significant/good condition.
    A cast-iron ship’s ladder-type stair to the north side of the rotation room leads to the lantern room through a break in the cast iron floor plates. The ribbed cast-iron floor plates extend outside to the lantern room gallery. The floor to ceiling plate glass is supported by vertical cast-iron mullions. The glass to the north has been covered with black out panels for the nearby airfield. The cast-iron mullions also support the cast-iron ribs and tension ring at the copper dome. Hooks, once used for curtains, are still in place above the cast-iron mullions. Eagle gargoyle rain downspouts are located at the exterior copper cornice. The first-order Fresnel lens reads *Henry-Lepaute a Paris* on the bronze connection pieces.

    **Recommendations:** Interior of lantern room is being repainted under the current maintenance agreement. Glass storm panels are in good condition.

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12. **Lantern Room Gallery:**

   **Evaluation:** Significant/good condition.

   Gallery railing consist of round cast-iron handrail and round cast-iron stanchion supports. The handrail and the cast-iron deck plates have large areas of peeling paint but overall are in good condition. There are no vertical rails in the railing. The floor has ribbed cast iron floor plates that are supported by cast-iron brackets below.

   **Recommendations:** The lantern rails will be reinforced and repainted under the current maintenance contract.

13. **Roof:**

   **Evaluation:** Significant/good condition.

   The lighthouse roof has a copper dome and bronze ventilator ball. The pinhole leaks in the copper dome will be sealed as part of current repairs. Eagle gargoyles surround the cast-iron cornice. The gargoyles have been replaced in the past.

   The roof of the keeper’s house is red slate with some areas that are broken and need repair. Wood fascia at keeper’s house and flashing at oil storage building needs to be replaced.

   **Recommendations:** Repair fascia at keeper’s house. Repair flashing between oil storage building and lighthouse. Replace broken slate on keeper’s house.

14. **Electric System:**

   **Evaluation:** Significant/good condition.

   Lights for the lighthouse are mounted to the cast-iron center pole. At the watch room the light is mounted to the brick wall next to the stair.

   Electrical boxes are surface-mounted to the wall of the watch room. Electric panels for the keeper’s house are in the basement.

   **Recommendations:** The electric system is in good condition and does not require work at this time.
15. **Lightning Protection:**

**Evaluation:** Significant/good condition.

The lightning rod protection is original to the lighthouse. The flat ground wire runs down the side of the lighthouse.

**Recommendations:** Replace lightning ground wire and route through interior of the lighthouse.

**Probable Cost for Restoration:**

Current maintenance repairs were in progress during our visit with a projected cost of $160,000.

16. **Recommendations for Future Use:** The Pensacola Lighthouse attracts a great number of visitors each year. The lighthouse can be seen from the Naval Aviation Museum located east of the lighthouse site. The lighthouse grounds are accessible during open hours at the Pensacola Naval Station. The Pensacola Lighthouse Association currently opens the lighthouse and provides public lighthouse tours on weekends and special occasions. The Coast Guard would like to open the lighthouse on a more continuous basis, pending local volunteer help.

This light station has the potential of attracting as many visitors and be as economically successful as the St. Augustine and Ponce de Leon Inlet lighthouses. The nearby Naval Aviation Museum is similar to the National Air and Space Museum in Washington, D.C. and attracts thousands of visitors annually. The historic lighthouse site is easily accessible from the museum, has adequate parking space, and the number of lighthouse visitors would significantly increase if the facility were open for daily public visitation. The adjacent keeper's house could be easily converted into a visitor's center and museum building.

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ENTRY OFF OF LIGHTHOUSE STAIR TO SECOND FLOOR ALCOVE

PASSAGE FROM LIGHTHOUSE TO ROOM ABOVE OIL STORAGE BLDG.

LOOKING DOWN AT THE CAST-IRON SPIRAL STAIRS AND WINDOW FROM THE WATCH ROOM
LOOKING DOWN AT THE CAST-IRON SPIRAL STAIRS

A TYPICAL SIX-OVER-SIX DOUBLE-HUNG WOOD WINDOW WITH WOOD SHUTTERS

PLYWOOD PATCHES ON THE CAST IRON STAIR TREAD
Name: Ponce de Leon Inlet Lighthouse
Historic Name: Mosquito Inlet Lighthouse
Location: Volusia County, Ponce Inlet
Type: Brick conical tower
Height: 175 feet (second tallest in United States)
Daymark: Red washed brick tower with black lantern
Year Built: 1887
Owner or Operator: Owned by town of Ponce Inlet and operated by Ponce de Leon Lighthouse Preservation Association, Inc. as a museum
National Register Status: Listed - National Landmark
Active: Yes
Visitor Access: Yes
Contact: Website: ponceinlet.org
Facilities: Three one-story dwellings, pump house, brick oil storage building, three of the original five woodshed/privy buildings and modern entrance. Gift shop building.

1. **History:**

Construction of the Mosquito Inlet Lighthouse commenced in February of 1884. After several interruptions and an earthquake, the lighthouse was completed and lighted on November 1, 1887. The fixed white light of the first-order Fresnel lens could be seen from the deck of a vessel 15 feet above the sea from a distance of 18 nautical miles in clear weather.

The lighthouse was designed by F. Hopkinson Smith, an engineer also well known as an artist. The resulting lighthouse is considered one of the most beautiful on the North American coast. When the lighthouse board approved the design of the tower, they decided it should be red-washed and not painted with a design which might diminish the beauty of the architecture. The completed light station included the lighthouse, a principal keeper's dwelling, two assistant keeper's dwellings, an oil storage building, and three woodshed/privy buildings. A wood fence enclosure surrounded the light station.
During the Florida 1920's land boom, the Mosquito Inlet name was changed to Ponce de Leon Inlet to improve Florida's image for tourists and new residents. The lighthouse was then officially renamed *Ponce de Leon Inlet Light Station*.

In 1940, one of the woodshed/privy buildings was enlarged to house two electrical generators. A radio beacon was also installed at that time.

The Coast Guard abandoned the light station in 1970. Two years later the property was deeded to the Town of Ponce Inlet. The tower light was restored to active service in 1982. The facility is now operated by the Ponce de Leon Inlet Lighthouse Preservation Association, Inc. with the goal of restoring the historic site and preserving it for the education of future generations. The lighthouse and light station are open for public visitation. Light station, local area, and maritime museum exhibits have been installed in the keeper's houses and woodshed buildings. A two-story entrance building/gift shop has been built at the complex entry based upon the original light station's 1884 single-residence design plan. An exhibit building has been built just outside the light station complex to house a lighthouse lens exhibit including a first-order Fresnel lens.

2. **General Description:**

The Ponce de Leon Inlet Lighthouse is constructed of brick masonry in a conical shape with a tapered exterior cylinder and straight interior cylinder. Exterior walls were constructed with a cavity between interior and exterior masonry sections. Exterior masonry surfaces are red-washed brick with natural granite window and entry door surrounds and trim.

Interior brick masonry surfaces are painted white with a gray painted wainscot at the stairs. Window opening shafts at the tower are painted brick with marble window stools.

The Ponce de Leon Inlet Lighthouse towers 175 feet above a brick foundation and is the second tallest lighthouse in the United States. The tower is 32 feet in diameter at the base and tapers to 12 feet 6 inches in diameter at the top. Exterior brick walls are 8 feet thick at the base and 2 feet thick at the top of the tower. The lighthouse took more than four years and 1.25 million bricks to construct and features a black-and-white marble tile entry floor finish with a recessed weight well. Seven granite entry steps lead to the entry level and 203 cast-iron helical stair steps lead to the main gallery. The lighthouse gallery provides an unrivaled view of Ponce Inlet and the surrounding area.

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A decorative granite entry door surround and portico provides a grand lighthouse entrance.

The interior’s cast-iron stair is helical shaped and connects to seven intermediate landings. Each stair section forms a 180-degree arch, and each landing forms a 180-degree arch. A circular open interior shaft is created by the open sides of the stairs and the landings. Lens rotation weights originally hung in the central open area.

Intermediate stair landings are cast-iron plates supported by cast-iron brackets cantilevering from the brick masonry walls. The cast-iron stair sections connect to the cast-iron landings and have cast-iron brackets anchored to the brick masonry walls to support the outer edges of the stairs. A cast-iron handrail with vertical balusters at each tread protects the open inner side of the stairs and landings.

The tower has six intermediate windows, with three windows centered above the entry on the east side and three windows centered in the opposite west side of the tower. The east windows open at every other intermediate landing and the west windows open to the stair runs equal distance between the east windows in elevation. There are four additional windows at the watch room level facing north, east, south and west with the east and west windows centered over the windows below.

Windows are 2-light-over-2-light, double-hung, wood sash units mounted in cast-iron window frames. Modern steel guards are installed inside window openings for visitor life safety.

The lighthouse has a pair of wood stile and rail entry doors with glass vision panels and a second set of similar wood doors mounted just inside an entry vestibule. Entry doors are hung in cast-iron frames and have glass transom panels over the doors. The central stair terminates at the watch room level that is constructed with cast-iron floor plates. A large historic wood glass storage case and a similar modern taller wood storage case are located in the watch room. Painted brick walls surround the space and modern steel guards provide life safety protection for visitors at window openings. A narrower cast-iron helical stair leads from the watch room to the rotation room.

The rotation room has a cast-iron floor with a fixed, decorative, cast-iron pedestal in the center to support the lens above. The original first-order lens has been removed and is on public display as part of a lens exhibit at the Ponce de Leon Light Station. A modern electric beacon light is mounted on top of the lens pedestal. Brick rotation room walls are painted.
A heavy cast-iron exterior door provides access to the main exterior gallery from the rotation room. The gallery has cast-iron floor plates supported on cast-iron brackets that cantilever from the brick masonry walls. A metal handrail surrounds the open exterior edge of the gallery with cast-iron vertical handrail stanchions connecting through the floor plates and brackets below. Handrail stanchions have ball caps. Railings have three horizontal, flat, cast-iron bars spanning between vertical stanchions with round vertical metal pickets between the bottom and intermediate horizontal rails. The intermediate horizontal rail is located about 4 inches below the top rail. A modern vertical steel flat bar has been added at the interior of the vertical stanchions as a bottom guardrail approximately 2 inches above the deck.

A modern life safety enclosure has been installed above the historic railings for public safety. The enclosure has vertical tube posts mounted above handrail stanchions supporting a horizontal surround tube above and braced from the central cylinder with additional posts. Monofilament line is laced through eye bolts in the top tube surround to openings in the top rail and from additional eye bolts in the top tube surround to eye bolts at a second tube surround near the exterior face of the lighthouse.

The exterior shaft at the gallery level is clad with painted cast-iron panels. A cast-iron cornice and soffit surround the underside of the outer edge of the lantern room gallery above. The lantern room has cast-iron floor plates with floor light inserts surrounding a center opening with the lens platform supported by the pedestal from below. The cast-iron floor plates extend under the glass exterior walls to form the surrounding exterior gallery deck.

Sixteen vertical cast-iron mullions support the glass storm panes and cast-iron roof framing and tension ring above. Floor vents with adjustable brass grates are located in the cast-iron sills below every other window opening.

A tin reflector is mounted above the light and tension ring and tin cladding covers the underside of the roof framing. Tin cladding, reflector, and metalwork in the lantern room are painted white.

Standing seam copper roofing with cast-iron cornice caps the tower with a bronze ventilator ball at the peak. Roofing and the ventilator ball are painted black.

A lantern room gallery surrounds the lantern room with cast-iron floor plates and cast-iron handrail stanchions supporting a single horizontal flat bar railing protecting the outside edge of the gallery. Handrail stanchions have brass acorn nut caps above the railing.

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The lighthouse was completely restored in 2001 and is in excellent condition. We are not aware of any current repair requirements.

3. **Site Improvements**

   **Evaluation:** Significant/historic/restored.

   Located at the north side of Ponce Inlet, the Ponce de Leon Inlet Light Station stands on approximately 10 acres of cleared, and relatively flat, grassed land. The historic light station is contained within a white painted wood picket fence with concrete posts. Outside the fence to the east, nature trails extend through area of coastal scrub oak trees. Outside the fence to the north, a boatyard displays historic vessels.

   Original walks are constructed from brick with pronounced crowns as typical for the construction period. New walks are constructed from brick and red-colored concrete embossed to resemble the historic brick walks. A new concrete-and-concrete paver parking lot has recently been constructed at the front or northwest side of the property. A new, two-story, brick administration and maintenance building has recently been constructed on the north side of the complex.

   Visitors enter the light station from the parking lot through a modern entrance/gift shop building constructed in 1992. The entrance building’s exterior design, based upon 1883 drawings for a keeper's dwelling, has brick exterior walls with white painted wood trim, windows, and doors. The modern entrance building complements the historic light station’s appearance and houses a large gift shop, administrative offices, a meeting room, and library.

   Other light station structures include a head keeper's house and two assistant keeper's houses, a woodshed/privy building, a pump house, a generator/radio shack building, modern lens exhibit building, and an oil storage house. Also exhibited at the light station is a 600-pound, bronze, United States Lighthouse Service bell that was cast in 1911. Buildings are one-story brick or brick-and-frame structures.

   Lighthouse structures have been restored and are used to house exhibits to interpret historic lighthouses, the Ponce de Leon Inlet Lighthouse, historic lighthouse lens, and lens restoration, the Ponce de Leon Inlet Lighthouse restoration, and local history.

   **Recommendations:** Continue current maintenance and repair.

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4. **Masonry Walls:**

**Evaluation:** Significant/restored.

Exterior brick masonry walls originally had a red-wash coating and were refinished during the recent restoration with a Keim mineral coating to match the historic red color. A granite base surrounds the base of the brick masonry tower and separates the tower from the surrounding brick walk. Window openings have extended brick jambs and granite sills with corbelled brick below the granite sills. Window heads are brick arched with granite keystone blocks and granite trim blocks located at arch spring points.

A corbelled band of brick with a granite cap surrounds the lighthouse at the watch room level. Vertical brick pilasters extend above the granite surround to support the cast-iron main gallery support brackets.

Granite exterior stairs with nine risers and eight treads led to the main entrance. Heavy stepped granite cheek walls with bullnose front corners, plus an extended granite base, flank the sides of the entry steps. Modern bronze handrails have been installed at entry steps for visitor safety. The entry doors have a granite surround with flanking pilasters supporting an extended granite pediment.

Interior walls are brick painted an off-white color with a dark gray painted wainscot above the stairs. Corbelled brick projections provide support for the exterior edges of the stair landings.

Window openings at the masonry shaft have brick jambs and arched brick heads. Window stools are marble with cast-iron trim at the intersection with the interior brick walls below the stools.

**Recommendations:** No repair or maintenance is currently required.

5. **Cast-iron Stair and Landings:**

**Evaluation:** Significant/good condition.

The central stair is constructed with cast-iron treads with a checkered plate finish. Each tread has integral cast-iron risers and brackets to bolt to the tread below. The stair runs are 180-degree helical sections located on the west side of the lighthouse to connect to cast-iron plate landings located at the east side of the lighthouse. Stair sections are supported by cast-iron brackets bolted to the brick walls. Landings have a checkered plate finish and are supported by cast-iron brackets cantilevering from the brick walls to

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support a cast-iron beam below the interior (open) side of the landings. Each landing is a 180-degree arch and a circular open shaft is created by the open sides of the stairs and landings.

There are eight stair sections from the main entry to the watch room with seven intermediate landings.

A cast-iron vertical handrail post connects to the interior nosing corner of each tread and bolts through the back of the tread below. A circular metal handrail is attached to the top of the posts. Larger handrail support stanchions with ball caps are located at the base of the stair and at the stair terminations at each landing. Landings have four additional support stanchions with ball caps supporting top and bottom railings with intermediate vertical round pickets. Stairs and landings are painted an off-white color and railings and stanchions are painted black.

**Recommendations:** Continue current maintenance.

6. **Interior Floor at Base of Lighthouse:**

**Evaluation:** Historic/significant/good condition.

The flooring at the base of the lighthouse is 12-inch-by-12-inch black and white marble tiles laid in a checkerboard pattern. A black marble band surrounds the floor at the intersection with the interior brick walls.

**Recommendation:** The floor was cleaned and honed as part of the recent restoration and light brown stained areas remain. Continue current maintenance.

7. **Exterior Openings – Doors and Windows:**

**Evaluation:** Significant/historic/good condition.

The lighthouse entry has a pair of oak stile-and-rail entry doors with glass vision panels hung in a cast-iron door frame with a fixed glass transom panel above the entry doors. The entry doors lead to an entry vestibule with a second similar pair of oak stile-and-rail doors hung in a second cast-iron frame with a fixed glass transom panel above.

The doorframes are original cast-iron units and the doors are modern replicas of the original units that were fabricated from the original construction drawings.
A cast-iron door in a cast-iron doorframe leads from the rotation room to the main gallery. This door was restored as part of the recent lighthouse restorations. A four-panel glass vision light was installed in this door as part of the recent lighthouse restoration for visitor safety.

The lighthouse has ten windows. Four of the windows are located at the north, east, south, and west sides of the watch room; three windows are centered over the entry door on the east side of the lighthouse opening on the stair landings; and three windows are located on the west side of the lighthouse opening on the interior stair runs. All windows are two-over-two, double-hung, wood sash windows installed in cast-iron window frames. The upper sash have arched heads.

Wood window sash have been replaced over the years to match the original sash. Frames are original. The lower window sash are raised approximately 12 inches above the sill and have modern screens installed in the window openings with modern sloped copper sills outside the window openings. The screen and copper sills permit windows to remain open for interior ventilation, prohibit rain from blowing in the open windows, prohibit wasps and insects from getting in the open windows, and keep pigeons from roosting on exterior windowsills.

Modern steel guards are installed inside all window openings for visitor life safety.

**Recommendations:** Continue current maintenance.

8. **Watch Room:**

**Evaluation:** Significant/historic/good condition.

The main lighthouse stair terminates at the watch room level. A narrower, cast-iron, helix-shaped stair leads from the watch room to the rotation room above. The watch room floor is constructed with sectional cast-iron plates with a checkered-plate walking surface. The exposed underside of the cast-iron floor plates at the rotation room above form the ceiling. Four windows facing north, east, south, and west ventilate the watch room space. Watch room windows have granite stools and modern steel guards are installed inside window openings for visitor life safety.

Two, dark-green, painted, wood storage cases are located in the watch room; one is an original storm glass panel storage case and the second contains first-aid equipment for visitor life safety.

**Recommendations:** Continue current maintenance.
9. **Rotation Room:**

**Evaluation:** Significant/historic/good condition.

The rotation room floor is sectional, cast-iron plates with a checkered-plate walking surface. A fixed, decorative, cast-iron lens pedestal is located in the center of the room and supports the lens platform at the lantern room above. A helical, cast-iron, stair provides access to the room from the watch room below. This stair is isolated from the rotation room by cast-iron panels installed between the stair and the rotation room. A cast-iron door at the top of this stair leads to the main exterior gallery, and a second door opening provides access to the rotation room.

A second open, cast-iron, helical stair leads from the rotation room to the lantern room above. A modern hinged and locked aluminum grille has been installed in this stair opening at the lantern room floor level to prevent visitors from gaining access to the lantern room above.

Interior rotation room walls are painted brick.

**Recommendation:** Continue current maintenance.

10. **Main Gallery:**

**Evaluation:** Significant/historic/good condition.

The main gallery has painted cast-iron deck plates with checkered-plate walking surfaces. Deck plates are supported by cast-iron brackets cantilevering from the brick masonry walls below the deck. Eight brackets support sixteen deck plates. Cast-iron handrail stanchions anchor through deck plates and brackets to support metal railings on the open side of the gallery. A ball cap tops each stanchion. The railings have a flat bar cap rail, intermediate and bottom rails spanning between stanchions. Vertical round pickets spaced approximately four inches on center fill the openings between the lower and intermediate rails. A vertical flat bar was installed by the recent restoration below the bottom rail as a safety guard.

The deck plates, brackets, and railings are all modern reproductions of the original units installed by the recent restoration.


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A modern safety enclosure has been installed over the gallery for visitor life safety. The safety enclosure is constructed with black painted, stainless steel tubing with vertical supports located above handrail stanchions supporting a surround tube above. Monofilament line spaced about four inches on center is laced between eyebolts installed in the surround tube and the top rail of the railing. Additional monofilament laces to eyebolts at a surround tube mounted just below the lantern room soffit.

Cast-iron panels surround the central cylinder with a cast-iron cornice below the lantern room soffit above. The lantern room soffit has cast-iron panels with scalloped openings serving as lantern room ventilation openings.

All metal surfaces at the gallery, lantern room, and gallery support brackets are painted black.

**Recommendations:** Continue current maintenance.

11. **Lantern Room:**

**Evaluation:** Significant/historic/good condition.

A modern electric beacon is mounted on the original lens platform. The original first-order Fresnel lens is on display at the lens exhibit building at the light station.

The lantern room has cast-iron floor plates with floor light inserts, cast-iron windowsills, cast-iron vertical window mullions, and cast-iron roof framing and tension ring members that are located at the base of the roof canopy. A tin canopy is located above the tension ring, and the roof framing has tin sheathing on the underside.

Storm window openings have impact-resistive glass panels. Cast-iron floor plates extend below the glass panels to form the exterior lantern room gallery decking. The exterior lantern room gallery has vertical handrail stanchions supporting a single flat bar handrail protecting the open side of the gallery. Acorn nuts cap each stanchion.

**Recommendations:** Continue current maintenance.

12. **Roof:**

**Evaluation:** Significant/historic/good condition.
The original cooper roof canopy, cast-iron cornices, and bronze ventilator ball remain and are in good condition. A bronze pinnacle caps the ventilator ball. All roof surfaces are painted black.

**Recommendations:** Continue current maintenance.

13. **Electrical System:**

**Evaluation:** Significant/non-historic/good condition.

An electrical power panel is wall-mounted at the base of the lighthouse. The electrical service is routed into the building at a corner of the entry door transom head. Vertical electrical conduits are surface-mounted on the interior brick walls and extend from the base of the lighthouse to the rotation room. Modern electrical lights are installed on the conduits at stair landings.

**Recommendations:** Continue current maintenance.

14. **Lighting Protection System:**

**Evaluation:** Significant/non-historic/good condition.

A copper lightning protection ground lead is attached to the interior masonry walls near the vertical electrical conduits in the tower. The lightning protection ground lead is connected to windowframes and to the pinnacle at the top of the tower.

**Recommendations:** Continue current maintenance.

15. **Probable Cost for Restoration:**

The Ponce de Leon Inlet Light Station was completely restored in 2001 with a renovation cost of approximately $1 million. Major renovation work was completed to restore the main gallery decking and associated support brackets and handrails, and the lantern room gallery deck plates. The entire lighthouse was restored and repaired as part of the renovations and no current repairs are recommended. Continued maintenance of the lighthouse will be required.

16. **Recommendations for Future Use:**

The Ponce de Leon Inlet Light Station was deeded to the Town of Ponce Inlet in the 1970s and has been operated by the Ponce de Leon Preservation Association as a lighthouse museum since that time. Over 115,000 visitors tour the lighthouse and light station annually. Visitors' admission fees and gift shop sales revenues support the lighthouse annual salaries of over $300,000 and an annual budget in excess of...
$1 million. Many tourists return each year to tour the facilities and enjoy the view from the top of the lighthouse.

Ponce de Leon Inlet Light Station is a wonderful asset for the Town of Ponce Inlet and the State of Florida. Continued current use is recommended.
PEDESTAL AND STAIR AT ROTATION ROOM

POSTCARD OF CAPE CANAVERAL FIRST ORDER FRESNEL LENS ON DISPLAY AT THE PONCE INLET LIGHTHOUSE
Name: Sand Key Lighthouse
Location: Monroe County / 7 miles southwest of Key West
Type: Wrought iron skeletal screw-pile tower with integrated keeper's quarters and cylindrical stair.
Height: 132 feet. Focal point 109 feet above msl.
Daymark: Brown square skeletal screw pile tower. White lantern.
Year Built: Ca. 1850 – first lighted 7/20/1853
Owner or Operator: U.S. Coast Guard
National Register Status: Listed
Active: Yes
Visitor Access: Proximity access by boat, no direct access.
Contact: Florida Keys Reef Lights Foundation, Brenda Atmeier, P.O. Box 0831, Key Largo, FL 33037, E-mail: brenda.atmeier@noaa.gov
Facilities: Keeper's quarters formerly located in the second section of the tower. Destroyed in 1989 fire. Quarters and stairway removed. Watch room located at the observation platform level. NOTE: Second oldest of the 6 iron screw pile lighthouses, which extend from Fowey Rocks to Sand Key. Only one not standing entirely in water.

1. History
Sand Key is located seven miles south southwest of Key West, a small sandy islet that appears and disappears according to tides and weather conditions. A brick lighthouse was erected on this site in 1827. Major John Flaherty was the first lighthouse keeper. After his death three years later, his wife, Rebecca Flaherty succeeded him. This lighthouse was destroyed in 1846, just nineteen years later, by the same hurricane that destroyed the original lighthouse in Key West. This severe storm undermined the lighthouse, causing it to fall into the sea and Rebecca Flaherty perished along with her family. The Honey, a lightship, acted as a temporary light while a new lighthouse was built. This light was unable to provide adequate guidance to vessels in the area, and eight vessels ran aground from May 1850 to August 1851.¹

In 1853 work began on the new Sand Key Lighthouse. Over 450 tons of iron went into the construction of the light. On top of the first series of piles, above the reach of the waves, workers built a keepers' dwelling within the skeletal structure.² The seventeen screw piles give the structure a solid footing, and the cross members that connect the piles driven into the reef give the structure even more strength and solidity. The

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iron piles driven ten feet or so into the reef resemble a sword stuck into the sand up to its hilt. Large, square, iron footplates rest on top of the reef. This construction has proven valuable over the years. Although Sand Key has reformed many times over the years due to severe hurricanes, the lighthouse structure has not been undermined and remains standing today. A Fresnel light was installed and the lighthouse was placed in operation July 20, 1853. The light provided a series of signals: a fixed white light for one minute, a partial eclipse of twenty-five seconds, a white flash of ten seconds, and another partial eclipse of twenty-five seconds.

Numerous, severe hurricanes swept through this area, causing much damage to life, destroying all of the structures, boats and wharf, but the lighthouse structure has not been destroyed. Repairs were made after each hurricane and structures were rebuilt or repaired, depending on the damage inflicted by the hurricane. In 1891, red glass panels in the lantern were installed, making light appear red over the reefs. The flashing characteristic of the light remained the same.

In 1941 the Sand Key Lighthouse was automated and the Coast Guard routinely checked and maintained the lighthouse every three to five months and an inspection was performed every six years. In 1989 a devastating fire almost destroyed Sand Key Lighthouse. The damage was concentrated in the central core of the tower, and the Coast Guard concluded that the tower was still serviceable and should be salvaged. Renovations took about ten years, and without the stairwell and keeper's quarters, the Sand Key Lighthouse still stands and once again functions as an essential lighted aid to navigation.

2. Ibid. 111
4. Dean, 118
5. Thomas W. Taylor, Editor, Florida Lighthouse Trail, (Sarasota, Florida: Pineapple Press, Inc. 2001) 84

2. General Description:
   The Sand Key Lighthouse is an iron structure on screw pile foundations anchored into the reef. The 132 foot tall tower has 12 perimeter columns that pyramid up from a square base to a square watch platform and round lantern top. The 1989 fire destroyed the keeper's quarters and central stair tower, and subsequent renovations removed those elements. Only the structural skeleton remains, with access to the top by a ladder. The light is accessed by a wood pier on the west side of the tower that stands about 8
feet above the water line. The light itself is accessed by a ladder from this pier. At the west corner of the
tower, one diagonal cross member has been removed to simplify access to the platform.

The 45-foot square lower platform of the tower is set 14 feet above the dock. The platform is a
replacement for the original plate iron keeper’s quarters platform and enclosed stair cylinder that were
removed after the 1989 fire. The tower consists of 16 iron columns: 12 around the perimeter and 4 interior.
The interior columns are vertical, while the perimeter columns taper as they rise. Access to the top of the
tower is by a contemporary ladder with two intermediate landings. The columns are braced with cross
bracing secured by turnbuckles and pins at the column connection collars. The top of the tower consists
of an enclosed watch room with an exterior gallery with a lens room above. The lens room houses the
current modern beacon. Both of the rooms are historic, but both have been drastically altered over time.
All of the tower’s iron components show signs of rust and deterioration. A detailed condition assessment
on an item-by-item basis follows.

3. Site Improvements:
   Evaluation: Significant Historically, Requires Improvements
   The site is a small sand island seven miles south/southwest of Key West, in close proximity to the coral
   reef. The tower is set diagonally approximately north-south/east-west with the pier extending from the
tower to the west - the only viable access to the tower. The coral reef to the south and east breaks the
water, prohibiting access by boat to Sand Key from those directions. Shallow water limits access from the
north. There is no vegetation on Sand Key and its size has varied extensively over the course of time from
several acres to non-existent. Currently the island is about 100 feet long by about 20 feet wide. The tower
is completely surrounded by water. Access to the dock level is difficult from a small boat as there are no
ladders, intermediate levels or steps. Wood piles are set on the north side of the dock for tying up. These
piles are not secured at the top to the pier and have substantial movement. The dock itself is reasonably
sound and is supported on steel columns and wooden beams. The dock is 8 feet wide x approximately 50
feet long. The steel columns are approximately 9” in diameter.

Recommendations:
The dock needs to be braced and repaired at the least, but access to the light would be greatly facilitated if
the dock were rebuilt or modified. The dock should step down lower to the water to provide easier access,
and ladders should be provided at different points so dockage can take place in varying wind and sea
conditions. This access could be easily accomplished by adding mid level beams, bolted to the iron piles
midway between the water and the existing decking. By installing this midlevel at the end of the pier and

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cantilevering to the north, west and south, boats could land with winds and seas from any direction and safety would be greatly enhanced. A stair or ladder would then connect the two levels.

4. **Exterior Structure/Walls:**
   **Evaluation:** Significant, Deteriorated
   The tower is an open structure without walls. Columns have decorative bases and connections. Cross members are steel rods with turnbuckles. The main platform is supported by deep steel girders running on column centerlines in all four directions. Steel beams run in the N.W./S.E. direction across the center bay and the easterly and westerly bays. The middle bay on the southern and northern sides has the beams turned N.E./S.W. Main girders are 12” deep with 8” flanges. The beams are 8” deep with 6-1/2” flanges and are 2’-9” o.c. Columns are 10” diameter at the base.

   **Recommendations:**
   Rust and corrosion needs to be addressed on a regular basis. The historic walls, keeper’s quarters, and central stair tower should be reconstructed to replicate the original.

5. **Exterior Openings/Doors & Windows:**
   **Evaluation:** Removed Below the Lantern Level, Significant at Lantern
   As the keeper’s quarters has been removed, no exterior openings remain with the exception of the watch room doors, which are covered under that section.

   **Recommendations:**
   A full historic restoration would include replica doors and windows when the keeper’s quarters are rebuilt.

6. **Foundation and Floor Structure:**
   **Evaluation:** Altered, Significant, Sound
   The foundation of the tower consists of 16 iron columns: 12 around the perimeter of the tower forming 3 bays on each side, and 4 interior columns. Each column is secured to the reef with sunken screw piles running through a circular disc visible below the water’s surface. The interior columns are vertical, while the perimeter columns taper as they rise. All of the column foundations appear to be sound but the extensive marine growth prevents close inspection. Due to the removal of the keeper’s quarters and stair cylinder, there is no historic floor structure until the level of the watch room near the top of the tower. The keeper’s quarters platform has been replaced with modern steel mesh placed over the original framing of the platform.

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Recommendations:
As mentioned in the general description, a section of cross bracing has been removed to facilitate access to the tower by ladder. This section should be replaced with bracing matching the originals. All of the remaining iron columns and bracing, although presently sound, should be sandblasted, primed and repainted on a continuing basis. Periodic maintenance of metalwork is critical to the long-term preservation of all of the reef lights, due to the severe marine environment. This maintenance is described in many sections, but essentially includes stripping of paint by sandblasting or chemical removal, repair of pitting by welding using magnesium inert gas, and priming and repainting using high quality paints. A complete restoration of the lighthouse would involve the rebuilding of the keeper's quarters and stair cylinder, using information from original drawings, photographs, and other similar reef lights.

7. Interior Openings:
None present.

8. Interior Finishes:
None present.

9. Stairs:
   Evaluation: Altered, Sound
All of the historic stairs at this lighthouse have been removed. A contemporary galvanized steel ladder leading from the lower platform to the watch room, via two landings, has replaced the main stairway to the top of the light.

   Recommendations:
The ladders are all sound and require only periodic maintenance.

10. Railings:
    Evaluation: Altered, Significant, Sound
The historic railings at the lower platform have been replaced with contemporary galvanized steel railings. These railings are sound. There is a historic iron railing at the Watch room gallery. It measures 48” high and consists of cast iron horizontals and panels with 4” wide arched cutouts. There are cast iron square 12” x 12” columns at each corner of the gallery, with a decorative base and top. The guardrail is deteriorated but sound. The guardrails are rusted, but structurally sound.

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**Recommendations:**
The watch room guardrail is in need of restoration and repainting. The guardrail should be sandblasted, deteriorated sections should be stripped, then repaired by M.I.G. welding. They should then be primed and repainted. The contemporary railings at the lower levels are sound and only require continued maintenance.

11. **Watch Room and Gallery**

**Evaluation:** Significant, Altered

The watch room is 12’-4" diameter and 8' high. Walls consist of 3 tiers of boilerplate iron with riveted connections using 5" wide battens at the exterior. The original cylindrical enclosed stair has been removed and replaced by a ladder climbing from the bottom platform of the light, via 2 intermediate platforms. The original plate floor has been removed and replaced with 1-1/2" thick modern steel grid. The floor structure for the watch room consists of a grid of cast iron L-beams 24" deep. These beams are historic. The 9” diameter lens support column extends through the room’s centerline. A 6’-2" high door opening leads to the gallery. The opening has two iron doors, one opening in, and another out, with arched tops. The watch room door hardware is no longer functional. The outer door is completely rusted through at the bottom. Seven 40" high x 15" wide ventilators line the room’s interior. There is significant rust at the sill plate of the wall all around the circular room, and at the bottom of each ventilator. A contemporary steel ladder leads to the lens room above. Originally there was no watch room ceiling, only a catwalk around the lens. The brackets for the catwalk begin 7’-2" above the floor. Half the brackets have been cut off at the wall. A modern steel L-beam floor now forms the ceiling of the watch room. The batteries for the modern light are stored here in waterproof boxes. An electrical panel is located on the south wall. One older electrical box remains mounted to one of the ventilators.

The exterior watch room gallery is a square, 20 feet long at each side. The floor is original iron plate, in 4’-5” panels, painted black. The watch room exterior is painted white, as are the guardrails. The original guardrails are intact. A lightning arrestor wire runs along the outside base of the circular watch room. Two foot deep x 2-1/2" wide brackets line the top of the watch room wall; these once supported a gallery at the lens room exterior. The watch room wall has (2) 3” diameter holes at each inside ventilator, located 7” above the floor. The floor of the gallery is in good shape with little rust evident. The watch room walls are sound, but rusted significantly at the bottom plate. A contemporary steel mount for the solar panels is on the south side of the gallery, about 8’ tall. It consists of 4” x 4” steel L-beams bolted to the gallery floor.
Recommendations:
All of the exterior and interior are rusted and in need of cleaning and painting, though sound. The most significant rust is located at the base of the watch room walls and the bottom half of the guardrails. The plate at these points should either be repaired with M.I.G. welding, or replaced. When a full restoration is undertaken, the watch room floor and connecting stair cylinder should be refabricated from original drawings. The doors to the gallery should be repaired, including hardware. A stair probably connected the watch room with the lens room above. This should be refabricated from historic documents including original drawings. The metal floors and guardrail at the gallery should be sandblasted, primed and painted.

12. Lens Room:
Evaluation: Altered, Significant
The lens room is approximately 12 feet in diameter and 9’-5” high at the top plate. A 24” wide ladder connects it to the watch room below. The room’s interior walls are rusted and in need of paint, but are structurally sound and watertight. The top plate of the wall is approximately 7” wide x 2” high, and the structural roof ribs connect to it. Hooks for curtains still remain. All glass is intact. Two plexiglas red sectors are located at the interior. The glass has been sealed with white silicone sealant within the last 10 years. The glazing is divided into 3 tiers with 31” triangular glass lites on each tier. The glazing mullion verticals are 3” deep x 1” wide and the horizontal tiers are 4” deep x 1 ½” wide. There is significant rusting at many of the horizontal mullions, as seen in the current photographs. The original lens room floor consisted of a 24” walkway around the lens. Half of the original floor plate brackets have been cut off at the wall. A modern fiberglass grid floor has been built on top of it. The lens room floor is covered with chips of rust and paint from the ceiling, evidence of deterioration. A solar powered Vega VRB-25 rotating beacon has replaced the original lens. The lens room exterior is sound although badly rusted. All of the bottoms of the members show significant signs of rust. There are 16 deteriorated iron brackets at the lens room exterior. These brackets supported an exterior gallery at the outside of the lens room, about 24” wide for glass cleaning. A lightning cable runs from the top center of the roof to the south wall and down. A bank of solar panels sits on a contemporary mounting on the south side of the lens room’s entrance.

Recommendations:
Currently the lens room is not watertight, and the roof is in immediate need of repair. The entire lens room needs to be cleaned and painted at the interior and exterior. Horizontal glazing mullions need to be repaired by sandblasting and welding with a M.I.G. welding process. When a full restoration is undertaken, the modern floor should be removed and replaced with cast iron floor plates in the original configuration. The interior stair to the Watch room should be refabricated as well. The missing support

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brackets in the watch room below should be refabricated, using the existing brackets as models. The interior floor plates should be refabricated from original drawings and physical evidence. The exterior platform around the lens room should be refabricated to give safe access to exterior glass.

13. Roof Structure and Roof Covering:
   Evaluation: Significant, Altered, Unsound
   The roof structure is circular, 12 feet in diameter. It consists of 16 metal panels, attached by rivets to 16 exterior battens, meeting at the ventilator at the top. A circular bracket extends from the center of the roof to hold the lens mechanism in place. The inside of the roof is painted. The roof is 12’-0" high at the peak (from the inside) and 10’ high at the top plate. Several points near the top of the roof have rusted through where the ventilator is attached. The roof sheathing is also rusted all around the bottom of the roof, near the top plate of the wall. The entire roof is not watertight and is shedding chips of rust and paint from the inside. It is in need of patching and painting.

   Recommendations:
   The roof should be stripped of paint, and all deteriorated areas should be sealed by welding on the inside and out. The entire roof should be primed and repainted inside and out.

14. Mechanical and Plumbing Systems:
   No plumbing or mechanical systems exist.

15. Electrical Systems:
   Evaluation: Not Significant, Sound
   A VEGA-VRB-25 rotating beacon, located in the lens room, has replaced the original lens and mechanism. The beacon is powered by solar panels located on a contemporary mount on the south side of the watch room gallery. Batteries for the beacon are located in waterproof containers inside the watch room. All previous electrical equipment has been removed. A contemporary electrical panel is located on the south side of the watch room interior.

   Recommendations:
   The electrical system should be maintained on a continuing basis.

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16. Lightning Protection System:

**Evaluation:** Not Significant, Sound

The lightning rod at the top of the lens room runs through the center of the room via steel cable to the outside, then down the wall of the watch room, connecting to the mounting for the solar panels. An older arrestor wire still runs down the SW corner of the structure, but is disconnected at the watch room gallery floor.

**Recommendations:**

The lightning protection system should be tested to verify that it functions. All lightning cable that is not part of the current system should be removed. The cable should be secured to the structure of the tower and inspected on a continuing basis.

17. Probable Cost for Restoration:

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Improvements/Docking</td>
<td>$25,000</td>
</tr>
<tr>
<td>Historic Keeper’s Qtrs. Metal Structure (1000s.f. @ $250/s.f.)</td>
<td>250,000</td>
</tr>
<tr>
<td>Wood Doors with metal shutters (9 @ $3,500)</td>
<td>32,000</td>
</tr>
<tr>
<td>Wood windows with metal shutters (8 @ $2,400)</td>
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</tr>
<tr>
<td>Interiors/Reconstruct Keeper’s Quarters (1000 s.f. @ $250/s.f.)</td>
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<tr>
<td>Iron Stair (based on Cape Florida costs x1.5 inflation)</td>
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<tr>
<td>Stair Tower Cylinder (50% of stair costs)</td>
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</tr>
<tr>
<td>Railing Reconstruction (300lf. @ 200/ft)</td>
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</tr>
<tr>
<td>Watch Room Rebuilding of floor (120s.f. @400/ft)</td>
<td>48,000</td>
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<tr>
<td>Lens Room Restoration</td>
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<td>Roof Repairs</td>
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<td>Lightning Protection</td>
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</tr>
<tr>
<td>Exterior Paint</td>
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<tr>
<td>Sub-total</td>
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<tr>
<td>Scaffolding/General Conditions @ 25%</td>
<td>385,000</td>
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<tr>
<td>Remote Site Contingency @ 40%</td>
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<tr>
<td>Total Construction Cost</td>
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<tr>
<td>Design Fees @ 12%</td>
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</tr>
<tr>
<td><strong>Total Probable Cost</strong></td>
<td><strong>$2,835,000</strong></td>
</tr>
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</table>
18. **Recommendations for Future Use:**

Due to its proximity to Key West and the coral reef, the Sand Key Lighthouse area is heavily visited by boat traffic. This area of the reef is a very popular destination for snorkeling and diving. The lighthouse itself is closed to access, but visitors may land on the key itself, which presently measures about 100 feet by 20 feet. Because so much of the lighthouse has been removed and replaced by ladders to allow Coast Guard maintenance, it is unlikely that the light as currently configured could be opened up to public tours, even on a limited basis. Therefore this valuable piece of Florida history is slowly deteriorating. It is our recommendation that the Sand Key Lighthouse be completely restored. This would involve rebuilding of the keeper’s quarters and stair cylinder to their historic configuration using photographs and historic drawings.

In addition to the obvious historic significance of the reef lights, a tremendous opportunity exists for increased use and public access. With fully restored lighthouses, including historic interiors, solar powered lighting, composting toilets, and improved docking facilities, the lighthouses could be used for:

1. Marine Research Facilities
2. Weather Stations
3. Military Training
4. Corporate Retreats
5. Living Accommodations for Maintenance Crews
6. Public Tours on a Limited Basis During Calm Weather Summer Months

and numerous other uses. The demand for these uses is high. The revenue generated from public use would ease the financial burden of maintaining the lights. Public awareness of the role of lighthouses and their importance would be raised.

Public awareness and appreciation for United States Coast Guard, their work and the dedication of the men and women of the Coast Guard would be raised.

The benefits are numerous. The drawbacks are few. It is without reservation that we recommend full historic restoration of Sombrero Lighthouse and the establishment of a program for its future use. This public use plan, if applied to all of the reef lights of the Florida Keys, will generate worldwide interest and support.

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SAND KEY LIGHHOUSE, DATED 7/16/1899. DOUBLE HUNG WINDOWS AND DOORS WITH TRANSOMS ARE APPARENT BEHIND METAL SHUTTERS. NOTE STAIRS LEADING TO GROUND ARE NOT ADJUSTABLE. IN COMPARISON TO OTHER REEF LIGHTS, THE KEEPER'S QUARTERS PLATFORM IS MUCH LOWER & NO LOWER PLATFORM FOR BOAT HANDLING EXISTS.
SAND KEY HISTORIC PHOTO. DATE UNKNOWN. NOTE SIZE OF ISLAND COMPARED TO PRESENT SIZE, STYLE OF KEEPER'S QUARTERS, AND VARIOUS OUTBUILDINGS. KEEPER'S QUARTERS IS MOST SIMILAR TO SOMBRERO AND ALLIGATOR REEF
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

VIEW OF KEEPER’S QUARTERS PLATFORM, NORTH SIDE

VIEW OF KEEPER’S QUARTERS PLATFORM, SOUTH SIDE

Project No: C119
Sand Key
Lighthouse
Photos
Date: 4/15/02
DETAIL OF COLUMN CONNECTION APPROX. HALFWAY UP TOWER

DETAIL OF SIMILAR COLUMN CONNECTION. NOTE DETERIORATION AT TURNBUCKLES

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Sand Key Lighthouse Photos
Date: 4/15/02
VIEW OF UNDERSIDE OF WATCH ROOM GALLERY. STAIR CYLINDER HAS BEEN REMOVED & REPLACED BY STEEL GRATE

VIEW OF TOP OF STRUCTURAL COLUMN AT UNDERSIDE OF WATCH ROOM

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Sand Key
Lighthouse
Photos
Date: 4/15/02
DOOR TO WATCH ROOM GALLERY. ONE OF TWO DOORS. NOTE VENTILATOR AT RIGHT

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0119
Sand Key
Lighthouse Photos
Date: 4/15/02

INSIDE VIEW OF SAME DOOR. HARDWARE IS STILL FUNCTIONAL
VIEW OF OUTER WATCHROOM DOOR. NOTE DETERIORATION AT BOTTOM

DETAIL OF BOTTOM OF OUTER WATCHROOM DOOR

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0119
Sand Key Lighthouse Photos
Date: 4/15/02
DETAIL VIEW OF HISTORIC GUARDRAIL AT WATCH ROOM
GALLERY

FLORIDA
LIGHTHOUSE
STUDY

EXISTING CONDITIONS
PHOTOGRAPHY

Project № 0119
Sand Key
Lighthouse
Photos
Date: 4/15/02
VIEW OF TOP OF LENS ROOM WALL. ROOM IS NOT WATERTIGHT

GENERAL VIEW OF LENS ROOM, SHOWING SECTOR PANELS AND BEACON. NOTE RUSTING AT GLASS MULLIONS

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
Sand Key Lighthouse Photos
Date: 4/15/02
VIEW OF BRACKETS THAT ONCE SUPPORTED LENS ROOM GALLERY

DETAILED VIEW OF TYPICAL LENS ROOM GALLERY BRACKET

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

- Project No.: 0119
- Sand Key
- Lighthouse
- Photos
- Date: 4/15/02
Name: Sanibel Island Lighthouse
Location: Point Ybel, East end, Sanibel Island
Type: Wrought iron square skeletal screw-pile tower. Circular enclosed stair beginning approximately 10 feet above ground.
Height: 112 feet
Daymark: Brown skeletal tower, stair, and lantern
Year Built: 1884
Owner or Operator: U.S. Coast Guard, City of Sanibel
National Register Status: Listed
Active: Yes
Visitor Access: Grounds only
Contact: Jody Brown, Sanibel Historical Village & Museum
         Fg brown@hotmail.com
Facilities: Lighthouse on grounds of a city park. Former keeper’s quarters now house NWR employees. Two detached frame buildings resting on well-braced iron columns; connected to lighthouse by stairway. Oil house. Lighthouse closed.

1. History
An attempt was made to settle Sanibel Island, then known as “Sanybel” in 1833, but the threat of Indian attacks, the frequent hurricanes and discomfort caused by the numerous mosquitoes contributed to the failure of that venture. Sanibel Island is located on the west coast of Florida on San Carlos Harbor. Punta Rassa, located on a deepwater port on the mainland on the opposite side of this harbor, grew into a busy cattle shipping port by the mid 1800’s. It was only in the 1880’s that railroads began to serve this area, therefore cattle were driven to the port and then shipped south to Cuba. The only two lighthouses were far apart, Egmont Key to the north near Tampa, and Key West to the south. The settlers in 1833 had asked the federal government for a lighthouse at Sanibel, and again in 1856 the Lighthouse Board asked for a lighthouse, but without any results. Finally, in 1883, Congress appropriated $50,000 for a lighthouse at Point Ybel, known then as East Point, the eastern tip of Sanibel Island. It was discovered that the State of Florida owned this land, but after negotiations, the Governor of Florida at the time, W.D. Bloxham, agreed to relinquish any land title claims to the island. On December 9, 1883, the Sanibel Island Lighthouse Reservation was established by the Federal Government.
Construction of the lighthouse began in March 1884 and was completed in August 1884. Materials were shipped from New Jersey, specifically the tower's iron work. The ship carrying these materials went aground on a sandbar just a short distance from Point Ybel. Salvage operations were able to retrieve most of the iron parts enabling construction to continue and the construction schedule was met. Two detached buildings were built at the lighthouse site at the same time the lighthouse was constructed and are joined to the lighthouse by a stairway. They still stand today, probably because they were built on firmly based iron columns.

Dudley Richardson became the first keeper at Sanibel Lighthouse and John Johnson, the assistant keeper. Six years later, Henry Shanahan replaced John Johnson as the assistant keeper. Although initially rejected for the position of keeper because he did not know how to read and write, Henry became the keeper after Dudley Richardson resigned, and served in that position for twenty-two years. His son Eugene succeeded Henry. Henry's stepson, Clarence Rutland, was assistant keeper from 1936 through 1941.

The kerosene fueled lantern was replaced in 1923, upgraded to acetylene gas. The Coast Guard took over responsibility for the care of lighthouses and navigational aids in 1939, but the last of the resident keepers left the Sanibel Island Light Station ten years later. The keepers quarters were not occupied by Coast Guard personnel, since a hurricane in 1948 did much damage to the houses and they were deemed unsafe. In 1949 the lighthouse was automated. In the same year the land and structures, except for the lighthouse, were leased to the U.S. Fish and Wildlife Service and became the headquarters of the Sanibel National Wildlife Refuge. In 1967 the Refuge was renamed the J.N. "Ding" Darling National Wildlife Refuge and its employees maintained the refuge until 1982, during which time permanent employees lived on site in the lighthouse quarters. Currently, The City of Sanibel manages the lighthouse property and city employees occupy the lighthouse quarters in exchange for some maintenance and supervision of the property. The lighthouse itself is still functioning and is under the jurisdiction of the United States Coast Guard.

1 Thomas W. Taylor, Editor, Florida Lighthouse Trail, (Sarasota, Florida: Pineapple Press, Inc. 2001) 102

2. General Description:

The Sanibel Lighthouse is an iron tower set on nine iron piles. The eight perimeter piles form a square base and taper in toward the top. The center pile supports the central stair tower. The corner columns

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rise full height. The intermediate columns terminate about 2/5 of this height, leaving the upper three of the five vertical bays to be defined by the corner columns only. Diagonal rod and turnbuckle cross bracing stiffens the tower. The lighthouse is capped by a round top on an octagonal watch room gallery. Horizontal struts from each column connection joint brace the stair tower laterally at four points vertically - eight struts at the lower two joints and four struts at the upper two joints. The entire tower from the ground to the spire atop the copper ventilator ball is painted brown. Access to the tower interior is on its south side, up a ship's ladder to the level of the first horizontal struts, one fifth of its height to the watch room. Three windows light the stair tower, one on the southeast side and two on the northwest side.

Classical detailing characterizes the trim and hood molding over the entrance door.

3. Site Improvements:
   Evaluation: Significant and Non-Significant Elements, Well Maintained
   The lighthouse is sited at the east end of Sanibel Island at the end of Highway 867, surrounded by public beaches and parks. Two frame keepers' dwellings are sited on the south side and a brick oil house to the north. Palms and sea grapes are planted at the base of the tower. A chain link fence and locked gate secure the tower at grade. White sand beaches are separated from the tower by native plants and Australian Pines. A coast guard maintenance building is sited to the northwest and public facilities including boardwalks, parking and restrooms are in the areas around the immediate site to accommodate the large number of visitors to the area.

   Recommendations:
   The site access and public facilities are well maintained and good maintenance will likely continue. Vegetation at the tower base, however, is overgrown. Landscape maintenance of this vegetation is recommended. If the tower is opened to public visitation, additional sidewalks and amenities should be provided.

4. Exterior Structure/Walls:
   Evaluation: Significant, Sound
   The exterior structure consists of the iron column, strut and cross bracing system. The eight perimeter columns at the base form a square and pyramid up to the watch room, reducing to the four corner columns as they approach mid height. A single central column supports the five-foot diameter central stair tower. The 26" long cast iron treads wind around a 13" diameter stair column. Perimeter walls of the stair tower are cast iron panels, 3' wide x 5' tall with 3" deep x ½" thick ribs cast in at edges and mid height. Panels

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are bolted together at 16" o.c. vertically and ½" o.c. horizontally. Some minor surface rust was apparent, but no major structural defects were noted.

**Recommendations:**
The exterior structure and walls appear sound. Continued maintenance and an inspection program are recommended.

5. **Exterior Openings/Doors & Windows:**
   **Evaluation:** Significant, Repairs Needed, Altered
   The tower entrance doors are iron. The paired out swinging doors are 13-1/2" wide x 80-1/2" high - each fabricated from ¼" plate steel, with ¼" steel added to edges and horizontally 10" from the top and bottom on the inside face. Two strap hinges support each door with one broken pintle. The two hinge pintles on the east door have been replaced with galvanized bolts. The top hinge on the west door has its original pintle, while the bottom hinge has a bolt replacement. Both leafs are operational. Windows in the tower are fixed panes of Lexan 21" wide x 40" high secured to the frame with 5/8" bar stock glazing beads bolted in place. Bars over the lower two lites form twelve spaces providing additional protection from large missile impact. The third window just below the watch room does not have the bar system over it. The only other doors are to the watch balcony, paired 13-1/2" x 77" steel. The inactive leaf is secured top and bottom with surface bolts. The top bolt is frozen and needs repair. The active leaf is secured to the inactive leaf with slide bolts, 10" from the top and bottom and its original latch at mid-height. The latch binds from excess paint.

   **Recommendations:**
   Doors should be restored and brought to a fully operational condition. The windows should be restored to their historic configuration, based on additional research to determine the appropriate details.

6. **Foundation and Floor Structure:**
   **Evaluation:** Significant, Sound
   Foundations are unknown, but no stress from settlement was noted. The tower has some sway from the wind that is noticeable from the exterior on the lens room balcony, but this movement does not appear to be foundation related.

   **Recommendations:**
   No distress was noted and no work is recommended at this time.
7. **Interior Openings:**

   **Evaluation:** Altered

   There was one interior door at the top landing, but the door has been removed.

   **Recommendations:**

   The interior door is not needed for service of the tower. However, if the tower is ever opened to the public, consideration should be given to replicating this door.

8. **Interior Finishes:**

   **Evaluation:** Significant

   The tower interior is painted steel, white from the entrance level to the top landing at the top window. At this level the stair becomes steeper to the watch room and surfaces are painted brown. The monochrome treatment whether brown or white is applied to all components; stairs, walls, and railings, including painting over the glass lites in the watch room floor plate.

   **Recommendations:**

   Where paint has been applied to surfaces not typically painted, such as the glass borrow lites in the floor plates or operable mechanisms, the paint should be stripped and the surfaces restored.

9. **Stairs:**

   **Evaluation:** Significant, Sound

   A steel ship's ladder accesses the main level. The original iron stair is in place and in good condition. Surface rust was apparent, but only one broken tread or component was noted. The stair rises to its only landing, 14'-8" below the watch room at the third window location, where the stair becomes steeper, with twenty-two 8" risers and treads tapering from 3-1/2" at the center to 8" at the outside edge. The main stair has 8" risers and treads tapering from 5" to 13" which provides a more comfortable stair.

   **Recommendations:**

   The broken tread was minor and is of little concern as long as the tower is closed to the public. If the tower is ever opened to the public, the ship's ladder to the entrance level should be replaced for safety and the broken tread can be addressed at that time. Treads should be cleaned and repainted to minimize rusting, as a regular maintenance item.

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10. Railings:
   **Evaluation:** Significant, Compatible Replacements
   Both the lens balcony and watch balcony railings are galvanized steel and appear to be fabricated with the details and characteristics of the original. The lens balcony rail is 21" high with verticals at 44" o.c. The watch room balcony has decorative newels at each corner of the octagonal balcony platform with finial balls capping the 2" round post. The ¾" square spindles are set at 6" o.c. between ½" x 1-3/4" top and bottom rails. The top decorative rail is set at 38" above the deck. Handrails are attached to the walls adjacent to stairs.

   **Recommendations:**
   Railings need to be painted, as the galvanized finish is visible.

11. Watch Room and Gallery:
   **Evaluation:** Significant, Sound, Good Condition
   The watch room is 11'-6" in diameter with steel walls and steel checker plate floor. The room has no windows. The gallery is 2'-4" wide at its narrowest point, and a door is located on the northwest side. The lens pedestal base is in place and an iron stair rises to the lens room, opposite the door. These stairs with ten 9" risers have 22" wide treads tapering from 6-1/2" to 9-1/2". The stair well edge is protected by a guardrail. Watch room interiors are painted brown, including the underside of the lens room floor with its glass lites.

   **Recommendations:**
   Paint should be removed from the glass in the lens room floor plates forming the watch room ceiling, and from operable hardware items to renew operation and recover borrowed light from above. Clean all rust and corrosion from iron gallery components. Repair all severely deteriorated components by M.I.G. welding patches and/or replacing components. Bare metals should be primed with an inorganic zinc primer within six hours of exposure to the salt air environment.

12. Lens Room:
   **Evaluation:** Significant, Altered, Deteriorated
   The pentagonal lens room, 8-1/2' across has Lexan lites, 31" wide x 72" high. All of these panels are fogged, causing distortion, and require replacement. When the original lens was removed, the floor opening was covered with a checker plate floor piece and base to support the coast guard lens. The original checker plate floor with glass lites is intact and in good condition, but the glass has been painted.
over. The tin inner skin of the dome is dented, but serviceable. Some rust in the perimeter channels at the glass is apparent.

**Recommendations:**
Remove all rust to bare metal, prime with an inorganic zinc primer within six hours, and repaint. Replace all lens room glass using an impact resistant product, i.e. Lexan or laminated glass. Remove paint from glass lites in the floor plate and polish the glass. Remove paint from operational components and restore to functioning condition.

13. **Roof Structure and Roof Covering:**

**Evaluation:** Significant, Watertight, Weathered
The inner skin of the dome covers the roof structure, but the interior collar and struts are visible and in good condition. Access to the upper roof was not possible, but a general inspection indicates that the roof structure is sound, with coatings needing restoration.

**Recommendations:**
General maintenance, including painting of the roof surface, is recommended.

14. **Electrical Systems:**

**Evaluation:** Not Significant, Required
The tower is powered by 120/240 volt single phase 100 amp panel. There is no solar or back up power.

**Recommendations:**
The electrical systems appear to be code compliant. Because this light is a navigational aid, backup power should be considered.

15. **Lightning Protection System:**

**Evaluation:** Inadequate
A lightning protection system was not visible; although it is possible that the tower is grounded and bonded as it is entirely iron.

**Recommendations:**
A certified lightning protection specialist should review the tower and make a recommendation for protection requirements. If recommended for installation, the system should be fastened and bonded to the spire on top of the ventilator ball.

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16. **Probable Cost For Restoration:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Site Improvement</td>
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</tr>
<tr>
<td>New Stair to Entrance Level</td>
<td>$10,000</td>
</tr>
<tr>
<td>Door &amp; Window Restoration</td>
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<tr>
<td>General Metal Restoration</td>
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<tr>
<td>Electrical Upgrades for Public Access</td>
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<tr>
<td>Scaffold and General Conditions</td>
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<td>Contingency/Miscellaneous</td>
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<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$ 95,000</strong></td>
</tr>
</tbody>
</table>

**Design Fees @ 12%**

**Total Probable Cost**

$107,000

17. **Recommendations for Future Use:**

Situated in a city park, the Sanibel Lighthouse is a very accessible light, and is in good enough condition to be opened up for periodic guided tours at this time. We recommend a new stair to the main level in that case. It is unlikely that the light could be opened on a daily basis, because the light is still a navigational aid. The keepers' quarters buildings are historic and connected to the lighthouse. They are currently used as housing for city workers. This use is appropriate, but in the future one of the keepers' quarters buildings could be converted into an interpretive lighthouse museum. With a fully staffed museum facility, the tower could be opened for daily guided tours.
GENERAL VIEW OF LIGHTHOUSE EXTERIOR

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No.: 0119
Sanibel Lighthouse Photos
Date: 4/15/02

VIEW OF TOP PORTION OF LIGHTHOUSE
DETAIL OF TYPICAL PRIMARY CONNECTION BETWEEN TENSION & COMPRESSION MEMBERS OF EXTERIOR STRUCTURAL ELEMENTS

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0119
Sanibel Lighthouse Photos
Date: 4/15/02

DETAIL OF STRUCTURAL MEMBERS AT MIDSECTION OF LIGHTHOUSE
VIEW OF STAIRS LEADING TO LIGHT HOUSE ENTRANCE SEEN FROM GROUND

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Sanibel Lighthouse Photos
Date: 4/15/02

VIEW OF INTERIOR SPIRAL STAIRS AS SEEN FROM ENTRY DOOR
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

VIEW OF LIGHTHOUSE ENTRANCE SEEN FROM GROUND

VIEW OF DOOR LEADING FROM WATCH ROOM TO WATCH GALLERY (HISTORIC HARDWARE STILL FUNCTIONAL)

Project No.: 0119
Sanibel
Lighthouse Photos
Date: 4/15/02
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0119
Sanibel Lighthouse Photos
Date: 4/15/02

INTERIOR VIEW OF WINDOW ABOVE ENTRANCE

INTERIOR VIEW OF WINDOW BELOW WATCH ROOM
VIEW OF ORIGINAL ROTATION MECHANISM, WATCH ROOM LEVEL. ORIGINAL MACHINERY HAS BEEN REMOVED

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Sanibel Lighthouse Photos
Date: 4/15/02

VIEW OF STAIR AND CEILING, WATCH ROOM. SKYLIGHTS HAVE BEEN PAINTED OVER AND HOLES CUT FOR NEW ELECTRICAL SERVICE
VIEW OF LADDER FROM WATCH ROOM BALCONY TO LENS ROOM BALCONY, & OF WATCH ROOM BALCONY HANDRAIL. DIAMOND TREAD FLOORING ON BALCONY AND CORROSION ON UNDERSIDE OF LENS ROOM BALCONY

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0179
Sanibel Lighthouse Photos
Date: 4/15/02

DETAIL OF CORROSION ON UNDERSIDE OF LENS ROOM BALCONY. SEMICIRCULAR HOLES ARE FOR VENTING
VIEW OF STAIRS DOWN FROM LENS ROOM. NEW LIGHT INSTALLED ON PLATFORM, DIAMOND TREAD DECKING THROUGHOUT, AND HANDRAIL FOR LENS ROOM GALLERY SEEN THRU GLASS

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

VIEW OF CEILING LENS MOUNT AND LENS ROOM CEILING. HOLE IN TOP OF CEILING IS FOR VENTING
Name: Sombrero Key Lighthouse

Location: Monroe County offshore. 4.5 miles south of Marathon

Type: Wrought iron octagonal skeletal screw-pile tower with integrated square keeper’s quarters and enclosed circular stair.

Height: 156 feet. Focal plane 142 feet above msl.

Daymark: Brown skeletal tower and keeper’s quarters

Year Built: 1858

Owner or Operator: U.S. Coast Guard

National Register Status: No

Active: Yes

Visitor Access: Proximity access by boat, no direct access

Contact: Florida Keys Reef Lights Foundation, Brenda Atmeier, E-mail brenda.atmeier@noaa.gov

Facilities: None. Integrated keeper’s quarters. NOTE: FLSF from available http://users.ercos.com/thouse/somit/htm

1. History

The tallest iron pile lighthouse built in the Florida Keys is the Sombrero Lighthouse located approximately seven miles offshore from the City of Marathon. About half way between Sand Key Light and Carysfort Reef Light, both with rotating lights, it was determined that the Sombrero Lighthouse would be fixed. This was the third iron-pile lighthouse to be constructed on the Florida reefs, but the last lighthouse built under the direction of Captain George Gordon Meade, who had been in charge of construction at the Carysfort Reef and Sand Key Lighthouses. Captain Meade later became Brigadier General in the Union Army and was in command of the Army of the Potomac at the Battle of Gettysburg on June 28, 1863.

The 160-foot tower is structurally strong and was completed in 1858 and first lit on March 27, 1858. A masonry structure was considered for the Sombrero Key Light as well as an iron structure built on a masonry foundation. The final decision to build a wrought iron structure similar to the ones built at Carysfort and Sand Key was made because it would be the most economical and practical. There were no major difficulties in the construction of this lighthouse, but delays were caused for lack of appropriations from Congress. Construction did proceed as funds became available. Nine twelve-inch pilings were driven through the center hole of iron disks that were eight feet in diameter. The pilings, sunk ten feet into

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the coral, could each support and estimated weight of sixty-four tons.\textsuperscript{1} The keeper's house was built within a second section of pilings and a first order lens was purchased from Henry Lepaute of Paris.

The keepers who occupied this lighthouse did not have their families with them. Most of the families lived in Key West, fifty miles south of Marathon. Joseph Bethel became the first light keeper on Sombrero Key and had numerous assistants during the twenty-one years he served at this light. The men were totally isolated on the lighthouses that were built offshore and weren't situated on even a small piece of land. A boat was the only means of reaching land. Although Captain Meade had recommended that the lighthouses on the reefs be supplied with two boats with cars and one sailboat of 12 tons,\textsuperscript{2} there were times when only one boat was available. If a keeper or one of the assistants used the boat, the remaining men would be completely isolated and without means of transport until either the boat returned or a new one was supplied to them, if the original boat had been damaged or destroyed. This situation arose a number of times in the early history of Sombrero Key Lighthouse. There were also many instances of disagreements and serious problems between the men on these isolated stations due to personality differences.

The first major repairs to Sombrero Light were performed after the Civil War. In 1939, the Coast Guard took over the lighthouse duties from civilian keepers and in 1960 the light was automated. The Fresnel lens was removed in 1980 and is now on display at the Key West Lighthouse Museum. The light is no longer a fixed light but a group of five flashing lights every sixty seconds. This lighthouse has stood up to the severe storms and weather conditions prevalent in this area over many years and testifies to the durability of the iron screw pile lighthouse.

\textsuperscript{1} Love Dean, \textit{Lighthouses of the Florida Keys}, 1\textsuperscript{st} ed. (Sarasota, Florida: Pineapple Press, Inc., 1998) 187
\textsuperscript{2} Ibid. 194

2. \textbf{General Description:}

The Sombrero Lighthouse is an octagonal steel structure set on screw pile foundations, with columns at each corner of the octagon. A thirty foot square keeper's quarters is located on the octagonal main lower platform. The platform measures 18'-6" on each side. The main level is 23 feet above the boat-landing platform, which is 13 feet above the water level. The columns taper in toward the top with diagonal braces between the perimeter columns and back to the central stair column. The central column at 7' diameter houses the original iron stair to the top. The main level platform is severely deteriorated. Extensive rusting in many of the plates has caused them to expand and buckle. Patches have been installed over
some spots, both inside and outside of the main level house. There are two sets of paired steel doors on each side of the main house, 25" wide x 7'-10" high each. Original ironwork is decorated with classical detailing, including column bases and applied iron-faux column molding around doors. The historic railing has been replaced with a contemporary steel railing that is severely deteriorated.

3. Site Improvements:

**Evaluation:** Altered, Sound

The lighthouse is set on the reef completely surrounded by water with access by boat on all four sides. A contemporary boat-landing platform is set on the north side. Access to the platform is via a ladder, and can be difficult with ocean swells, but is manageable due to reasonably deep water around the platform. Historic photos show that there were two stairs leading to the water, both of which could be raised in adverse conditions. Both of these stairs have been removed.

**Recommendations:**

Ladders should be added to each side of the landing platform to enable access in varying wind and sea conditions. If the lighthouse is opened to public access, the ship’s ladder from the landing platform to the keeper’s quarters platform will have to be replaced with a less steep ladder or a stair.

4. Foundation /Floor Structure:

**Evaluation:** Significant, Unsound, Unsafe Floor Plates

The foundation of the lighthouse consists of nine screw piles set into coral. Eight outside piles form an octagon, and one pile is located at the center. The piles are 12" in diameter at their base. Historic photos show that there was a platform at the first tier of columns, approximately 14' above the water. The platform was used for boat landing and general storage. Two sets of stairs extended down to the water from this platform. The stairs could be raised in adverse weather. The floor structure of the main keeper’s quarters platform is composed of iron plate with cast in ribs. These plates are set on horizontals tied back to the outer columns. Historic photos show that tanks were suspended below this platform, probably for water and fuel storage. The iron floor plates are extremely deteriorated and have cracked and buckled in many places, requiring complete replacement. They have been patched at the inside and out with steel.

**Recommendations:**

Many of the iron floor plates of the keeper’s quarters will have to be replaced, as they are buckled out of shape. The foundation and columns are relatively sound, but all are in need of periodic maintenance by sandblasting to remove paint, repair by welding in of new material using a M.I.G. welding process, priming and repainting. All rods, pins and turnbuckles should be checked and repaired or replaced if found to be

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severely deteriorated. Periodic maintenance of metalwork is critical to the long term preservation of all of the reef lights, due to the severe marine environment. This maintenance is described in many sections, but essentially includes stripping of paint by sandblasting or chemical removal, repair of pitting by welding using magnesium inert gas, and priming and repainting using high quality paints. In general the most metal deterioration is found at the bottom of the lighthouse, with the deterioration less severe on the metalwork that is higher.

5. **Stair**

   **Evaluation:** Significant, Minor Deterioration

A contemporary galvanized steel ship's ladder leads from the boat landing platform to the main platform at the keeper's quarters. This stair is sound. The stairs from the keeper's quarters to the watch room are the original cast iron stairs. Although they are rusted with scale flaking off, they are structurally sound. No broken treads were noted, although a steel plate has been placed over a landing where the original hole for the weight of the lens rotation mechanism had been cut. The stair cylinder has an inside diameter of approximately 80", and is constructed of plate iron attached with 4" W x ¼" battens. The plates are 29" W x 90" H. The main spiral stair ends approximately 8'-6" below the level of the watch room. A 29" wide steep circular stair extends ten steps from this landing to the watch room floor. The stair is historic, and has a steel cable handrail. The stair is rusting and needs painting, but sound. A contemporary steel ladder extends from the watch room to the lens room. Both the stair and ladder have 9" risers.

**Recommendations:**

The contemporary stairs and ladders should be maintained on a continuing basis. The historic main stairs are sound at present, but in need at least of cleaning and repainting. More extensive restoration work would involve sandblasting of the entire stair and cylinder, repair of pitted and deteriorated areas, priming, and repainting with high quality paints.

6. **Stair Railing**

   **Evaluation:** Significant, Sound

The stair railings consist of 3/8" cable running along the outside edge of the cylinder. The wire is supported by brackets at +/- 40" o.c., making the wire +/- 30" high above the tread. The buckles are bolted to the cylinder with hex bolts.

**Recommendations:**

At present the railing is sound and only in need of painting. When the more extensive restoration work is performed as listed above, the railing will be sandblasted and repainted as listed above in the stair section.

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7. **Exterior Structure/Walls**

**Evaluation:** Significant, Minor Deterioration

The exterior structure and walls are iron. The columns taper in toward the top and reduce in size as they progress up toward the top with the platform level columns at 12" in diameter braced by 3" rods and turnbuckles. The exterior walls of the keeper's quarters are fabricated from ¼" thick iron plates. The plates are riveted together with structural "tees" at approximately 30" o.c. (29" to 31"). The rounded corners are formed with iron bent on a 10" radius. There is deterioration at the base of every wall plate. At doors, steel angles are substituted for tees forming a 48" wide opening. Angles are 3" x 3" x ½" and tees are 3-1/2" deep x 3/8" thick x 3" at the wall surface. Rivets are placed 2" o.c. The doors have decorative cast iron surrounds at each side, all of which are deteriorated. The main level iron floor plates are cast with supporting ribs and are supported by 3" thick x 10" deep plate steel set vertically. A number of these members have severe deterioration and require reinforcement. The stair cylinder also has areas of rust deterioration at the base of the cylinder, in the keeper's quarters.

**Recommendations:**

The iron plate walls of the keeper's quarters are sound, but in need of painting. The base of the wall plates should be sandblasted and repaired by welding, then primed and repainted.

8. **Exterior Openings – Doors**

**Evaluation:** Significant, Altered, Deteriorated

There are 16 exterior doors on the main platform level, two pairs on each of the four sides. These doors are fabricated from ¼" thick steel plate, 25" wide x 7'-10" high hinged to 3" x 3" x ¾" steel angles for a 48" wide opening. All of these doors are deteriorated to varying degrees. Most are inoperable with broken hinges, or have been welded shut. There is an arched top iron door at this level accessing the central stair tower column. This door is original to the lighthouse, with detailing typical to the George Gordon Meade lights and similar to the tower door at the Jupiter Lighthouse. An eight lite arched window in the door has been covered in steel. The original door hardware is in place, but hardly functions. The door at the top of the tower from the watch room to the watch gallery matches the door at the base of the stair tower. It opens inward. Both of these doors have glass lites in the upper half. The glass at 16" wide x 28" high is divided into eight lites by iron muntins. The three bottom lites are 5-1/8" wide x 9-1/4" high. The top two lites follow the curve of the arch top divided by a vertical muntin at the center of the door. These lites have an 8" outside radius and 3" inside radius. The center lite is 5-1/8" wide x 12-1/6" high overall, with the top arched to a 2-9/16" radius. The two remaining lites flank this center pane and match the bottom three panes. The doors are 30" wide x 75" high with the arched top a half circle of 15" radius. Both of these original doors are serviceable. The watch room door is secured by two damaged modern bolts at top and
bottom. The hinges are original and functional. The top door has three of its eight glass panes missing with the remaining glass painted. The exterior side of the glass at this door is covered by a 1/8" thick metal panel. The bottom door is unglazed.

**Recommendations:**
The 8 sets of steel doors to the keeper’s quarters are almost all in need of repair. While not historically accurate, they are adequate, and are serviceable until a restoration is undertaken. The doors should be made operable by replacement of hinges and hardware. All doors that have been welded shut should be restored to fully operable. Many of the doors are in need of patching at the base. This can be accomplished by sandblasting and repair by welding of patches, then priming and repainting. The historic doors are operable, but in need of general repair of hardware. When full restoration of the light station is undertaken, the doors should be stripped and patched by welding, primed and repainted. All glazing should be replaced.

9. **Exterior Openings – Windows**

**Evaluation:**
Significant, Altered

The lens room windows are discussed in the lens room description. On the watch room level, there are two openings, a door and a window. The door is 6'-3" high x 30" wide, composed of plate iron with battens. It has a window at the top 16" wide x 27.5" tall, with eight lites and these windows are described in the door section. The door’s window has been covered with steel plate at the outside. The watch room window is opposite the door. It is cast iron with an open area of 21" wide x 25" high. It is a four light casement opening outward. The window is wired shut, but the original hardware still remains. The window was closed with a hook and kept open with a flat bar and peg. Mullions are 5/8" wide and glazing was 1/8". The window frame was 1-1/4" wide, sitting in a frame 3" wide, which bolted to the iron plate structure. The topmost window of the stair tower faces north and it has been removed. The window measured 21" wide x 25-1/2" high, and opened outward. The frame is 6" deep, bolted to the iron cylinder structure. The next window down faces west and is same size and type as above. The next window down faces east and is same as above. All of the windows have modern steel covers bolted to the outside and a stair landing at each window. These covers are held off the frame about 3", providing additional ventilation to the stair.
The next window faces northwest and is same as above. The final window faces north and is same as above. The door to the stair cylinder matches the watch room door to the gallery.

**Recommendations:**
The watch room door is sound and operable, and only in need of cleaning and painting. Both the door and window should be completely restored when major work is done on the light. This will involve removal of

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both door and window, replacement of glass, complete reconditioning, and the fabrication of metal shutters to cover the window. The windows at the stair well are currently serviceable and provide light and ventilation to the stair, but should also be replaced when major work is done. An operable steel shutter should be installed at each window.

10: Interior Finishes:

**Evaluation:** Altered, Significant

All of the interior finishes have been removed from the keeper's quarters. The only interior finishes are located in the watch room, and are described in that section.

**Recommendations:**

A full restoration should include replacing the historic interiors.

11: Watch Room & Watch Gallery:

**Evaluation:** Significant, Sound, Minor Deterioration

The circular watch room is 11'-9" wide at the interior. The gallery outside is octagonal, 4'-2" wide at its narrowest. The gallery floor is plate iron approximately 1-1/4" thick, with diamond shaped cutouts at each of the 8 plates. The brackets supporting the gallery were not viewable, and should be inspected to make sure they are sound. The guardrail at the gallery is 40" high and composed of 1 ¼" verticals at 51" on center (2 bays per octagon side), with 3 horizontals and a flat bar top rail measuring 2" x ½". The guardrail does not appear historic. A steel mount for the solar panels covers the entire south side of the octagonal gallery. The guardrail is rusting and chipping, but still sound. A weather station is mounted on a column attached to the northeast side of the gallery, and various electrical panels are mounted on the southwest side. The watch room exterior wall is composed of painted iron plates approximately 96" high x 31" wide. There is significant rust along the outer base of the watch room wall. The paint is cracked and flaking. A window opposite the door opens to the west. The walls of the watch room are 7'-4" high to the bottom of the lens room floor plates, and are sheathed in vertical bead board, ¾" thick x 10" wide, with 7 ½" wood base moulding. The wood walls are furred out 4" from the face of the iron plate. The interior walls are painted and in good condition. The floor consists of a 6'-6" diameter metal plate at the center of the room. This plate corresponds to the top of the stair cylinder. The floor is sheathed in painted T&G wood from the edge of this plate to the exterior wall. The wood floor is buckled in places, but sound. The ornate pedestal base for the historic lens support above is at the room's center. A small writing table is attached on brackets to the lens base column. A bead board cabinet in good condition sits at the south wall; it is 6' high, 30" wide and 20" deep with two shelves. The batteries for the light line the south side of the watch

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room, along with a modern electrical panel. A ship's ladder leads up 7'-5" to the lens room catwalk. The lens base is painted and in good condition.

**Recommendations:**
All abandoned electrical conduit and equipment in the watch room should be removed and the walls and floor should be patched, sanded and repainted. The window should be repaired and made operable. An operable shutter should be added to the exterior of the window for protection. The exterior of the watchroom should be stripped and repainted after rusting at the base of the panels is repaired. Minor deterioration at the guardrail and exterior walls should be repaired.

**12. Lens Room:**

**Evaluation:** Significant, Altered, Deteriorated

The lens room is approximately 12 feet in diameter. The white painted ceiling is made up of T-shaped ribs sheathed in iron plate. The lens room walls are glass with three tiers of 4" deep triangular structural mullions. The panes are triangular, 28" wide x 38" high. All of the glazing is sealed and intact, but many of the glazing mullions at the bottom are crumbling with rust and need patching. The hooks for the lens room curtains remain along the interior top plate, as well as the exterior, at 10'-0" above the floor. Three red sector panels are attached to the inside of the room in brass or bronze frames. The floor consists of 29" wide iron floor plates around the lens base, and are supported by 3" deep brackets at 16" o.c., visible from the watch room below. A 9-step 19" wide historic ship's ladder leads down to the watch room. The center of the lens room is taken up by the 6'-1" wide original cast iron lens pedestal. The current beacon, a VRB-25 rotating beacon, sits atop a 4" diameter steel column bolted to the original base. The base is painted and sound, but does not rotate. It is showing rust marks, evidence of leakage from the roof. The floor plates have six 4" diameter ventilation holes near the wall, with pipes leading to the exterior.

The lens room gallery runs along the outside of the lens room, is 24" deep and supported by tapered brackets connected to the wall of the watch room. The gallery is accessed by a 24" wide ladder from the watch room gallery below. Both the gallery and the brackets, especially the undersides, are badly rusted and will have to be replaced. A curb runs along the outer edge of the gallery. The curb is perforated for drainage, and is broken off in many places and will have to be replaced. A handhold runs along the outside of the second horizontal glass mullion. A contemporary guardrail runs along the lens room gallery consisting of 1-1/2" centerline verticals at 4'-0" o.c. and a flat bar top rail 1-3/4" x ½". A contemporary weather station is attached to a pole on the northeast side of the lens room exterior.
Recommendations:
All of the glazing at the lens room should be inspected and sealed as necessary. All of the exterior battens holding the glass in place should be inspected and replaced as necessary. In addition, the roof is leaking and should be immediately addressed. The cornice of the lens room wall should be closely inspected and patched as necessary. The perforated curb at the lens room gallery is deteriorated in parts beyond the point of repair. It should be replaced using the originals as guides. The contemporary guardrail at the lens room gallery should be replaced as well. All of the exterior metalwork should be cleaned of rust and repainted. A ladder should be installed to access the roof.

13. Mechanical and Plumbing Systems:
None existing.

14. Electrical System:
Evaluation: Altered, Sound
Electrical systems consist of a modern beacon powered by solar and batteries. The light is mounted on a modern pipe bolted onto the original lens base. Batteries are located at the watch room floor. Electrical panels are located on the west side of the watch room gallery, and the watch room interior. Electrical cables run along the base of the watch room exterior wall. A weather station is located atop a 30' high column bolted to the watch room gallery floor. The solar panels are attached to a painted steel frame on the south side of the watch room gallery that is 6' high, 9'-6" wide and 40" deep.

Recommendations:
All of the abandoned electrical equipment in the light should be removed, and all of the holes patched and painted.

15. Roof Structure and Roof Covering:
Evaluation: Significant, Sound
The roof structure consists of 12 iron "T" ribs, radiating to a central collar which held the old lens. The roof is circular, about 11'-10" in diameter. The roof covering is probably copper sheathing, attached between the ribs with battens. A ventilator sits atop the roof. The sheathing has begun to rust through at the top of each plate, near the center of the roof (daylight is visible). The structural ribs are painted and sound, 6" deep x 3/4" wide at the "T". Chips of rust and paint are evident on the inside of the lens room; evidence that the roof is no longer watertight. A ladder on the north side leads from the lens room gallery to the roof. It is rusted and does not appear sound.

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Recommendations:
The roof sheathing and ventilator are leaking, and should be stripped of paint, patched, and repainted. The cornice around the lens room should also be repaired as necessary. The interior structure of the roof should be cleaned and painted. The ladder to the roof should be repaired so that periodic inspections and access to the roof are possible. This will involve stripping down to bare metal, patching with welding, priming, and repainting.

16. **Lightning Protection System:**

**Evaluation:** Significant, Sound

A lightning rod is located at the top of the lighthouse. The cable runs down the interior of the lens room and out the ventilator, then outside the gallery and down the southwest leg of the light. The wire seems to be functional. A secondary lightning cable runs from the 30’ high weather station pole to the main cable down.

Recommendations:
The entire system should be checked to verify that it is functioning. All loose cable should be secured to the structure of the lighthouse, both inside and out.

17. **Probable Cost for Restoration:**

<table>
<thead>
<tr>
<th>Work Description</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Site Improvements/Docking</td>
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<tr>
<td>Exterior Structure Wall Repairs</td>
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<td>Doors (8 @ $3,500)</td>
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<tr>
<td>Windows (6 @ $2,400)</td>
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<tr>
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<td>Watch Room Restoration</td>
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<td>Total Construction Cost</td>
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<td>Total Probable Cost</td>
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18. **Recommendations for Future Use:**

Due to its proximity to the City of Marathon and the surrounding coral reefs, the Sombrero Key Lighthouse area is already heavily visited by boat traffic. The residents of Marathon are very proud of the light; it is even incorporated into the seal of the city. In its present state, the light could not be opened for general visitation. It is our recommendation that the light should undergo a total historic restoration, to accommodate public visitation.

In addition to the obvious historic significance of the reef lights, a tremendous opportunity exists for increased use and public access. With fully restored lighthouses, including historic interiors, solar powered lighting, composting toilets, and improved docking facilities, the lighthouses could be used for:

1. Marine Research Facilities  
2. Weather Stations  
3. Military Training  
4. Corporate Retreats  
5. Living Accommodations for Maintenance Crews  
6. Public Tours on a Limited Basis During Calm Weather Summer Months

and numerous other uses. The demand for these uses is high. The revenue generated from public use would ease the financial burden of maintaining the lights. Public awareness of the role of lighthouses and their importance would be raised.

Public awareness and appreciation for United States Coast Guard, their work and the dedication of the men and women of the Coast Guard would be raised.

The benefits are numerous. The drawbacks are few. It is without reservation that we recommend full historic restoration of Sombrero Lighthouse and the establishment of a program for its future use. This

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public use plan, if applied to all of the reef lights of the Florida Keys, will generate worldwide interest and support.
SOMBRERO KEY LIGHT, FLORIDA

SOMBRERO LIGHTHOUSE HISTORIC PHOTO. NOTE LOWER PLATFORM & WOOD DOORS WITHIN OPENINGS OF KEEPER'S QUARTERS.
AERIAL VIEW OF SOMBRERO LIGHTHOUSE. DATE UNKNOWN. AGAIN, NOTE PRESENCE OF LOWER PLATFORM & VARIOUS ACCESS STAIRS & LADDERS
GENERAL VIEW OF UNDERSIDE OF MAIN PLATFORM

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No.: 0119
Sombrero Lighthouse
Photos

Date: 4/15/02

DETAIL OF CENTRAL SUPPORT COLLAR AT MAIN PLATFORM
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0119
Sombrero Lighthouse Photos
Date: 4/15/02

GENERAL VIEW OF OUTER STRUCTURAL COLUMNS AT WATER LEVEL

DETAIL OF TYPICAL COLUMN JOINT AT FIRST LEVEL ABOVE WATER
UNDERSIDE OF MAIN PLATFORM SHOWING BUCKLING OF PLATFORM IRON PLATE DUE TO RUSTING

DETAIL OF TOP OF MAIN PLATFORM SHOWING BUCKLING AND CRACKING OF IRON PLATE

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
Sombrero Lighthouse
Photos
Date: 4/15/02
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

TYPICAL DOOR TO KEEPER'S QUARTERS

TYPICAL DOOR TO KEEPER'S QUARTERS SHOWING CAST IRON TRIM
DETAIL OF COLUMN CAPITAL AT DOOR TRIM OF TYPICAL DOOR TO KEEPER'S QUARTERS

FLORIDA LIGHTHOUSE STUDY
EXISTING CONDITIONS PHOTOGRAPHY

PROJECT #: 0197
Sombrero Lighthouse
Photos
Date: 4/15/02

DETAIL OF TYPICAL CAST IRON BASE OF DOOR TRIM
GENERAL VIEW OF KEEPER'S QUATURES. MAIN STAIR AT LEFT. NOTE BUCKLING OF FLOOR PLATE IRON BEYOND

DETAIL OF BUCKLING OF PLATE IRON FLOOR PANELS
DETAIL OF IRON PLATE FLOOR PANEL AT KEEPER'S QUARTERS. RUST HAS FLAKED LAYERS OF IRON FROM PANEL

ANOTHER DETAIL OF CRACKED FLOOR PLATES AT KEEPER'S QUARTERS

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
Sombrero Lighthouse Photos
Date: 4/15/02
DOOR TO MAIN STAIR AT KEEPER'S QUARTERS

VIEW OF MAIN STAIR AT KEEPER'S QUARTERS
TYPICAL DETAIL OF BRACKET FOR STAIR HANDRAIL

DETAIL OF WALL OF MAIN STAIR CYLINDER SHOWING RUST DETERIORATION

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0119
Sombrero Lighthouse Photos
Date: 4/15/02
DETAIL OF TYPICAL STAIR LANDING. WINDOW AT LEFT.

LANDING AT MAIN STAIR. PATCHED HOLE IN STAIR LANDING.
GENERAL VIEW OF WATCH ROOM INTERIOR. NOTE HISTORIC WRITING TABLE AT LENS BASE

DETAIL OF WINDOW AT WATCH ROOM. WINDOW OPENS OUTWARD. HARDWARE MISSING
VIEW OF WATCH ROOM INTERIOR, SHOWING BEADBOARD CABINET & LADDER TO LENS ROOM ABOVE. HISTORIC LENS PEDESTAL ABOVE

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

WATCH ROOM GALLERY FLOOR. NOTE DETERIORATION IN FLOOR PLATE AT PERFORATED AREA
FLOOR OF LENS ROOM GALLERY, SHOWING DETERIORATED CURB

DETAIL OF Underside OF LENS ROOM GALLERY. NOTE RUSTED BRACKETS

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Sombrero Lighthouse Photos
Date: 4/15/02
TYPICAL VIEW OF LENS ROOM

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

LENS PEDESTAL, SHOWING MOUNT FOR CONTEMPORARY BEACON

Project No.: 0119
Somboro Lighthouse Photos
Date: 4/15/02
GENERAL VIEW OF LENS ROOM CEILING & HISTORIC MOUNT FOR LENS

GENERAL VIEW OF CEILING OF LENS ROOM. NOTE RUSTING OF ROOF SHEATHING. ROOM IS NOT WATERTIGHT

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No: 0119
Sombrero Lighthouse
Photos
Date: 4/15/02
<table>
<thead>
<tr>
<th>Name:</th>
<th>St. Augustine Lighthouse</th>
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<tbody>
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<td>Location:</td>
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</tr>
<tr>
<td>Type:</td>
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<tr>
<td>Height:</td>
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<tr>
<td>Daymark:</td>
<td>Black and white spiral tower with red lantern</td>
</tr>
<tr>
<td>Year Built:</td>
<td>1871</td>
</tr>
<tr>
<td>Owner or Operator:</td>
<td>United States Coast Guard and Board of County Commission of St. Johns County (keeper's house). Leased and Operated by St. Augustine Lighthouse and Museum, Inc. as a museum. The lighthouse is scheduled to be deeded to St. Augustine Lighthouse and Museum, Inc. this summer by the U. S. Coast Guard as part of a pilot program of the National Lighthouse Preservation Act.</td>
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<td>National Register Status:</td>
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<td>Active:</td>
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<tr>
<td>Visitor Access:</td>
<td>Yes</td>
</tr>
<tr>
<td>Contact:</td>
<td>Kathy Fleming at: <a href="mailto:staugih@aug.com">staugih@aug.com</a>  Website: staugustinelighthouse.com</td>
</tr>
</tbody>
</table>

1. **History:**

The St. Augustine Light Station was the first lighthouse established in the state of Florida, and the original tower was the first one lighted in the state, on April 5, 1824. The first lighthouse was built around 1586 by Spanish colonists as a watchtower and was located at the north end of Anastasia Island. Congress authorized $5,000 to convert the tower into a lighthouse in 1823 but, by the 1840s, navigators were complaining that the light was too dull to be seen out at sea. Several attempts were made to increase the height of the tower but all failed to make the light brighter. In 1855, a fourth-order Fresnel lens was installed in the lighthouse to increase visibility until erosion became a new problem for the lighthouse in the 1860s. In 1872, the lighthouse board decided to fund a new light station to be built 600 yards southeast.

The current 165-foot brick tower with black-and-white spiral bands and a red lantern room was then constructed. A first-order Fresnel lens was installed and the lighthouse was officially lighted on
October 15, 1874. According to the lighthouse keeper's logbooks, originally the light was powered by lard oil (hog fat) that was stored in the fuel storage house attached to the base of the tower, kerosene fuel replaced the lard eleven years later, and the lighthouse was electrified in 1936.

After the lighthouse was automated in 1955, the federal government sold the station grounds to St. Johns County. In the 1960s, the light station was vacated and almost lost to neglect. In the 1970s, a fire was set at the keeper's house that nearly destroyed the building. The Junior Service League of St. Augustine, Inc. contracted a 99-year lease with St. Johns County and, in the 1980s, began an overall restoration to save the light station. The two-story brick keeper's house was restored in the late 1980s and the first floor and basement spaces are used for a museum. The second floor is used for social gatherings.

The light station restoration was completed in 1994 after 14 years for a restoration cost in excess of $1.2 million. The restoration work was completed in seven phases as funding was obtained. Atlantic Industrial Optics in Delaware repaired the damaged first-order Fresnel lens for the Junior Service League of St. Augustine. The lens remains in operation today and is maintained by the United State Coast Guard.

The grounds, lighthouse, and museum are open to the public daily. In October 2000, a gift store with administrative office space was built at the entrance to the light station. State grants, Florida Inland Navigation District grants, and years of fundraising activities, including progressive dinners, runs, festivals, etc., funded the restoration work. In 2001, St. Augustine Lighthouse recorded 180,250 visitors and attendees at social events and educational outreach programs. Additional casual visitors who did not enter the lighthouse complex are not included in the visitation total. Their revenue last year was $2.2 million with $727,000 from admissions and $1.2 million from gift shop sales. They have a $600,000 annual payroll and return $40,000 annually to the state in sales tax revenues. Approximately 90 percent of their annual budget is spent in state. A recent economic impact study for St. Augustine Lighthouse indicated an annual benefit to the St. Augustine community from the lighthouse of over $2 million.

2. General Description:
St. Augustine Lighthouse is constructed of brick in a conical shape, painted on the exterior with black-and-white spirals and topped with a red painted cast-iron lantern. Access to the lighthouse is through a one-story brick oil-storage building attached to the east side of the lighthouse. Exterior granite steps lead to the entrance door at the center of the oil storage building. Inside, a center hall with alternating black and white 14-inch square marble tile leads to interior granite lighthouse entry stairs. The oil storage building

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consists of two rooms, a maintenance/log room south of the center hall and an oil storage room north of the hall.

The interior floor at the base of the lighthouse is finished with alternating black-and-white, 14-inch-square, marble tiles. A weight well in the center of the lighthouse floor with cast-iron rail surround allowed the rotation weights to be lowered below the finished interior floor level for extended operation time. A central black painted cast-iron stair is located adjacent to the south wall.

The lighthouse has five wood casement windows with cast-iron frames at the brick tower. Two windows are located on the east elevation centered above the entry door and three windows are located on the west elevation. Four wood casement windows with cast-iron frames are located at the watch room level, one on each side of the room.

Cast-iron, helical-shaped, stairs terminate after half a revolution on the west side of the lighthouse at the first one-half circle landing at the east side of the lighthouse. Seven sections of stairs on the west side of the lighthouse connect to seven, one-half-circle, landings at the east side of the lighthouse. Benches for visitors are located on several of the stair landings. The eighth section of stairs makes a 180-degree revolution to terminate at a one-half-circle watch room level on the west side of the lighthouse.

The watch room floor is constructed from cast-iron floor plates. Each side of the watch room has one wood casement window in a cast-iron frame. A curved wood cabinet built-in against the wall was once used as a glass storage case and for supplies for the keeper on duty. A cast-iron stair at the south end of the room leads to the rotation room above.

Adjacent to the cast-iron stair is a series of curved cast-iron plates that separate the stair landing from the rotation room. A Plexiglas sheet at the door opening to the rotation room allows visitors to view the first-order Fresnel lens and the electric motor used to rotate the light. Inside the rotation room are wood cabinets, once used to store supplies; vertical, tongue-and-groove, wood panel walls; and cast-iron floor plates. The underside of the lantern room's cast-iron floor plates is visible from below.

A cast-iron stair on the west wall of the rotation room provides access to the 16-sided lantern room above. The cast-iron floor plates of the lantern room have eight round glass floor light inserts. Cast-iron vertical mullions support the 16 glass storm openings. Each opening has three glass panels with horizontal
muntin dividers. The cast-iron mullions support the cast-iron roof framing ribs and tension ring. A tin reflector is located above the tension ring and the underside of the roof framing is clad with tin sheathing.

The lighthouse roof dome is covered with standing seam copper roofing and with a ventilator ball at the roof peak.

The keeper's house was restored in the late 1980s. The lighthouse tower was restored in 1994. These facilities are in constant use and have been well maintained since the restorations were completed.

The lighthouse restorations included structural repairs of the cast-iron, main gallery floor brackets. These brackets were inspected in 2000 and additional splits and cracks were repaired. The St. Augustine Lighthouse and Museum plans to have the brackets inspected annually to determine if deterioration is continuing. Exterior metalwork at the top of the lighthouse was repainted in 2000.

Currently, the operator plans to complete additional tower maintenance this fall to remove mildew, repaint the masonry tower, and repair wood windows at the lighthouse. At the same time, they also plan to repair granite sills and complete additional brick repairs at the keeper's house.

3. **Site Improvements:**

   **Evaluation:**

   The St. Augustine light station is located on Anastasia Island, St. Augustine, Florida on Salt Run approximately one-half mile south of St. Augustine Inlet to the Atlantic Ocean. A brick fence surrounds the light station. Visitor access to the site is through a new visitor's center built in October 2000.

   The new visitor's center, south of the light station, contains a gift shop on the first floor and administrative offices for lighthouse personnel on the second floor. The building has wood siding and a standing metal seam roofing.

   A brick fence with metal gates encloses the lighthouse and attached oil storage building and keeper's house. The keeper's house, located east of the lighthouse, is a two-story brick building with one-story kitchen wings at both the north and south ends of the building. Originally, the main keeper's house was divided into two living areas; one area to the north for the lighthouse keeper and his family, the other smaller area to the south for the assistant keeper. Many of the assistant keepers were single and did not need as much room as the keeper and his family. The main house has covered wood porches on both the

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first and second floors on both the east and west sides of the house. Porches have decorative, white painted, wood columns and railings; and the west second floor porch has two covered wood exterior stairs to the first floor porch.

Vegetation at the site consists of lawn areas between the brick paths. Vegetable and herb gardens and small native plants are located to the south of the brick surround walls. The light station is surrounded by oak trees, palm trees and other mature vegetation.

**Recommendations:** The grounds are in good condition. Vegetable and herb gardens show visitors typical crops grown by the lighthouse keeper's family. Property grounds and maintenance should be continued.

4. **Masonry Walls:**

**Evaluation:** Significant/good condition.

Exterior masonry walls are painted with black-and-white spirals that are weathered and mildewed in areas. Brick walls appear to be in good condition.

Interior walls of the lighthouse are constructed of hard-fired brick. The brick has been painted white on the interior over "slurry coat" cement coating. Areas of interior paint are slightly worn.

**Recommendations:** Clean mildew from exterior surfaces and repaint exterior masonry surfaces. Continue interior coating maintenance.

5. **Cast-Iron Stair and Landings:**

**Evaluation:** Significant/good condition.

A granite entry stair with five risers is located outside the oil storage building/lighthouse entrance. Granite check walls flank the landing outside the entrance door.

A second granite stair leads from the central corridor of the oil storage building to the base of the lighthouse. This stair splits into two sets of stairs with one section leading to the north and one section leading to the south to the floor of the lighthouse.

The central lighthouse stair is constructed with cast-iron treads. Each tread has integral risers and brackets to bolt to the tread below. Stair runs are 180-degree helical shapes located on the west side of

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the lighthouse and connect to half-circle-shaped, cast-iron, landings located on the east side of the lighthouse. Stair sections are supported by the landings and by intermediate steel brackets bolted to the masonry walls below the stair runs. Landings have a checkered-plate finish and are supported by brick corbelled from the wall below and a cast-iron beam located under the open edge of the landings.

There are seven, 180-degree, stair runs connecting to seven half-circle-shaped landings. Above the seventh landing, the stair makes a complete 360-degree rotation to the eighth landing. This stair section also has two cast-iron suspension rods from the ninth landing above for support.

The eighth landing is half-circle-shaped and a ninth stair section connects to the watch room above.

Stairs landings and railings are painted black. Stairs treads have an open diamond pattern and taper from 18 3/4 inches on the outside face to 12 1/2 inches on the inside face with an average riser height of 7 1/2 inches. Stair landings are supported on the open west sides by 10 1/4 inches high cast-iron beams that bear on the brick walls. Deck plates decks at the cast-iron landing have a raised diamond pattern. Areas of rust are present at the underside of stair landings.

A cast-iron vertical handrail post connects to the interior nosing corner of each stair tread and bolts through the back of the tread below. A 1-3/4-inch-diameter metal handrail is bolted to each post. Handrails and posts are located at each side of each stair run. Decorative cast-iron newel posts are located at each side of the stair entry at the base of the lighthouse. Larger decorative support stanchions are located at the inside junctions of the stair and landings. The exterior handrails return to the masonry walls at landings. The landings have railings at the open side consisting of the same top railing and a flat bar bottom rail with intermediate vertical round pickets between the top and bottom railings.

**Recommendations:** Stairs are in good condition and only need to be repainted. The current monitoring and maintenance program should be continued.

6. **Interior Floor at Base of Lighthouse:**

**Evaluation:** Significant/good condition.

A black cast-iron railing similar to the stair railings surrounds a weight wheel at the center of the base of the lighthouse. The weight well is 46 1/2 inches deep and 42 1/2 inches in diameter and is surrounded by an 8-inch-high metal base. The bottom of the weight well is poured concrete.
The interior floor at the base of the lighthouse is finished with black-and-white, 14-inch-square, marble tile installed in a checkerboard pattern. The marble tiles have an orange-color stain bleeding through from the soil below.

**Recommendations:** The interior at base of lighthouse is in good condition. The current monitoring and maintenance program should be continued.

7. **Exterior Openings – Doors and Windows:**

**Evaluation:** Significant/good condition.

The lighthouse entry has a heavy, stile-and-rail, wood entry door, with diagonal tongue-and-groove planks in the center panel area. The door is hung in a wood frame with an arched head, fixed-glass, transom panel with six lights above the door.

There are six, double-hung, four-over-six light wood windows at the oil storage building section. Two windows are located on the north oil storage building wall and two on the south wall. Two additional windows are located at a short link between the oil storage building and the base of the lighthouse with one window on the north wall and one on the south wall of the connection section. The lower sash of these windows is taller than the upper sash with three equal height glass panes in the lower sash and two in the upper sash. All windows at this level have operable, paneled, wood shutters mounted on the exterior walls outside the windows. These windows have arched-top wood lintels with a brick arch above and granite sills. Granite blocks are located at the spring points of the brick arches.

The lighthouse has nine windows. Four windows are located at the watch room, on the north, east, south, and west sides of the room, and two windows centered on the east elevation at the second and fifth landings, and three windows centered on the west elevation opening onto the stair runs. Windows are wood casement units with fixed-wood casement transom units above. Transom units have arched heads, except watch room windows have flat heads. Windows are hung in cast iron frames. The lower two windows have five lights in each sash with three lights in each transom sash. Upper windows have four lights in each sash and two lights at each transom sash. Window sash units have been replaced over the years to match original units.

Modern steel guards are installed inside all window openings for visitor safety.

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and

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Associate Architects
Windows have wood sills and brick returns at jambs and heads; except watch room windows have cast-iron sills.

There is a gouge in the wood sill at the fourth window located at the fifth stair landing.

**Recommendations:** Windows are in good condition. Repair wood sill at fifth stair landing. The current monitoring and maintenance program should be continued.

8. **Watch Room:**

**Evaluation:** Significant/good condition.

The cast-iron black painted stair makes a full revolution from the seventh, half-circle, stair landing located on the east side of the lighthouse to the half-circle watch room landing located on the west side of the tower. A wood casement window is located on each of the four sides of the watch room. Each window unit has four lights in each casement window and two lights in each of two, fixed, transom panels.

A curved historic built-in wood supply cabinet in this room was built to fit the shape of the room.

A section of the exterior wall was removed during the previous restoration to expose the interior of the vertical cast-iron gallery brackets embedded in the wall. This opening was left to interpret the lighthouse construction.

**Recommendations:** The watch room is in good condition. The current monitoring and maintenance program should be continued.

9. **Rotation Room:**

**Evaluation:** Significant/good condition.

The rotation room located on the ninth level is secured with a wooden four-panel door. This level houses the rotation mechanism installed in 1874. The manufacturer of the rotation mechanism was L. Sautter-Lemonnier & Cie, A Paris. It is constructed of brass, iron, and glass with brass wheels in the chariot but currently uses an electric motor instead of a counter weight clock mechanism used prior to 1936.

The rotation floor is sectional cast-iron plates with a checkered-plate walking surface. A helical cast-iron stair provides access to the room from the watch room below. The stair is isolated from the rotation room by curved cast-iron panels installed between the stair and the rotation room. A heavy cast-iron door at the

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top of the stair leads to the main exterior gallery and a second door opening with a four-panel wood door provides access into the rotation room. A section of the metal wall panel has been replaced with a Plexiglas panel to permit visitors to view the rotation mechanism and first-order Fresnel lens above. The rotation room is not open for public access.

The rotation room has vertical wood tongue-and-groove bead board paneling on the west and north sides of the room. A wooden tool cabinet against the north wall was used to hold supplies for the lighthouse keeper on duty. An electric service panel and rotation timer are mounted on the west wall.

**Recommendations:** Rotation room is in good condition. The current monitoring and maintenance program should be continued.

10. **Main Gallery:**

**Evaluation:** Significant/good condition.

Access to the rotation room gallery is through a four-panel cast-iron door on the south side of the tower. Stairs leading from the watch room terminate at a landing just inside the rotation room gallery. The exterior of the rotation room is constructed with cast-iron wall panels. The gallery cast-iron deck plates that are 4 feet 11 1/2-inches wide with a raised diamond pattern. Deck plates are supported on decorative cast-iron brackets extending from the brick masonry walls below the deck. A cast-iron raised trim circles the lighthouse tower below the bottom of the deck brackets and voids between deck brackets at the exterior of the tower are clad with cast-iron panels. Watch room windows are located in these panels between the brackets. Corbelled brick projects below the cast-iron trim.

Sixteen brackets support each edge of 16 deck plates. There are sixteen sections of railing mounted on the exterior side of the gallery. Railings are supported by 1-3/4-inch-diameter, cast-iron, stanchions attached through the deck plates and support brackets below the gallery deck. A 2-inch ball cap tops each stanchion.

Railings have a flat bar cap rail, two intermediate rails and a bottom rail spanning between stanchions. Vertical round pickets spaced approximately 4 inches on center fill the openings between the intermediate rails. The upper intermediate rail is located approximately 8 inches below the top rail; and the lower intermediate railing is located approximately 2 inches above the bottom rail that is about 2 inches above the deck.

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A cast-iron cornice surrounds the bottom of the gallery deck.

A cast-iron cornice is mounted on the central cylinder below the soffit of the lantern room balcony above. The lantern room soffit is comprised of cast-iron panels with scalloped openings serving as lantern room ventilation openings. All metal surfaces from the top of the gallery deck up are red painted metal surfaces.

**Recommendations:** The main gallery is in good condition. Inspect gallery brackets for structural cracks annually and continue current maintenance.

11. **Lantern Room:**

**Evaluation:** Significant/good condition.

The 16-sided lantern room located is accessed from a cast-iron stair from the east side of the rotation room. The first-order Fresnel lens is mounted on a rotation platform and continues as an active aid to navigation. The lantern room has cast-iron floor plates with 14 floor light inserts. Cast-iron vertical window Mullions support the storm glass panels and cast-iron roof framing and tension ring members that are located at the base of the roof canopy. The windows are divided into 16 vertical sections of three windows each for a total of 48 windows supported by cast-iron vertical Mullions. The underside of the roof framing is sheathed with tin. A tin canopy is located above the tension ring. Curtain hooks are still in place above the top of the vertical Mullions. There are eight bronze vents located in the cast-iron windowsills.

Storm window openings have impact-resistive glass panels. One glass storm panel has cracked under stress from exfoliation of the corner of the deck plate below. Cast-iron floor plates extend below the glass panels to form the exterior lantern room gallery decking. The exterior lantern room gallery has vertical handrail stanchion supporting a single flat bar handrail protecting the open side of the gallery. Acorn nuts cap each stanchion.

The lantern room exterior gallery is accessed by a 10-foot iron ladder on the west side of the rotation room gallery. The ladder was removed for public safety. The gallery is 2 feet wide with a 3-foot-3/4-inch-high rail. The rail has a 2-inch flat bar top rail with 16, half-inch-diameter, support stanchions. The decking has wedge shaped cast-iron floor plates. A steel ladder used to access the windows and the top of the dome is located on the northwest side of the lantern room gallery.

**Recommendations:** Replace broken glass and repair gallery deck plates.
12. **Roof:**

   **Evaluation:** Significant/good condition.

   The original copper roof canopy, cast-iron cornices, and bronze ventilator ball remain and appear to be in good condition when viewed from the ground. We were unable to gain access to view the top of the canopy and ventilator ball.

   The oil storage building has a standing seam metal room.

   **Recommendations:** Roofing is in good condition. The current monitoring and maintenance program should be continued.

13. **Electrical System:**

   **Evaluation:** Significant/good condition.

   The electrical service is routed underground to an electrical panel located in the oil storage building. Electrical conduit is routed on the interior of the lighthouse with a light located on the conduit at every stair landing.

   **Recommendations:** Electrical service is in good condition and does not require maintenance at this time.

14. **Lightning Protection System:**

   **Evaluation:** Significant/good condition.

   A pinnacle lightning rod is mounted to the top of the ventilator ball at the top of the tower. The lightning ground lead is attached too the west exterior masonry walls.

   **Recommendations:** The lightning protection system appears to be in good condition and does not require maintenance at this time.

15. **Probable Cost For Required Maintenance:**

   Maintenance repairs are planned for the lighthouse. The St. Augustine Lighthouse and Museum, Inc. has received maintenance proposals for the lighthouse and plans to initiate the next phase of maintenance this fall with estimated costs as follows:

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Based on the design proposal by Professional Restoration, Inc.:

**Lighthouse Repairs:**
- Repaint and Repoint Lighthouse Exterior Masonry Surfaces $122,500
- Replace Broken Glass and Repair Gallery Deck $5,000

**Keeper's House Museum:**
- Replace granite sills & thresholds $12,000
- Carpentry $2,000

**Total Probable Required Maintenance Costs** $141,500

**Recommendations for Future Use:**
The lighthouse and museum have been restored to good condition and are open daily for public visitation. The facility is used for a variety of civic, educational, and social activities and is a valuable community asset.

The success of the restored St. Augustine Lighthouse and Museum is an excellent example for the restoration and use of other Florida lighthouses.

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SOUTHWEST VIEW OF ATTACHED OIL STORAGE BUILDING AND KEEPER’S HOUSE

KEEPER’S HOUSE WEST ELEVATION
GRANITE STAIRS TO BASE OF LIGHTHOUSE

CAST-IRON STAIR AND WEIGHT WELL AT BASE OF LIGHTHOUSE

ONE-HALF CIRCLE LANDING AT EVERY 26TH STEP IN CAST-IRON STAIR
TYPICAL ONE-HALF CIRCLE STAIR LANDING WITH FRESNEL LENS DISPLAY

VIEW OF STAIRS AND LANDINGS FROM BELOW
Name: St. Johns River Lighthouse (Old)

Location: Duval County, Mayport, U.S. Naval Station, Mayport

Type: Conical brick tower

Height: 81 feet. Grade around the lighthouse was raised approximately 10 feet when the adjacent airport runway was constructed during WWII; thus, the base of the lighthouse is 10 feet below grade.

Daymark: Red washed conical brick tower with white lantern

Year Built: 1858. Lighthouse was abandoned January 15, 1929; replaced by St. Johns Lightship anchored eight miles offshore.

Owner or Operator: United States Navy

National Register Status: Listed

Active: No

Visitor Access: No

Contact: Homer Hull, Architect, Cultural Resources Manager, Mayport Naval Air Station hhull@nsmayport.spears.navy.mil

Facilities: None

1. History:
   Constructed in 1859, St. Johns River Lighthouse was the third lighthouse to be built at the mouth of the St. Johns River. The first two towers had been destroyed by coastal erosion forcing the new lighthouse to be built further inland.

   Union troops used the light during the Civil War to help guide their boats until a sympathizer of the Confederate Army shot out the light. The lighthouse was repaired after the war and in 1887 was extended in height approximately 15 feet.

   The old St. Johns River Lighthouse was decommissioned in 1929 and the third-order Fresnel lens was removed. The lighthouse was replaced with a lightship located six miles off the coast at the mouth of the St. Johns River.

   Mayport Naval Station was built in 1941 and a base airfield runway was constructed near the old St. Johns River Lighthouse. All lightstation structures except the old lighthouse were removed. Structures removed at that time included the keeper's house east of the lighthouse and the oil storage building that
was attached to the west side of the lighthouse. Earth-fill was installed in the area around the lighthouse to raise the grade for the new airfield approximately seven feet. Thus, the original lighthouse entry door is now located below grade and access to the lighthouse interior is via a window opening approximately eight feet above grade.

For several years, the Navy tried to demolish or move the lighthouse to another location. Local citizens managed to save the lighthouse and in 1982, with the help of the Navy, the lighthouse was placed on the National Register of Historic Places. The building was stabilized in the late 1970s and has been generally maintained in a stable and watertight condition since that time.

2. **General Description**:

St. Johns River Lighthouse is constructed of brick masonry in a conical shape. A brick corbelled projection at the top of the tower supports the watch room slate balcony. The exterior finish of the lighthouse was originally a red wash coating and is now painted a deep red color. The watch room exterior has a white painted stucco finish over brick construction. Copper roofing and a bronze ventilator ball cover the domed roof of the lighthouse. Interior masonry walls have never been painted and exhibit excellent craftsmanship in the brickwork and remain in good condition.

The lighthouse has five modern wood windows; four window openings are located 90 degrees apart (one on each side of the lighthouse) and spiral in height with the interior stair. The fifth window opening is located at the watch room level on the southeast elevation and provides access to the exterior watch room gallery. Windows at the base of the lighthouse and the watch room level are modern aluminum-clad wood, casement windows and the other three openings have modern six-over-six, aluminum-clad wood, double-hung windows. The clad-wood casement window at the watch room level has six lights and the wood casement window at the base of the lighthouse has 12 lights. All windows have recently been replaced and help protect the interior of the lighthouse from water damage. The 1858 lighthouse construction drawings indicate each window sash was six-over-six configuration. The 1887 lighthouse construction drawings to extend the height of the tower indicate four-over-four window sash.

Interior slate stairs spiral from the base of the lighthouse to a one-quarter-circle at each window. Intermediate one-quarter-circle platforms at the second and third windows are made from solid pieces of slate. Treads and platforms are approximately 4-1/2-inches thick and the average riser height is 8 inches. A full circle of the stair is formed by 16 treads. All slate surfaces were finished by hand and remain in excellent condition. The center of the spiral stair is supported by a brick cylinder for the full height of the

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stair. The cylinder is approximately 12 inches in diameter and is constructed with radiused brick matching the brick used elsewhere in the lighthouse. The 1858 drawings indicate that the central drum is hollow and was constructed to contain a small weight presumably part of the light rotation mechanism.

The spiral stairs change to a steeper spiral ship's ladder-type stair at the landing below the watch room. A metal ladder leads from the landing to the watch room level above and a second metal ladder at the watch room leads to the lantern room above. The watch room has a slate balcony and slate interior platform. Paint remnants on the interior brick indicate that the interior of the watch room was once painted or whitewashed white. The top of the watch room brick wall supports the lantern room cast-iron floor and balcony plates above.

The lantern room has three-foot-wide, cast-iron floor plates with a raised square textured surface finish that are attached to the top of the brick wall and extend out to form a gallery around the lantern room. Floor plates are rusting and should be cleaned and repainted. Black painted cast-iron vertical mullions support fogged polycarbonate sheet storm panel glazing that extends the full height of the lantern room. The cast-iron mullions support cast-iron roof ribs and a cast-iron tension ring below the copper roofing. Cast-iron mullions and cast-iron ribs have areas of rust and exfoliation. Modern diagonal connecting rod braces are installed in the lantern room and are connected to the tops and bottoms of the vertical mullions. Pinhole leaks are present at the copper dome.

Cracks at the stucco coating and the brick are present at one of the anchors at the underside of the cast-iron gallery deck plates. The cast-iron gallery deck, cast-iron handrail, and support stanchions appear to have been recently repainted. A radio beacon is located on the south side of the lantern room.

3. Site Improvements:
   **Evaluation:** Significant/good condition.
   The old St. Johns River Lighthouse is located in the northwestern area of the Mayport Naval Station, Mayport, Florida. The lighthouse is within the secured fenced compound of Mayport Naval Station airfield. The original grade around the lighthouse was raised approximately seven feet following World War II when Mayport Naval Station was constructed. The arched opening above the entry door is the only remaining above-grade visible sign of the original entry door. The interior of the lighthouse is now accessible through the north window opening located approximately eight feet above the existing grade.

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A one-story wood frame visitor's center to the east of the lighthouse has been partially renovated and will contain information regarding the old St. Johns River Lighthouse, the lightship, and the new St. Johns River lighthouse. The building is located near the site of the original keeper's house that was demolished when the airfield was constructed.

Vegetation in the area of the lighthouse consists of a grassed lawn with a ring of mature shrubbery around the base of the lighthouse.

The former oil storage building located to the west of the lighthouse has also been demolished. A footprint from the oil storage building roof remains on the side of the lighthouse tower.

The site is operated by Mayport Naval Station and is currently not open to the public.

**Recommendations:** Remove vegetation from around the base of the lighthouse. Property grounds maintenance should be continued. A future goal would be to provide for public visitation by constructing retaining walls around the lighthouse to permit the area within the retaining wall to be excavated to the original lighthouse grade and the original entry door to be exposed and restored for lighthouse access.

4. **Masonry Walls:**

**Evaluation:** Significant/good condition.

The interior brick is a reddish-brown color and measures approximately 3x4x9 inches. All visible coursing is done with headers inside and outside with a manufactured lime or natural cement used for mortar. A thin cement protective coating has been applied to the exterior brick from the grade to the underside of the watch room slate balcony. The exterior has recently been repainted.

Door and window openings have brick headers with areas of mildew at the interior walls below previously leaking window openings. Brick walls at the watch room have areas of mildew from roof and previous window leaks.

Brick masonry is in good condition with minor cracked or open joints at the stairs and walls that need repointing.

**Recommendations:** Pressure-wash and clean interior brick surfaces to remove soil and mildew. Repoint holes and voids at interior masonry walls with lime mortar.
5. **Slate Stair:**

   **Evaluation:** Significant/good condition.

   Each step in the slate stair is constructed with a single piece of slate set into the brick wall on the outside edge and into the center brick pier at the interior edge. Treads and platforms are approximately 4-1/4 inches thick and the average riser is 8 inches. Sixteen treads form a full circle with one-quarter-circle slate landings below each window. Exposed slate surfaces were finished by hand.

   There are no handrails at the stairs.

   **Recommendations:** The stairs are in good condition with only a few areas of cracks in the adjacent brick walls where slate is inset. Repoint areas of brick where necessary.

6. **Interior Floor at Base of Lighthouse:**

   **Evaluation:** Significant/unable to verify condition.

   The interior floor at the base of the lighthouse is brick. Because of a change in grade, water has collected on the interior floor. Debris has also collected on the floor and we could not verify the condition of the flooring.

   **Recommendations:** Water should be pumped periodically, as required, from the base of the lighthouse and all openings should be sealed. Debris should be removed from the floor.

7. **Exterior Openings – Doors and Windows:**

   **Evaluation:** Significant/good condition.

   The lighthouse has five, six-over-six, aluminum-clad wood windows spaced at 90 degrees around the lighthouse. Windows have a consistent relationship with the interior stair. Three of the five windows are modern, double-hung, clad-wood windows. The remaining two windows are modern, clad-wood, casement windows with a six-over-six light arrangement at the base of the lighthouse, and a twelve-light arrangement at the watch room level. The current windows have been installed recently.

   Interior window opening shafts have arch headers and brick sills. Arches have been filled in at the exterior with brick soldier coursing that appears to be supported by the window frame.
**Recommendations:** Windows are in good condition. Clean mold off bricks at sills and heads and repoint if necessary. In the future, when the lighthouse is open for public visitation, replace clad windows with historically appropriate wood double-hung windows.

8. **Watch Room:**

**Evaluation:** Significant/good condition.

A metal ladder through a small opening in the slate deck provides access to the watch room.

Five, 8-inch-diameter, bronze air vents with regulators are located around the perimeter of the watch room for ventilation. A cast-iron collar at the floor of the lantern room that was part of the base for the lens support pedestal remains in the center of the watch room floor. The support pedestal and original third-order Fresnel lens are missing.

Two original vertical 1/2-inch-diameter iron anchor rods have rusted off at the underside of the lantern room above. Brick walls are mildewed and need to be repointed in areas.

Access to the lighthouse gallery is through a window opening immediately above the opening in the slate floor.

**Recommendations:** Clean and repoint brick where necessary.

9. **Watch Room Gallery:**

**Evaluation:** Significant/deteriorated.

The watch room gallery has a slate deck that is supported by the corbeled brick walls below. Access to the gallery is provided through a wood casement window directly over the opening in the watch room slate floor. The gallery slate deck is heavily damaged with areas that are cracked or missing. Previous deck repairs were made with a composite cement material and are deteriorating and should be removed and replaced. The metal gallery handrail is loose and is rusting in areas.

Bronze weather covers at the wall ventilator openings are missing.

Exterior masonry walls have a white stucco finish with stucco and brick cracks below one of the anchors for the lantern room gallery cast-iron deck plates above. The white stucco finish appears to have recently been repainted but has minor rust stains from the cast-iron gallery deck plates above.
**Recommendations**: Repair and repaint the metal handrails. Repair deteriorated areas of the slate deck. Repair the brick and stucco finish at cracked areas under the cast-iron gallery deck above.

If the lighthouse is open to public visitation, new bronze covers for ventilator openings should be cast and installed to replicate the original covers.

10. **Lantern Room**:
   **Evaluation**: Significant/good condition.
   The lantern room has cast-iron floor plates, approximately 3 feet wide, with a raised square texture finish attached with anchors to the top of the watch room brick wall. The platform has surface rust and needs to be cleaned and repainted. Cast-iron windowsills and cast-iron vertical window mullions support ten full-height polycarbonate storm panes. All storm pane glazing is fogged.

   The cast-iron window mullions support ten cast-iron ribs and a tension ring below the copper roof. The cast-iron mullions and ribs exhibit areas of exfoliation. Intermediately spaced lateral diagonal braces connect to the tops and bottoms of the vertical cast-iron mullions to stabilize the lantern room.

   **Recommendations**: Replace fogged polycarbonate storm panes with tempered glass. Clean and repaint cast-iron mullions and ribs.

11. **Lantern Room Gallery**:
   **Evaluation**: Significant/good condition.
   The lantern room gallery floor is a continuation of the interior lantern room cast-iron floor plates supported by the top of the brick wall below. The cast-iron gallery deck, cast-iron handrail, and support stanchions appear to have been recently repainted. A radio beacon is located on the south side of the lantern room.

   **Recommendations**: The lantern room gallery is in good condition and does not require any repairs.

12. **Roof**:
   **Evaluation**: Significant/deteriorated.
   The copper roof canopy has minor pinhole leaks. The copper cornice and copper ventilator ball appear to be in good condition. Some standing seam roofing joints are probably opening up from exposure.

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**Recommendations**: Inspect copper roofing from a ladder or scaffolding. Chemically remove paint coatings. Patch and repair holes, leaks and roofing panel joints. Repaint all surfaces.

13. **Electrical System**:

**Evaluation**: Significant/non-historic/deteriorated

A loose electrical wire runs down the interior of the watch room wall. There were no lights at the interior of the lighthouse.

**Recommendations**: Remove loose wires on interior of lighthouse. When the lighthouse is open for public visitation, add interior lights and an electrical system for life safety.

14. **Lightning Protection System**:

**Evaluation**: Significant/non-historic.

A lightning rod is mounted to the lantern room gallery. The lightning ground wire runs down the interior of the lighthouse.

**Recommendations**: The lightning protection system appears to be in good condition.

15. **Probable Cost for Restoration**:

**Stabilization**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove Vegetation at Base of Lighthouse</td>
<td>$300</td>
</tr>
<tr>
<td>Clean Interior Masonry Surfaces</td>
<td>1,000</td>
</tr>
<tr>
<td>Clean up Floor Area at Base of Lighthouse</td>
<td>750</td>
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<tr>
<td>Watch Room Gallery and Railing Repairs</td>
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</tr>
<tr>
<td>Replace Lantern Room Glazing and Repair Mullions</td>
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<tr>
<td>Roofing</td>
<td>5,000</td>
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<tr>
<td>Scaffolding and General Conditions</td>
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<tr>
<td>Contingency and Miscellaneous</td>
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</tbody>
</table>

**Subtotal** $48,050

**Design Fees** $7,200

**Total Probable Cost For Stabilization** $55,250

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### Restoration

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Site Improvements and Retaining Wall</td>
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<tr>
<td>Repointing</td>
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<tr>
<td>New Entry Door and Frame</td>
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<tr>
<td>Window Restoration</td>
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<tr>
<td>New Stair Handrails</td>
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<tr>
<td>New Bronze Ventilator Covers</td>
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<td>New Electrical System</td>
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<tr>
<td><strong>Total Probable Cost for Restoration</strong></td>
<td><strong>$84,500</strong></td>
</tr>
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</table>

NOTE: The stabilization costs noted above will be required for restoration, in addition to the estimated restoration costs.

16. **Recommendations for Future Use**: The old St. Johns River Lighthouse attracts many visitors during open hours at Mayport Naval Station. Currently the interior of the lighthouse is not open for public visitation.

The lighthouse should be stabilized and kept watertight. If the lighthouse is opened for public visitation in the future, a retaining wall should be constructed around the perimeter of the lighthouse and the area within the retaining wall excavated to the original lighthouse grade elevation. A ramped entry could be provided into the area within the retaining walls to permit visitor access at the original entry door. Visitors could enter the base of the lighthouse and climb to the window levels. Visitor access to the watch room and gallery level is not practical because of the steep stair just below the watch room level.

Lights should be added to the interior for public safety with a secure handrail at all stairs.

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The adjacent building is under restoration to house an information center and gift shop. This will permit visitors the opportunity to walk around the base of the lighthouse and review the history of the lighthouse as well as the history of the lightship and the new St. Johns River Light Station. The nearby St. Johns River Light Station could be open to the public and be combined with an exterior tour of the Old St. Johns River Lighthouse. This would provide visitors the opportunity to tour a modern lighthouse plus a unique early Florida lighthouse.
EARLY PICTURE OF ST. JOHNS LIGHTHOUSE (FLORIDA PHOTOGRAPHIC COLLECTION)

SOUTH SIDE OF LIGHTHOUSE

THE ROOF OUTLINE OF THE OIL STORAGE BUILDING CAN STILL BE SEEN ON THE EAST ELEVATION OF THE LIGHTHOUSE
SIX OVER SIX MODERN WOOD CASEMENT

NEW MODERN SIX OVER SIX DOUBLE-HUNG WOOD WINDOW
CRACK IN BRICK WALL AT SLATE STAIR

STEEP SLATE STAIRS BELOW FIRST LANDING. BRICK COLUMN SUPPORTS SLATE DECK
THE PURPOSE FOR THESE STAIRS AT THE FIRST LANDING IS UNKNOWN. THE OPENING APPEARS TO HAVE BEEN FILLED IN AT A LATER DATE.

THE CAST IRON COLLAR REMAINS OF THE PEDESTAL SUPPORT FOR THE THIRD-ORDER FRESNEL LENS AND THE SMALL ACCESS OPENING IN THE WATCH ROOM SLATE DECK.
METAL LADDER AT WATCH ROOM TO LANTERN ROOM ABOVE

RUSTED CAST IRON DECK PLATES AT LANTERN ROOM

CRACK IN STUCCO FINISH AND BRICK CONSTRUCTION AT CAST IRON DECK ANCHOR
PATCHED AREAS OF THE SLATE DECK AT THE WATCH ROOM GALLERY

CAST IRON MULLIONS AND RIBS AT UNDERSIDE OF COPPER DOME
Name: St. Johns Light Station
Location: Duval County, Mayport Naval Base, Mayport
Type: Concrete
Height: 64 feet
Daymark: White square tower on one-story building
Year Built: 1954
Owner or Operator: United States Navy
National Register Status: Not Listed
Active: Yes
Visitor Access: Grounds only via Mayport Naval Station
Contact: Chief Petty Officer Andrew Engle (904) 241-8422
Facilities: 1950s keeper's dwelling

1. **History:**
   In 1929, the city of Jacksonville placed a lightship at the mouth of the St. Johns River off the coast in the Atlantic Ocean because of the inadequacy of the Old St. Johns Lighthouse. Several years later, the expense of keeping a lightship off Mayport, the danger and isolation for the men assigned there, and the improved technological advances for land based lighthouses made its replacement mandatory.¹ In 1954, the new St. Johns Light Station replaced the original Old St. Johns Lighthouse and the lightship. The St. Johns Light Station represents the last manned lighthouse built in Florida and the latest in operating technology.² The new, 64-foot, concrete tower represents a new type of lighthouse: Sleek, functional, practical.³

   The newly built light station included a white masonry tower; its own water system; an emergency electric generator; electric equipment including two radio transmitters; a 175-foot-steel radio beacon tower located two thirds of a mile north of the light station; a fog signal off the south jetties; and two modern duplexes to house the lighthouse staff of three to four people.⁴

   According to information on the history of the St. Johns Lighthouse on a plaque placed by there by the U.S. Department of Transportation – United States Coast Guard, the lighthouse was automated in 1964 with a 1,000-watt, 110-volt (light bulb) with a 24-inch reflecting mirror. This light is located 83 feet above

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sea level and can be seen as far as 22 nautical miles offshore. It is also equipped with a radio beacon that can be used by merchant vessels to aid in navigation.

In September 1998, the Coast Guard removed the bronze lantern room frame that will be incorporated into a Coast Guard Memorial at the Coast Guard Station on Penman Road in Atlantic Beach, Florida.

**General Description:**
The St. Johns Light Station is a new type of light station. It is a 64-foot-high, square, tapered tower. The lighthouse appeared to be reinforced concrete construction. Exterior concrete walls are approximately 11 inches thick with a painted stucco finish. Most of the exterior paint has weathered off the lighthouse revealing the natural stucco color.

The interior of the lighthouse is square with beveled corners with a concrete floor and base. The interior stair is constructed of concrete and is 2 feet 3 inches in width. The outer edge of the stair is attached to the exterior walls of the lighthouse up to the watch room level. The interior edge of the stair is open with a metal handrail. Interior walls are white painted plaster over metal lath.

The tower has a total of eight modern aluminum clad windows. Two windows are located on each of the four sides of the lighthouse and all relate to the interior stair. A window is located on each of the four walls of the watch room.

The watch room level is approximately 10 feet 6 inches x 10 feet 6 inches in plan, has plaster walls and ceilings, and a concrete floor. Several areas of the plaster are cracked and need repair. Electrical equipment is surface-mounted to the walls at this level. A metal ship's ladder and an aluminum roof hatch lead to the roof area above.

An active modern light is located on a large concrete base on the lighthouse roof and extends above the surrounding roof parapet walls. Roofing is a single-ply membrane and appears to be in good condition. Several pieces of equipment and miscellaneous out-of-service brackets are mounted to the concrete parapet walls. Some of the equipment is no longer in service.

Three lightning rods are attached to the top of the parapet walls with ground wires routed down the outside of the lighthouse. One of the lightning system ground wires has broken and is lying on the roof of the one-story building below. A ground wire wraps around the exterior of the lighthouse just below the roof level to

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connect the lightning rods to the ground leads. An antenna wire also is routed down the exterior of the lighthouse and appears to be in good condition.

The bronze metal frame enclosure that once protected the original light at the roof/cupola level was removed in September 1998.

The former one-story, concrete block, keeper’s house and garage are attached to the base of lighthouse to form an L-shaped building plan with the lighthouse tower located at the intersection of the two building wings. The keeper’s house is northwest of the lighthouse and the garage is to the southwest of the lighthouse.

The lighthouse appears to be in good condition and needs only minor repairs. The interior of the lighthouse is cluttered with equipment and should be repainted. The exterior should also be repainted. Interior light fixtures and the lightning protection system require repair.

A detailed condition assessment on an item-by-item basis is as follow:

2. **Site Improvements:**
   **Evaluation:** not significant/non-historic

St. Johns River Light Station is located on the Atlantic Ocean near the mouth of the St. Johns River. The site is located on Mayport Naval Station and is accessible during open hours on the base. The lighthouse site is well maintained with primary vegetation consisting of lawn areas and mature palm trees. There is a gravel parking area to the southeast of the light station.

A metal chain link fence capped with barbed wire encloses the light station. A gravel parking area is located south of the light station within the chain link fence surround. A paved sidewalk leads from the parking area to the entrance porch for the two office buildings and the lighthouse. A metal flagpole is located on the lawn in front of the building entrance. Two small utility buildings are located in the gravel area south of the lighthouse.

The former one-story concrete block keeper’s house and garage adjoin to the light station and are currently used as offices for the Coast Guard. The interiors of the office areas have been recently remodeled with modern acoustical tile ceilings, carpet, and repainted plaster walls. The one-story

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buildings are concrete block construction with stucco exterior finish, with painted brick piers at the entrance and built-up roofing.

The exterior of the former keeper's house and garage need repainting. Several pieces of wood roof fascia have been damaged. Most of the gutters have been removed. Downspouts are disconnected from gutters but are still attached to the building.

**Recommendations:** The site appears to be well maintained with minimal vegetation. The former keeper's house and garage have recently been remodeled on the interior. The exterior of the buildings should be repainted. Areas of damaged roof fascia should be repaired. Rain gutters and down spouts should be repaired.

3. **Structure:**
   
   **Evaluation:** Significant/deteriorated.
   
   Exterior concrete walls of the lighthouse have a painted stucco finish. The paint has weathered off the lighthouse to expose the natural stucco color. The stucco has several spalled areas of 6 to 8 inches in diameter but overall seems to be in good condition and is well bonded.

   Interior plaster walls of the lighthouse are painted white. The walls need to be cleaned and repainted. Areas of the wall have cracked near the locations where light fixtures have been removed. Exterior walls are 11 inches thick.

   **Recommendations:** Repair spalling areas of concrete and stucco finish and remove unused brackets from roof parapets. Patch and fill bracket anchor openings. Clean, repair and repaint interior plaster walls.

4. **Concrete Stairs and Metal Stair Railing:**
   
   **Evaluation:** Significant/good condition/needs repainting.

   The interior central stair is constructed of concrete. Treads and risers are painted a slate gray color and the underneath sides of the stairs are painted white. Treads at the base of the stairs at each landing have been painted bright yellow for life-safety. The stair is 2 feet 3 inches in width with the exterior edges of the stair attached to the interior face of the exterior walls. Triangular stair landings are located at corners of the tower with beveled exterior walls. A central open shaft extends up through the lighthouse with the stair surrounding the open area.

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A dark gray painted metal handrail with two horizontal rails is mounted at the interior, open side, of the stairs.

**Recommendations:** The stairs and the railing are in good condition. Repaint stair and railing.

5. **Interior Floor at Base of Lighthouse:**

**Evaluation:** Significant/good condition.

The floor of the light station is smooth painted concrete with a painted concrete base. A 2- to 3-inch diameter roof drain is routed down through the center opening of the stairs to the floor at the base of the lighthouse. The base of the lighthouse was being used for storage space for miscellaneous items, including a larger unused pipe that was tied to the stair railing and several metal lockers.

**Recommendations:** Remove stored items from the base of light station and repaint. Remove any unnecessary equipment.

6. **Exterior Openings – Doors and Windows:**

**Evaluation:** Significant/deteriorated.

There are two entry doors at the base of the lighthouse. One of the doors leads to the exterior porch while the other door open to the adjacent northwest building. Both doors are wood with wood frames. The exterior porch door has a glass vision panel.

St. Johns River Light Station has eight modern, aluminum framed, fixed-sash wire glass windows. This includes one window at each side of the lighthouse at different heights, each with a consistent relationship to the interior stairwell and four windows at the watch room level (one window at each wall). The windows have plaster heads, jambs, and sills and have areas of deterioration. Glass is broken at the top two windows.

**Recommendations:** The two wood entry doors and wood trim appears to be in good condition. Clean and repaint windows. Repair deteriorated plaster trim around windows.

7. **Watch Room:** Significant/deteriorated.

**Evaluation:** The watch room has painted concrete floor and base. The walls and ceiling are painted plaster with several areas of deterioration. There are areas of peeling paint on the walls and the ceilings.

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A steel wall-mounted ladder leads to the roof area through an aluminum roof hatch with a raised diamond pattern. An opening at the center of the ceiling was originally used to lower the original light for maintenance.

**Recommendations:**
Scrape and remove loose paint, repair deteriorated plaster finishes, and repaint walls and ceiling.
Remove unnecessary equipment from this area.

8. **Roof:** Significant/good condition.

**Evaluation:** The original bronze metal frame that enclosed the original light has been removed and is planned to be incorporated into a Coast Guard memorial at the Coast Guard Station on Penman Road in Atlantic Beach. The current roof area has a single-ply roof membrane with surrounding concrete parapet walls. A modern light is mounted to a raised concrete base at the center of the roof area with a secondary backup light mounted to the top of the parapet wall. A stainless steel cap covers the top of the raised central concrete cylinder and a stainless steel pedestal is attached to the top of the cap to support the light. Three lightning rods are attached to the top of the concrete parapet walls.

A vent and several miscellaneous pieces of equipment are on the roof. Brackets from earlier pieces of equipment that have been removed are still on the parapet walls. There was a half-inch of standing water on roof and the roof drain appears to need cleaning.

**Recommendations:** Clean the roof drain to allow for better drainage at roof. Remove unnecessary brackets and equipment and fill mounting holes.

9. **Electrical System:**

**Evaluation:** Significant/needs repair.

The interior of the lighthouse has wall-mounted light fixtures located at each stair landing. Two of the light fixtures have been removed to expose the electrical mounting boxes in the plaster wall. The light fixture at the base of the lighthouse is detached from the wall. One of the two light fixtures at the watch room level is missing.

An electrical panel under the stairs at the base of the lighthouse is open with exposed wires. The watch room level contains surface mounted electrical boxes.

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**Recommendations:** Close the electrical panel at the base of the lighthouse.

10. **Lightning Protection System:**

**Evaluation:** Significant/needs repair.

The lighthouse has three lightning rods attached to the concrete parapet walls. A lightning protection system cable is routed around the outside of the roof parapet and is connected to all lightning rods. Two ground cables are connected to the perimeter cable and were routed to the ground at opposite building corners. One ground cable is loose and is lying on the roof of the one-story building below.

**Recommendations:** Repair lightning protection system cables.

11. **Probable Cost For Lighthouse Repairs:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Restoration</td>
<td>$1,000</td>
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<tr>
<td>Stucco and Plaster Restoration</td>
<td>$3,000</td>
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<tr>
<td>Window Repair</td>
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<tr>
<td>Clean Roof Drain</td>
<td>$250</td>
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<tr>
<td>Remove out-of-service equipment</td>
<td>$1,000</td>
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<tr>
<td>Painting</td>
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<td>Electrical renovation and repair of lightning protection system</td>
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<tr>
<td>Scaffolding, rigging and construction general conditions</td>
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<td><strong>Subtotal</strong></td>
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</tr>
<tr>
<td><strong>Design Fees</strong></td>
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<tr>
<td><strong>Total Probable Repair Costs</strong></td>
<td>$54,850</td>
</tr>
</tbody>
</table>
12. **Recommendations for Future Use:** The St. Johns Light Station represents a new type of lighthouse, one that is more modern and functional in design. It illustrates the progression of lighthouse design and may attract visitors for this reason. Currently the United States Coast Guard operates the lighthouse and it is not open to the public. The exterior is accessible for viewing during open hours at Mayport Naval Air Station.

The light station could be open for limited public visitation and tours during open hours at the base. The lighthouse stair is in good condition and is safe for public use. Access to the lighthouse could be provided through the exterior door to permit the adjacent office space to remain closed to the public.

A history of the United States Coast Guard could be incorporated in the tour of the light station. The St. Johns Light Station illustrates the progression of lighthouses under the control of the Coast Guard and is a good example of a modern lighthouse.

VIEW OF LIGHTHOUSE AND FORMER KEEPER’S HOUSE AND GARAGE LOOKING NORTH

VIEW OF LIGHTHOUSE AND FORMER KEEPER’S HOUSE AND GARAGE LOOKING SOUTHEAST
ORIGINAL BRONZE FRAME FOR CUPOLA AREA REMOVED IN 1998

REMODELED INTERIOR HALL AT FORMER KEEPER'S HOUSE

LOOKING WEST AT Lighthouse AND FORMER KEEPER'S GARAGE
MISSING LIGHT AT STAIR LANDING
TREADS ARE WORN OF PAINT

DETERIORATED PLASTER AT
WATCH ROOM CEILING. OPENING
IN CEILING USED TO SERVICE
ORIGINAL LIGHT
MISCELLANEOUS ELECTRICAL EQUIPMENT AT WATCH ROOM INTERIOR

METAL LADDER TO CUPOLA AT WATCH ROOM INTERIOR
VIEW OF CONCRETE BASE AND CONCRETE PARAPET WALL AT CUPOLA

MODERN LIGHT ATTACHED TO STAINLESS STEEL PEDESTAL MOUNTED TO STAINLESS STEEL CAP AT CONCRETE BASE
FLORIDA LIGHTHOUSE STUDY

Name: St. Joseph Point Lighthouse
Location: Port St. Joe (Beacon Hill, 9.9 miles west of Port St. Joe on Highway 30)
Type: Frame-style house tower supported by brick piers
Height: 41 feet
Daymark: White tower with black lantern on square, white, red-roofed dwelling on piers
Year Built: 1902 (deactivated 1955)
Owner or Operator: Private residence. Declared surplus in 1960. Acquired by Danny Raffield and moved to Simmons Bayou and converted into a private residence.
National Register Status: Not eligible
Contact: Danny Raffield at danraff@qtcom.net
Facilities: None

1. History:
The first lighthouse at St. Joseph Point was constructed on St. Joseph Peninsula in 1838. A yellow fever outbreak killed most of the residents of St. Joseph and later a hurricane destroyed the remaining houses. Due to these unfortunate circumstances, the lighthouse was decommissioned in 1847 and replaced further south by Cape San Blas Lighthouse.

In 1898, Congress decided to place a new lighthouse on the mainland of St. Joseph Point in the area of Beacon Hill. Officially called the St. Joseph Light Range Station, the lighthouse combined both the lighthouse and the keeper's house together.

The keeper's house at Beacon Hill consisted of three bedrooms, a living room, and a kitchen/dining room. The watch room at the center of the building had a third order iron lantern above with a lens that showed a fixed white light. The building was originally raised off of the ground ten feet on brick pillars. Storerooms for supplies and a large cistern were located below of the keeper's house. During World War II this area was converted into living quarters for soldiers patrolling the coast for enemy troops.

The keeper would light the three-wick light apparatus at 9 p.m. and extinguished it at daybreak by climbing the narrow circular stairway at the center of the house. The keeper was also responsible for lighting the beach beacon near the shore, which, in conjunction with the light of the house and a sea buoy out in the bay would allow ships to safely navigate through the channel.

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The light served until 1955, when an automated light atop a seventy-five-foot metal tower replaced it. Five years later, the lighthouse was sold at auction for $300. The Coast Guard had removed the lantern, leaving only the lantern gallery. Due to the height of the of the house, the lantern gallery and watch room had been removed in preparation for the lighthouse's first move, six miles to the north. During this process, the lantern gallery was dropped, reducing it to scrap. Afterwards, there was no effort toward restoration.²

Initially, the lighthouse was used as a residence and a few years later, under its second owner, it was turned into a hay barn for cows.

In 1979, Danny Raffield of Port St. Joe purchased the lighthouse and moved it to Simmons Bayou where it was converted into a private residence. The Raffields are in the process of restoring the lighthouse.

2. General Description:
St. Joseph Bay Lighthouse is now a private residence and we were unable to gain access to the interior of the lighthouse. We were able to view and photograph the grounds and exterior of the lighthouse.

St. Joseph Point Lighthouse is now a two-story, wood frame, building with stucco finish on the first floor and horizontal wood siding on the second floor. The original house was supported on brick pillars and the first floor was filled in at a later date. New brick pillars, replicating the original design, support the second floor balcony. A first floor concrete porch wraps around the front and back of the house. The second floor has covered porches on the east and west sides constructed with wood with tongue-and-groove flooring and roof decking.

Windows at the lighthouse are eight-over-eight, double-hung, wood windows with black framed screens. A double stair to the second floor porch to the east side of the building is located near the two main entry doors. A third exterior stair to the second floor is located on the west side of the lighthouse. Stairs are constructed of light gray painted wood with white painted wood railings. A similar white painted wood railing surrounds the balcony of the second floor porch.

The watch room is constructed with horizontal wood siding with one wood casement window at each side of the central cupola. The wood watch room roof cornice is deteriorated. A non-historic pitched roof covers the lantern room opening.

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The lantern room and lantern room gallery are missing.

The owners have respected the historic construction with renovations to the lighthouse and the building appears to be in good condition. We recommend that a replica of the original lantern room and lantern room gallery be reinstalled on top of the lighthouse.

3. **Site Improvements:**

**Evaluation:** Non-historic

St. Joseph lighthouse was moved to its present location adjoining St. Joseph's Bay on Highway 30, south of Port St. Joe, Florida, in 1979. The lighthouse is located in a residential area on the Gulf of Mexico. Main vegetation around the site consists of lawn, annual plants and mature trees.

A garage-type apartment is located south of the lighthouse at the end of a concrete drive.

**Recommendations:** Property maintenance should be maintained.

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UNITED STATES COAST GUARD PHOTOGRAPH OF ST. JOSEPH POINT LIGHTHOUSE SHORTLY AFTER ITS CONSTRUCTION

VIEW LOOKING WEST AT ST. JOSEPH POINT LIGHTHOUSE
Name: St. Marks Lighthouse
Location: Taylor County on the north side of Apalachee Bay and on the east side of the entrance to St. Marks River in St. Marks US Wildlife Refuge. The property is 30 miles south of Tallahassee reached by US Highways 319, 98, and SR 59.
Type: Conical brick tower
Height: 80 feet
Daymark: White conical brick tower with black lantern
Year Built: 1831. Moved to higher ground 1841-42
Owner or Operator: United States Coast Guard (This lighthouse is scheduled to be exceded in the Summer of 2002)
National Register Status: Listed
Active: Yes
Visitor Access: Grounds only via St. Marks National Wildlife Refuge
Contact: St. Marks National Wildlife Refuge at telephone No. 850-925-6121
Facilities: Attached 1867, two-story masonry keeper's residence

1. History:
As St. Marks grew from small Spanish settlement into a bustling town in the nineteenth century, navigators realized the need for a lighthouse on the Apalachee Bay at the mouth of the St. Marks River. In 1828 Congress authorized the building of the lighthouse for $6,000. St. Marks Lighthouse, constructed in 1829, is the second oldest lighthouse in the state of Florida.

The first St. Marks lighthouse was constructed using limestone from the ruins of Fort San Marcos de Apalache. The lighthouse was not accepted at completion because the tower walls were hollow. A new tower with solid walls was constructed and accepted in 1831. In 1842, the tower was relocated farther inland because several storms had eroded the coast. A year later, a one-story keeper's house was constructed adjoining the lighthouse.

In 1865, Union troops landed at St. Marks Lighthouse and burned a portion of the keeper's house. Attempts were made by the Union army to destroy the lighthouse so that the Confederate soldiers would not be able to use the light as a signal. The tower survived with little damage. The fourth-order Fresnel lens was hidden in the woods during the war and as a result, the prisms acquired several scratches.
Both the tower and the keeper’s house were repaired following the war. The lighthouse was automated in 1957 and continues in service as an active aid to navigation.

Additional historical data regarding the St. Marks Lighthouse is available from the St. Marks National Refuge located in St. Marks, Florida.

2. **General Description:**
The lighthouse is constructed of brick masonry in a conical shape with brick corbelling at the top. The exterior brick surface of the lighthouse is painted white. The cast-iron lantern room is painted black. Corbelled brick and a stone coping at the top of the masonry tower support the lantern room gallery. The lighthouse sets on a base approximately 6 feet 8 inches above the surrounding grade. The lighthouse base is finished with painted stucco over limestone construction.

Access to the interior of the lighthouse is through a one-story keeper’s house attached to the north side of the lighthouse. Exterior surfaces of the keeper’s house have a rough textured, sprayed-on stucco finish. The sprayed-on stucco finish extends from the ground to the parapets at the north and south sides of the keeper’s house. The south elevation of the keeper’s house has a partial vertical wood sided gable above the storage room attached to the corner of the keeper’s house and the lighthouse. The wood frame keeper’s house roof structure extends over the porch to the west. The porch floor is approximately five feet above grade and has entry stairs at both ends. Chamfered wood porch columns, that may be original, support the wood porch roof structure. Porch flooring is tongue-and-groove wood decking that has recently been repaired. The exterior stucco walls of the keeper’s house taper inward towards the roof. The keeper’s house has two brick chimneys with an antenna attached to the south chimney closest to the lighthouse.

The lighthouse has five window openings with two windows on the west elevation and two windows on the east elevation. The fifth window is located at the watch room level on the north side of the lighthouse. Windows are six-over-six, double-hung wood windows.

The keeper’s house has seven wood windows on the east elevation, one wood window on the north elevation, and four wood windows on the west elevation. Windows are six-over-six, double-hung, wood windows. Some windows at the west elevation appear to be original. Other windows appear to be modern replacements.
Windows on both the lighthouse and the keeper's house have wood hurricane shutters installed at the exterior side of the windows. Several of the hurricane shutters and hardware appear to be original while others are modern replacements. Windows at the keeper's house are protected with steel metal grilles installed at the exterior of each opening.

Two of the three doors on the west elevation of the keeper's house have been closed with plywood. The southern entry door provides access to both the lighthouse and the keeper's house.

The interior of the lighthouse is painted brick and has a concrete floor over wood framing at the base of the lighthouse. The central lighthouse spiral stair is constructed of painted wood with the outside edges of treads and risers set in the brick wall and the inside edges supported by a central wood pole. The stair is 6 feet 6 inches wide at the base and narrows to approximately 3 feet 9 inches in width at the top at the watch room level above. The spiral stair is painted a gray color on top surfaces and an off-white color on underside surfaces. A new aluminum handrail has recently been installed for the full height of the spiral stair.

The interior walls of the watch room have white painted, vertical, tongue-and-groove wood paneling of varying widths. The floor is constructed of wood planks in a pattern radiating toward the center octagonal wood pole that supports the fourth-order Fresnel lens in the lantern room above. One double-hung, wood window is located on the north side of the room near a helical-shaped, cast-iron, ship's ladder stair that extends to the lantern room above.

The lantern room is located above the watch room at the top of the masonry tower. The lantern room has cast-iron floor plates. Exterior walls consist of ten, 42-inch-high, cast-iron, panels with glass storm panes above. Original tongue-and-groove wood planks on the interior of the panels have been replaced with plywood. Vertical cast-iron mullions are located between each cast-iron panel and support the glass storm panes and the cast-iron roof ribs and tension ring above. The tin reflector is missing. The lantern room has a peaked cast-iron panel roof with a cast-iron ventilator ball at the roof peak.

The lantern room gallery is constructed with cast-iron floor plates with a limestone coping surround and is accessed from the lantern room through a hinged cast-iron door panel mounted in one of the cast-iron wall panels. Cast-iron stanchions embedded in the limestone coping support the cast-iron railing around the exterior of the gallery. Several pieces of modern equipment are located on the lantern room gallery including a modern light beacon, a solar panel mounted to the south exterior rail, and a battery compartment.
The lighthouse is in good condition from the recent repairs made by the United States Coast Guard; however, some of the repairs are not compatible with the historic character of the lighthouse. There was standing water at the concrete floor at the base of the lighthouse during our visit that probably results from window or lantern room leaks. Physically, the building is in fair-to-good condition but is in need of future restoration to replace modern renovations.

3. **Site Improvements:**

   **Evaluation:**

   St. Marks Lighthouse is located in the St. Marks National Wildlife Refuge at the end of Lighthouse Road adjacent to the Gulf of Mexico. The lighthouse site is well maintained in a natural setting and is easily accessible. Some vegetation is in close proximity to the keeper’s house including fan palms to the east plus an oleander plant to the south. In 1973, the Florida Society of Colonial Dames placed a cast-metal historical plaque on a concrete pedestal near the southwest side of the lighthouse.

   The keeper’s house is not original and has been rebuilt on several occasions, the latest in 1843. Elements of earlier keepers' houses, such as brick footings and piers, probably remain in the current structure. The interior flooring of the keeper’s house has been covered with painted plywood in all except one room where original heart pine wood floors have been refinished. Heart pine wood flooring probably remains below the plywood covering. The majority of the interior walls have 3-1/4-inch-wide vertical, wood bead board wall finishes with a center bead and a wood base with quarter-round wood shoe moldings and 4-inch-high, wood, crown moldings. Ceilings are finished with painted wood bead boards to match the walls finishes.

   The west hall of the keeper's house has different wall finishes on each side of the wall with horizontal wood paneling on the east wall and vertical bead board on the west wall. Unfinished heart pine flooring remains in a closet in one room of the keeper's house. The bead board ceilings are heaved and split in several locations. Vent stack openings remain at each chimney from earlier heaters.

   Modern fluorescent light fixtures are mounted on the ceilings in each room of the keeper's house. Modern electrical conduit is surface-mounted on walls and ceilings.

   Interior spaces at the lighthouse and keeper’s house are not open to the public. To the west of the lighthouse is a large, paved parking lot for wildlife refuge visitors. Two pavilions are provided to the northwest of the visitor parking area. Modern concrete sidewalks with exposed aggregate finish have been added from the parking area and pavilions to the keeper’s house.

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Coastal erosion has developed to the south of the lighthouse along the Gulf of Mexico.

**Recommendations:** The United States Coast Guard has recently completed repairs to the lighthouse and keeper's house and both the lighthouse and the keeper's house appear to be in good condition.

The interior of the keeper's house should be restored to remove modern finishes and features. Interior paint is believed to be lead-based paint and should be removed. The plywood flooring should be removed and the original heart pine wood flooring should be repaired and refinished.

Wood bead board wall and ceiling finishes should be repaired and, where possible, surface-mounted electrical conduits should be removed and electrical wiring relocated in concealed locations.

Modern lighting should be removed and replaced with period lighting compatible with the building. Historic wood doors should be restored and historic paint colors should be documented for reuse at the restored building.

Vegetation should be cut back away from the structures and concrete approach walks should be removed and replaced with walks appropriate for the building period.

Property and grounds maintenance should be continued.

4. **Masonry Walls:**

**Evaluation:** Significant/good condition.

Exterior and interior masonry walls of the lighthouse are painted white and appear to have been recently repointed in areas with new mortar. The lighthouse sits on a painted, stucco-finished, base constructed of limestone approximately 6 feet 8 inches off grade. The stucco coating appears to be in good condition and well bonded. The exterior of the keeper's house has an applied rough textured, sprayed-on-stucco, finish. Excessive stucco material has been sprayed on the east wood rafter tails at the roof overhang. The spray-on stucco finish appears to be in good condition and has recently been repaired in several areas.

**Recommendations:** The masonry walls have been recently repaired and painted and appear to be in good condition. The excess stucco finish should be removed from roof overhangs. Historic paint colors should be documented for reuse with the next painting.
5. **Wood Stair:**  
**Evaluation:** Significant/good condition.  
The central lighthouse spiral stair is constructed of wood. Treads are set in the brick masonry walls at the outside edges and are nailed at the inside edges to a central wood pole. Stair treads taper in width from approximately 15 inches at the brick masonry walls to 2 inches at the wood pole and are constructed with approximately 2-inch-thick planks with a smooth sanded finish. Wood treads and risers have a rough-sawn finish with circular saw marks at the bottom and backsides. Risers are approximately 9 inches high by 1 1/4-inch thick. The stairs have recently been painted gray on top and white on the underside.

Several 1 inch-diameter holes have been bored in the wood treads at random intervals throughout the stair. The stair narrows from approximately 6 feet 6 inches wide at the base to 3 feet 9 inches wide at the watch room above. Rust stains have developed around the nails at the stair and, in some locations, rust stains have dripped onto the wood stairs and center pole.

A modern aluminum handrail with aluminum brackets has been installed recently on the masonry wall adjacent to the spiral stair.

**Recommendations:** The spiral stair is in good condition. Rust stains should be removed from the center pole and stairs and nail heads treated to retard future rusting. The aluminum handrail should be replaced with a handrail that is compatible with the historic building.

6. **Interior at Base of Lighthouse:**  
**Evaluation:** Significant/ good condition.  
The interior floor at the base of the lighthouse is painted rough-finished concrete over wood framing. Water approximately 1/4-inch in depth was present on the floor.

The lighthouse entry through the masonry wall area has tongue-and-groove wood flooring with a wood bead board soffit above. Two modern spotlights are located above the entry. A non-historic, 2-foot high, concrete base that may have been used for an emergency generator is located on the floor of the lighthouse. Electrical panels and equipment are surface-mounted at the interior of the lighthouse masonry walls.

**Recommendations:** Remove water at interior floor, investigate, and repair leaks. Remove and replace surface-mounted spotlights above the entry, electrical equipment, and exposed electrical conduit to minimize visual impact at the lighthouse interior. Remove the concrete base and repair the floor below.
7. **Exterior Openings – Doors and Windows:**

**Evaluation:** Significant/non-historic/replace.

Entry to the lighthouse is through an original or early, oversized, vertical tongue-and-groove wood plank, door located at the south end of the west side of the keeper’s house. A modern steel locking device has been installed on the exterior of the door to keep vandals from breaking into the house. The two additional entry doors at the west elevation are modern flush wood doors that have been closed on the interior. The center modern door has modern aluminum weatherstripping. The modern northwest door has an older screen door at the exterior of the door opening. At the interior of the keeper’s house, the storage room door located between the main entry door and the door to the lighthouse has an original paneled wood door. All other interior doors at the keeper’s house have been removed and are missing.

The lighthouse entrance, located within the south room of the keeper’s house, has a modern flush wood door installed in a hollow metal door frame with areas of rust. There is a 2 1/2-inch gap above the top of the door. Electrical conduit is routed through the gap above the door and connects to the lights above the lighthouse entry door.

The lighthouse has five, six-over-six, double-hung wood windows with wood frames located in a semi-random pattern. The windows appear to be a mix of different periods. Lighthouse window openings have painted stucco-finished jambs and heads at openings and tongue-and-groove wood stools. There is an 8 to 10 inch-wide missing area at one window stool exposing a void in the masonry wall below.

The seven east windows of the keeper’s house appear to be modern replacement wood windows. Most of the four west windows of the keeper’s house appear to be original and have been protected from the weather by the wood porch roof. Steel security grilles cover the windows at the exterior of the keeper’s house. There is excess paint on glass window panes around the window muntins. On the interior, the north modern replacement window has an original wood sill. Some of the original wood tongue-and-groove windowsills have been covered with plywood. Several window returns and sills have been plastered over.

Wood hurricane shutters are installed at the exterior of all windows. Replacement shutters are plywood construction with modern hardware. Early or original shutters are constructed with diagonal tongue-and-groove wood planks.

**Recommendations:** Doors should be replaced with historically appropriate doors and modern aluminum weatherstripping should be removed. Interior doors should be replaced with historically appropriate doors where needed.

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and

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Remove plywood finishes at sills and heads of interior windows and repair sills and heads. Replace modern windows and hardware with historically appropriate windows and hardware. Excess paint should be removed from glass. Replace plywood hurricane shutters to match earlier shutters.

8. **Watch Room:**

**Evaluation:** Significant/good condition.

The circular watch room walls are finished with vertical, tongue-and-groove, wood, paneling that ranges from 2 1/2 to 3 1/2 inches in width with a 3-inch-high wood base. Wood floor planks radiate from a central octagonal wood post. The wood planks taper in width from 11 inches at the exterior wall to 2 inches at the center post. A curved cast-iron ship’s ladder with 13 steps provides access to the lantern room above. The outside edges of the cast-iron stair are supported by 2 x 8 wood blocks attached to the interior wall of the watch room. Areas of rust are present on the cast-iron stairs. The undersides of the lantern room cast-iron floor plates are exposed to view at the ceiling of the watch room.

A modern replacement wood window with wood trim and plaster jambs and sill is located near the cast-iron stair. A modern light fixture is surface-mounted on the wall.

**Recommendations:** Replace the modern light fixture with a historically compatible light fixture installed higher on the wall. Leave wood siding to show different period repairs. Sandblast and re-paint the cast-iron ship’s ladder. Replace the wood window to match the original construction. Replace window and shutter hardware with a historically appropriate hardware.

9. **Lantern Room:**

**Evaluation:** Significant/good condition.

The lantern room has cast-iron floor plates with a cast-iron floor hatch to close off the ten-sided lantern room from below. Exterior walls have 42-inch high cast-iron wall panels with storm glass panels above the wall panels. The cast-iron exterior wall panels appear in good condition. Plywood panels have replaced original tongue-and-groove wood siding at interior side of the exterior cast-iron wall panels side. A total of five brass ventilator openings occur at every other panel. Cast-iron vertical window mullions support the cast-iron roof framing and tension ring members located at the base of the roof canopy.

Glass storm panels are located above the plywood panels between the vertical cast-iron mullions. There is excessive sealant around glass.
One-quarter of the fourth-order Fresnel lens is missing along with several prisms at the top. A modern 190 electrical beacon is located on the south side of the lantern room gallery.

**Recommendations:** Replace plywood wainscot panels with tongue-and-groove wood planks. Remove glass, clean mullions, and install impact-resistant glass panels. Remove and replace modern cadmium-plated bolts at storm glass retainer bars. Repair window retainer bars and remove excess caulking.

An optics expert specializing in historic lighthouse lens repair should examine the fourth-order Fresnel lens for restoration and repair recommendations.

10. **Lantern Room Gallery:**

**Evaluation:** Significant/good condition.

Access to the lantern room gallery is through an original cast-iron access door panel that is mounted in the 42-inch high cast-iron wall panels. The access door is secured with a rope attached to the base of the lens.

The gallery has cast-iron floor plates and a single railing with vertical cast-iron support stanchions. Two intermediate, modern, steel cable railings are attached to the cast-iron support stanchions with J-hooks to provide additional safety at the gallery. A stucco-finished limestone coping can be seen below the cast-iron gallery deck.

A modern ladder/antenna mast with steel cable straps, solar panel, storage battery, and electrical beacon are mounted at the lantern room gallery.

**Recommendations:** Remove modern ladder/antenna mast and steel cable straps.

11. **Roof:** Significant/good condition.

**Evaluation:** The lighthouse has painted, cast-iron panel roofs, with cast-iron cornice and a cast-iron ventilator ball. Roof panels are bolted together at underside.

Minor pinhole leaks and openings at roof panel joints may contribute to standing water problem at base of lighthouse.

The keeper's house has a new fiberglass shingle roof with a modern wood fascia and galvanized steel drip edges. Areas of the wood roof sheathing at the east roof overhang are damaged.
**Recommendations:** Inspect cast-iron roofing, abrasive-blast and repair to good condition, patch and repair leaks and panel joints, and repaint all surfaces.

Investigate historic building documentation and photographs; remove and replace the roofing of the keeper's house to match the historic roofing material (probably wood shingles). Replace modern galvanized roof flashings with copper flashing and repair the damaged roof sheathing. Remove stucco coatings from roof overhangs.

12. **Electrical System:**

   **Evaluation:** Significant/non-historic/out-dated.

   Modern electrical service is provided through a wall at the base of the lighthouse. Electrical panels and electric conduit are surface-mounted at the interior base of the lighthouse and the keeper's house.

   Electrical equipment is surface-mounted at lantern room with surface conduit to the light.

   A modern beacon, battery and solar panel has been installed at the lantern room gallery railing. The interior fourth-order Fresnel Lens is inactive.

   **Recommendations:** The exterior electrical service should be moved to minimize the visual impact at the historic building. Remove and replace interior lighting at the keeper's house, base of lighthouse, watch room, and lantern room with historically compatible fixtures. Install additional interior lights for public safety. Remove surface-mounted electrical conduit at the keeper's house and reinstall in concealed locations as possible.

13. **Lightning Protection System:**

   **Evaluation:** Significant/non-historic

   The lightning rod is mounted to the ventilator ball at the top of the lighthouse. The ground cable routed on the west exterior of the lighthouse and the ground conductor is loose and visually distracts from the lighthouse.

   **Recommendations:** Remove the existing lightning protection system components and install a new master label lightning system with one lightning rod mounted at the top of the ventilator ball.

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14. **Probable Cost For Restoration:**

**Keeper's House:**

- Site Improvements $5,000
- Window Restoration And Repair Of Lintels And Stools 5,000
- Hurricane Shutters 3,000
- Repair Wood Floors 10,000
- New Interior and Exterior Doors 6,000
- Reroofing 10,000
- Interior Finish Repairs 10,000
- Lead-Based Interior Paint Abatement 30,000
- Painting 20,000
- Electrical Renovations 8,000
- Heat and Air Conditioning 6,000
- Contingency and Miscellaneous 17,000

**Subtotal** $130,000

**Design Fees @ 15%** $19,500

**Total Probable Restoration Cost** $149,500

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**LIGHTHOUSE**

- Selective Demolition $2,500
- Window Restoration 3,000
- Hurricane Shutters 2,500
- Replace Stair Handrail and Repair Stairs 15,000
- Remove Concrete Bases and Repair Floor 1,000
- Replace Entry Door and Frame 3,500
- Replace Lantern Room Glass and Repair Mullions 18,000
- New Wood Paneling at Lantern Room 2,000
- Lantern Gallery Handrail 5,000

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15. **Recommendations for Future Use**: The St. Marks Lighthouse is an attractive lighthouse situated in one of Florida's most beautiful natural landscapes. The site provides visitors the rare opportunity to visualize what life was like for the lighthouse keepers and their families in the remote uninhabited setting.

The lighthouse is currently not open for public visitation. It would be dangerous to allow public visitation to the upper areas of the lighthouse tower without support staff constantly being stationed at key locations due to the narrow stairs, small watch room, and small lantern room above.

The keeper's house provides an excellent facility for public visitation and tours. The keeper's house could serve as a lighthouse museum with period furniture to illustrate early life at the lighthouse. Visitors could be allowed into the base of the lighthouse and up to the first window where the stair is wider with minimal danger for life-safety.

There is a great demand for public visitation and tours at St. Marks Lighthouse. Interpretation of the story of the Gresham family who took care of the lighthouse from 1892 to 1957 would create interest in the lifestyle of the keepers and their families. A video of the spectacular view from the lantern room should be available to visitors in the museum space.
POSTCARD OF ST. MARKS LIGHTHOUSE AND KEEPERS HOUSE

TYPICAL HURRICANE SHUTTER AT KEEPER'S HOUSE

POSTCARD SHOWING AERIAL VIEW OF LIGHTHOUSE
Name: Tortugas Harbor Lighthouse - Fort Jefferson / Garden Key
Location: Monroe County / Garden Key, Dry Tortugas – 68 miles west of Key West.
Type: Iron sides form a hexagon built over the stairway of the SE stair of brick fort. 37' above the terreplein (fort roof) or 82 feet from ground level.
Height: Focal plane 67 feet
Daymark: Dark brown, later black.
Year Built: 1876, replaced 1825 lighthouse located on the parade ground
Owner or Operator: National Park Service
National Register Status: National Monument
Active: No. Deactivated 1921
Visitor Access: Daily. Access by boat or seaplane from Key West.
Contact: National Park Service, POB 6208, Key West, Florida 33041
        Mike T Ryan@NPS.gov

1. History
Lieutenant Commander Matthew Perry was sent to Key West after Florida became a United States territory. He reported that ships were in great danger due to the dangerous reefs and currents in the area, as well as the numerous pirates that operated there. Because ships were exposed to such hazards, he suggested that lighthouses be constructed at Cape Florida, Key Largo, Sand Key and Southwest Key in the Dry Tortugas to reduce the navigational dangers of sailing the southeast Florida and Florida Keys coast. On May 7, 1822 Congress did approve the establishment of lighthouses at Cape Florida, Key West and the Dry Tortugas. The lighthouse was constructed on Garden Key in the Tortugas rather than on Southwest Key at a cost of $8,000, with an additional $2,790.85 added two years later. The Garden Key Lighthouse was built with some setbacks, completed in late March of 1826 and first lit on July 4, 1826.

The light at Garden Key, however, did not seem to deter the danger to ships in the area. There were many complaints about the light, and ships ran aground due to the inability of captains to accurately judge their distance from the light and the short range of the light. This lighthouse was equipped with a reflector system light rather than the newer Fresnel lens, which would have greatly improved the visibility of the light. However, Stephen Pleasonton, who held the position administering lighthouses, did not have

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maritime and technical knowledge to provide the lighthouses with practical equipment and relied on his friend, Winslow Lewis, who initially equipped all the U.S. lighthouses with his Argand lamp and parabolic reflector system, and therefore continued to use this inferior lighting system despite the numerous complaints of captains and maritime interests.

Two severe hurricanes struck the Dry Tortugas, one in 1842 and the other in 1847. Despite the damage to the lighthouse and the continued complaints about the inefficiency of the light, Pleasonton did not replace lost equipment, nor order improvements to the light. He finally sent Winslow Lewis to adjust the seventeen lamps and the twenty-one one-inch reflectors. This improved the light somewhat, though there were still complaints and dissatisfaction.

In 1852, after an investigation into the inadequacies of American lighthouses, Congress created a nine-member Light House Board under the U.S. Department of Commerce and Labor to oversee the administrative duties. This board intended to equip all existing lighthouses with fresnel lenses and provide new navigational aids where needed. In 1855 and 1856 the Board looked into the problems at Garden Key. There the U.S. Army Corps of Engineers was building the six-sided brick fortification known as Ft. Jefferson. The fort was built around the lighthouse and the lighthouse continued to function in the middle of the parade grounds.

It was decided to build a new lighthouse at Loggerhead Key, with the Garden Key Light remaining as a fourth order harbor light. The keeper at Garden Key, Benjamin H. Kerr was transferred to Loggerhead Key Light and William Solomon became the keeper of the Garden Key Lighthouse. A severe outbreak of yellow fever began in 1867 and a quarantine was imposed at Loggerhead Key. The quarantine was lifted in 1871 and repairs were made to the Loggerhead and Garden Key Lighthouses. At Garden Key Lighthouse, the lantern room, keeper's quarters and outbuildings were repaired.

In October 1873, a hurricane seriously damaged both Loggerhead and Garden Key Lighthouses. At Garden Key, temporary repairs were made by the keepers, but a decision was made to tear down the Garden Key Lighthouse and a new iron tower was to be built on one of the bastions of Fort Jefferson. The War Department was still responsible for the fort, but after 1874 the army was no longer stationed there. The construction of the new light tower began in February 1876 at Bastion C overlooking the harbor. The tower was built in a hexagonal shape and constructed of boilerplate iron, completed on April 5, 1876. The tower's official name became the Tortugas Harbor Light in 1883. At that time the old tower was demolished. Today, the foundation of the 1826 Dry Tortugas Lighthouse tower remains visible inside Fort Jefferson.¹

¹ Kenneth Smith Architects, Inc. and Bender & Associates, Architects, P.A. Associate Architects
During the late 1890's, the military returned to Fort Jefferson for a short time during the Spanish-American War. The Dry Tortugas were declared a wildlife refuge in 1908. In 1912 a fire burned many buildings on Garden Key, destroying the soldier's barracks and keeper's quarters and the fort's value as a military post ended. A year later an automated acetylene light was installed, while other lights in the area were still manned. The harbor light at Garden Key was discontinued in 1921. In 1935, the government declared Fort Jefferson a National monument. In 1992 Garden Key, Loggerhead Key and the islands in the area became part of the Dry Tortugas National Park.

2. Ibid. 96

2. **General Description:**

The lighthouse at Ft. Jefferson on Garden Key is an iron structure, hexagonal in plan, set on top of the perimeter walls of the brick Fort's southeast corner. The lighthouse serves to mark the harbor entrance and appears small atop the vast walls of the civil war era fort. Access to the tower can be gained from the parade grounds, inside the second level casemates and the roof of the Fort. The ground floor entrance is on the northwest side through 28" thick brick walls stepping up to a granite sill and slate floor. Twenty granite steps rising 7-1/2" each, spiral to the second floor casemates in a 12 foot diameter shaft. A half circle granite landing has openings at each end accessing the second floor casemates in two directions. The granite stairs continue to the top of the Fort, thirty risers with one landing at the 16th, where the iron lighthouse begins. The hexagonal tower is assembled using battens and rivets vertical for nine feet and then taper in for a ten foot vertical rise to the watch room floor. The watch room floor plates are iron and railings are steel, installed during renovations about four years ago. The detail work is a reasonable interpretation of a 1976 replacement of the original, of which several components remain on site and are presumed to replicate the original. The lens room floor plates show signs of deterioration, but are generally sound. Interiors, doors and windows have all been modified.

3. **Site Improvements:**

**Evaluation:** Significant, Well Maintained

Ft. Jefferson is a Civil War era Fort managed by the National Park Service and open to the public. The harbor entrance is from the west to docks on the southwest side of the Fort. The island is serviced by two ferryboats and seaplane service from Key West. Private boats may anchor in the harbor within one
nautical mile of the lighthouse. There is a park office and restrooms on site. Vegetation inside the Fort includes grass in the parade grounds and various trees.

**Recommendations:**
The site, including docks and public restroom facilities are well maintained. The current maintenance program appears to be working well and should be retained.

4. **Exterior Structure/Walls:**
   **Evaluation:** Significant, Sound
   The exterior structure is iron on top of the brick Fort. Panels are fastened with riveted battens and floor plates are bolted. The brick fort walls require extensive repairs and repointing with some areas closed to the public due to safety concerns.

   **Recommendations:**
   Various rehabilitation projects have repaired and/or replaced iron components. No major deterioration was noted and continued maintenance is recommended.

5. **Exterior Openings/Doors & Windows:**
   **Evaluation:** Non Original, Serviceable
   There are no original doors or windows in the lighthouse. A 22" square hatch from the lens room to the lens room gallery is located in the west wall of the tower. This hatch is sealed on the outside with caulk. Double wood doors access the watch room balcony and the tower from the Fort roof level. The doors were fabricated on site about three years ago. The watch room balcony door opening is 39" wide x 78" high, and the roof level door opening is 35" wide x 84" high. The original iron frames are in black, but the doors have been hung with standard hinges to wood bucks attached to the iron frame. The doors have decorative straps bolted to them at the hinge locations, but are not part of the hinge. Doors are serviceable. Windows at the Fort roof level and the lower watch room are pairs of wood out swinging casements with four vertical panes each. There are two 26" x 50" windows at the Fort roof level facing the parade grounds, and four at the lower watch room with one window facing the ocean and the other three facing the parade grounds. There are four 13" x 27" fixed 1/1 wood windows at the upper watch room. The lens room consists of ten 26" x 37" wired glass lites mounted to the iron framework with neoprene gaskets and bronze stops.

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Recommendations:
Repaint as needed and repaint the tower. Repointing mortar should match the original lime based mortars, based on an analysis of existing historic mortar.

5. Interior Brick Walls:
Evaluation: Significant, Deteriorated Finish & Mortar
The interior walls of the tower are brick, with evidence of previous parging coatings and paint. Mortar joints are deteriorated in various locations and require repointing, although the walls appear structurally sound. At the top of the tower there is a crack, 4 to 5 feet long, starting below the corbel of the exterior wall under the rotation room. The brick walls near the top of the tower have a plaster finish which deteriorates from the area of the fourth landing down to the tower bottom. Repointing is required in this portion of the tower, and is especially severe in the area of the second landing.

Recommendations:
Additional evaluation is recommended to determine the source of mortar and surface deterioration near the bottom half of the tower. This information should be evaluated prior to replacement of plaster coatings. Based on this evaluation, a determination will be made as to replacement of the plaster coating. Repoint mortar using a lime based mortar compatible with the characteristics of the historic mortar. Repaint using a breathable coating.

6. Stairs:
Evaluation: Significant, Sound With Repairs Needed
Granite treads rise the full height of the tower and are painted. The granite bears into brick exterior walls and interior column. There are 9 iron steps to the lens room from the rotation room. The top tread of this stair is wood and is supported by the exterior wall and beam supporting the floor above. There are six iron steps from the rotation room floor to the gear platform. The steps appear to be original.

There are thirty-one steps from the landing below rotation room down to 5th landing. The 2nd step from the bottom is damaged and clamped with plywood at the top and bottom as a repair.

There are thirty-one steps from 5th floor landing down to 4th floor landing. Step 16 down is damaged and repaired using wood and steel angles clamped top and bottom. The underside of the bottom ½ of stairs show substantial pitting and deterioration.

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**Recommendations:**
The granite steps are historic and in good condition. No work is required. The ships ladders, both iron and wood, are not original to the building, but are serviceable and can be retained. When replaced, research should be conducted to confirm historic configurations and replacements designed to replicate them.

8. **Watch Room and Gallery Railings:**

**Evaluation:** Non Original Railings, Significant Tower Components, Good Condition

The upper watch room enclosure is round in plan, painted iron. The shell is divided into eight equal sections, one of which is a doorway opening. Vertical seams on the exterior have metal battens with exposed rivets. The interior of the upper watch room is circular with a wood plank floor, vertical wood siding on walls and a wood ceiling. There are four small wood windows and a pair of wood doors out to the Gallery.

The Gallery is hexagonal in plan and has a painted cast iron floor with a painted steel rail. The floor is set in twelve sections (two sections per side) and is cantilevered with decorative iron brackets supporting from each corner below. Brackets and railings were replaced approximately four years ago and the brackets, while compatible, are obvious replacements. The underside of cantilevered floor shows signs of deterioration, but appears to be solid.

The lower watch room is hexagonal with walls tapering inward slightly from floor to ceiling, and has four wood windows boxed into vertical iron framework that project into the room. The bottoms of windows facing southeast have rotted, and several others show sings of loose joints and wood separation. The floor is painted wood. The walls are clad with vertical tongue and groove wood with wood trim and a wood base. The ceiling is tongue and groove wood. This room is accessed through a hatch in the floor with cable/weight/pulley assistance. The hatch door is 26" x 49" wood. The walls are painted iron with two panels each side. Vertical seams and corners are covered with battens and rivets are exposed.

**Recommendations:**
The lower and upper watch rooms are in good condition with various rehabilitation efforts altering details somewhat, most noticeably at brackets, railing details, doors and windows. When replacements are needed, research should be conducted to more accurately reflect original details.
9. **Lantern Room:**

**Evaluation:** Significant, Altered, Sound

The lantern room consists of a cast iron floor, cast iron roof and enclosing cast iron framework with 10 rectangular wired glass lights. No lens or base for a lens exists, although a light is in place. Four circular (5" diameter) wall vents are located in the base wall below the glass. The inside trim of the vents appear to be Masonite. The roof consists of ten panels (which align with the glass) that are bolted together and to vertical muntins. A circular vent is located at the apex. Vertical mullions are finlike in profile and bolted to the base and roof. Glass is held in place with bronze exterior metal stops (top and bottom). Lights have been caulked on the inside around the bottom of each pane. A tinted neoprene gasket is used between the glass and metal on all ledges. Vertical wood siding that is painted exists below the lights. There is a metal access panel 22" wide x 23" high in the wall facing west with a pivoting rod that locks it in place, and the panel is caulked shut. The floor has some surface rust. The lens room is accessed through a hinged cast iron access panel in the floor measuring approximately 14" x 15". A triangular metal base with three vertical metal rods and a plywood top support three contemporary junction boxes with three EL/O 18 watt compact florescent bulbs (equivalent to three 75 watt incandescent). The stand is wired through a junction box mounted on the floor with a duplex receptacle. The cast iron floor is in four sections with a slightly raised circular (20" diameter) section at the center. A thin wood base strip trims out the wood siding. The light is not a navigational aid and a generator powers the lights.

**Recommendations:**

The lens room is not accessible to the public and probably shouldn't be, due to its difficult access. Rust removal and painting is recommended.

10. **Rooftop Landing:**

**Evaluation:** Significant, Sound, Altered

The rooftop landing room is hexagonal in plan and has two pairs of wood windows and walls of painted iron with two panels making up each side. The guardrail to the granite steps is painted wood and the floor is granite. Vertical wall seams are covered with battens and rivets are exposed. The ironwork for the lighthouse tower bolts down to the granite base around exterior perimeter.

**Recommendation:**

When needed, the railing should be replaced with a more compatible element.

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11. **Roof Structure and Roof Covering:**

**Evaluation:** Significant, Sound

Roof is a painted iron structure divided into ten panels. The roof framework is bolted to iron muntins of lens room below. The ventilator ball and roof appear to be in good condition, but the spire is missing.

**Recommendations:**
Install a new spire replicating the original. Clean, prep, and paint the roof.

12. **Electrical Systems:**

**Evaluation:** Non-Significant, Required

The Fort’s generator powers the lighthouse. Contemporary wall mounted light fixtures, outlets, a light switch, and exposed conduit have been installed throughout.

**Recommendations:**
No work is required at this time, but all systems should be checked periodically by a qualified electrician.

13. **Probable Cost for Restoration:**

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<th>Item</th>
<th>Cost</th>
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<td>Site improvements</td>
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</tbody>
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Of the items noted above, none are critical. Replacement doors and windows would be a preferred item, but only if they are accurate replicas of historic elements. This report was commissioned for the lighthouses and costs for masonry restoration are arbitrary and intended to address the immediate area around the lighthouse. If the project scope included the entire fort, a masonry restoration budget of $10 million dollars would not be enough.

14. **Recommendations for Future Use:**

The lighthouse is currently part of the historic fort and run by the National Park Service. As a result the light is very accessible to the public and fairly well maintained. This use is very appropriate and should be continued.
FLORIDA
Lighthouse
Study

EXISTING CONDITIONS
PHOTOGRAPHY

Project No. 0119
Ft. Jefferson
Lighthouse
Photos
Date: 4/15/02

EXTERIOR VIEW OF Lighthouse FROM OUTSIDE OF FORT WALLS

EXTERIOR VIEW OF Lighthouse FROM INSIDE FORT WALLS
GENERAL EXTERIOR VIEW OF LIGHTHOUSE FROM TOP OF FORT WALL

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project #: 0119
Ft. Jefferson
Lighthouse
Photos
Date: 4/15/02

VIEW OF TOP OF LIGHTHOUSE FROM TOP OF FORT WALL
WATCH ROOM GALLERY GUARDRAIL

FLORIDA
LIGHTHOUSE
STUDY

EXISTING CONDITIONS
PHOTOGRAPHY

Project #: 0118
FL. Jefferson
Lighthouse
Photos
Date: 4/15/02

DETAIL OF WATCH ROOM GALLERY GUARDRAIL
UNDERSIDE OF WATCH ROOM GALLERY SHOWING SUPPORT BRACKET

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

DETAIL OF BRACKET SUPPORTING WATCH ROOM GALLERY

Project No.: 0119
Ft. Jefferson Lighthouse Photos
Date: 4/15/02
ROOFTOP LANDING INTERIOR SHOWING STAIR TO LOWER WATCH ROOM

LOWER WATCH ROOM INTERIOR VIEW. STAIR TO WATCH ROOM
TOP OF GRANITE STAIR AT BASE OF LIGHTHOUSE

WALL DETAIL AT TOP OF GRANITE STAIR

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

Project No. 0119
Ft. Jefferson Lighthouse Photos
Date: 4/15/02
FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

LENSE ROOM GENERAL VIEW. NOTE WIRE GLASS

CEILING OF LENS ROOM SHOWING HOLE AT VENTILATOR

Project No: 0119

Ft. Jefferson
Lighthouse
Photos

Date: 4/15/02
LENS ROOM GENERAL EXTERIOR VIEW. NOTE HAND HOLD FOR GLASS CLEANING

FLORIDA LIGHTHOUSE STUDY

EXISTING CONDITIONS PHOTOGRAPHY

DETAIL AT LENS ROOM EXTERIOR CORNICE
VIEW OF WATCH ROOM INTERIOR. LADDER LEADS TO LENS ROOM
The following Florida lighthouses have been destroyed and no longer exist:

**Name:** Charlotte Harbor  
**Location:** Near Punta Gorda  
**Type:** House-style on iron pilings  
**Status:** Discontinued 1930. Lighthouse no longer exists.

**Name:** Dames Point  
**Location:** Near Dames Point on St. Johns River  
**Type:** Wood house on wood pilings with cast-iron sleeves  
**Status:** Destroyed 1913

**Name:** Dog Island  
**Location:** Carrabelle, Florida  
**Type:** Brick conical tower  
**Status:** Destroyed by hurricane 1873. Replaced by Crooked River lighthouse

**Name:** Fort Barrancas (or Barrancas Range Light)  
**Location:** Pensacola Naval Air Station  
**Type:** Wood skeletal tower constructed of brick piles and wood  
**Status:** De-activated 1930. Lighthouse no longer exists. A Navy Lodge is now located on the site.

**Name:** Fort McRee Rear Range  
**Location:** Perdido Key  
**Type:** Wood frame house  
**Status:** Deactivated 1930. Believed to no longer exist.

**Name:** Mosquito Inlet  
**Location:** US Coast Guard Station, Smyrna Dunes County Park  
**Type:** Brick conical tower  
**Status:** Fell in 1836

**Name:** North Rear Range  
**Location:** Ft. Clinch State Park, Amelia Island  
**Type:** Wood frame house with iron lantern  
**Status:** Deactivated 1899. Believed to no longer exist.
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Name: Northwest Passage
Location: 7 miles northwest of Key West
Type: Wood house-style on iron screw-piles
Status: Destroyed by fire 1971

Name: Pulaski Shoals
Location: 55 nautical miles WNW of Key West
Type: Hexagonal light tower with cast-iron cylinder lantern room
Status: Destroyed

Name: Smith Shoal Light
Location: 11 nautical miles NE of Key West
Type: Hexagonal tower with cast-iron cylinder lantern room
Status: Destroyed

Name: St. Joseph’s Bay
Location: St. Joseph Peninsula State Park
Type: Conical brick tower
Status: Destroyed

Name: Volusia Bar
Location: Zinner Point in Lake George
Type: Wood frame house on iron pilings
Status: Burned 1972

The following lighthouse was converted to a water tower.

Name: Coral Gables
Location: Coral Gables
Type: Four-story stucco with rectangular truncated pyramid base, with tapered octagonal tower with dome cap
Status: Converted to a water tower during the period 1925-1931

The following lighthouse has been demolished and replaced by a modern beacon.

Name: Rebecca Shoals
Location: 43 miles west of Key West
Type: House-style lighthouse on iron screw-pile foundation
Status: Historic lighthouse was removed in 1952 and replaced in 1985 with a modern beacon.

Kenneth Smith Architects, Inc.
and
Bender & Associates, Architects, P.A.
Associate Architects
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Only portions of the foundation remain for the following lighthouse.

Name: Old Dry Tortugas
Location: Within Fort Jefferson on Garden Key
Type: Conical brick tower
Daymark: White tower with black lantern
Year Built: 1826, deactivated and torn down around 1876 after new lighthouse was constructed on the wall at Fort Jefferson.
Facilities: Portions of the foundation remain visible inside Fort Jefferson.