



(212) RESTORE
1 Union Square West
New York, New York 10003

Preservation with Passion®

5-Year Condition Reassessment

Stepping Stones Lighthouse
Long Island Sound nr King's Point NY
Town of North Hempstead, Nassau County
WSA Ref No. 1701.02

INTRODUCTION

On October 6, 2022, WSA Principal Walter Sedovic conducted a site investigation of Stepping Stones Lighthouse located in Long Island Sound approximately 0.9 miles (1.46 kilometers) NW of the marina at Stepping Stones Park, King's Point, Long Island. This investigation is a 5-year condition reassessment following up on the formal Report of Investigation (Ref 1701.01) provided by WSA on October 2, 2017; it has been provided in response to a request by the Great Neck Historical Society, which also funded the original survey. Images of the 2022 survey accompany this report as Appendix A.

EXECUTIVE SUMMARY

Lighthouses are inherently resilient, and Stepping Stones embodies a tendency toward self-preservation. That said, it is clear that it continues to suffer the effects of 1) neglect, 2) weathering, 3) bird nesting, and 4) modifications that have affected the original design of the structure. While it appears forlorn, much of the damage it has sustained is still largely limited to the exterior envelope, and able to be repaired. The most egregious issues – a significant crack through the drum, dislodged stone & brick masonry units, vegetation growing in the gutters and open masonry joints – were evident during our 2017 survey; their condition has gotten measurably worse as recommendations for their stabilization continue unheeded.

Two new and seemingly related issues were apparent: The Lighthouse is unsecured and interior sheet metal cove lining of the Lantern Room dome seems to have been ripped away from the substrate, which has led to water beginning to migrate into the Lantern and Service Room ceiling below. Also, sustained water ingress through dislodged masonry beneath the Lantern Gallery west exposure has caused nails to rust and fail inside the Tower stair, leading to falling plaster. The plaster is of relatively superficial concern; it is the lack of attention given to correcting the very serious masonry destabilization of the Tower's upper wall – a structural assembly that engages and supports the Lantern above – that is of paramount concern. Five years ago, this repair was highlighted and would have been readily attainable; now it will be more complex logistically, and more expensive.

Insofar as the Town of North Hempstead is the designated steward of this Lighthouse, which continues to be a working USCG Aid to Navigation, it is unclear why the Town would risk the liability associated with allowing this heritage resource to remain unsecured, in unstable condition, and readily vulnerable to vandalism. Not to mention, the Lighthouse's present condition impedes access by the US Coast Guard to perform its obligations related to properly maintaining the Light. Finally, as a raw market condition, it has become increasingly clear over the past 20 years that the *value* of an historic lighthouse is directly linked to its *condition*, more than any other consideration.

Restoration is not required to address the ills facing this vital historic resource; stabilization is, though, which is far more achievable in the near term, and able to be accomplished in a phased program tailored to available resources. Elements showing advanced or accelerated rates of degradation – dislodged masonry, open joints, accumulated organic debris, stormwater management – should be the focus of primary efforts to protect the resource and the public. Once it's stable, safe & dry... the rest will follow.

FINDINGS & RECOMMENDATIONS

In preparation for this 5-year assessment we referenced our 2017 report; its summary statement congealed the most pressing issues at that time. We have included here with updated commentary:

“First, it should be noted that Stepping Stones Lighthouse is fundamentally a solid and durable structure; the fact that it survives at present in as good a condition as it does is a testament to that. There are, however, several issues that threaten the stability of the lighthouse, most dire among those are:

Dislodged foundation stone, centered directly beneath the tower, northwest foundation, creating a 4-square-foot opening and passage of water, significantly at high tide, when it floods the lower vault within the drum;

Present Condition & Priority Rating: This stone remains dislodged and open to water ingress at high tide, as well as during storm surges. Surrounding stone is beginning to lose more interstitial pointing mortar, and more stones are beginning to rotate. **HIGHEST PRIORITY**

“Severe crack through foundation and concrete deck, oriented due north, permeating from beneath low tide water mark up through the north corner of the superstructure;

Present Condition & Priority Rating: This crack has continued to widen and propagate along its full length, reaching an open width of ± 1 ” in vulnerable locations. This is a significant pathway for water, ice, organic debris and microbiological growth. **HIGHEST PRIORITY**

“Rotating watertable stones at the base of the superstructure, on both the northwest and northeast elevations (in direct proximity to the crack above); these have rotated due to ice jacking, where water penetrates then freezes;

Present Condition & Priority Rating: These stones continue to rotate, and are bringing adjoining stones with them... not only dislodging masonry but opening mortar joints as well, compounding the negative effects. **HIGHEST PRIORITY**

“Dislodged brick masonry directly beneath the lantern watch gallery on the northwest orientation of the tower (this condition is in possible danger of partially collapsing under the duress of a strong storm or wind event);

Present Condition & Priority Rating: This condition has worsened, now including the granite ashlar stones that were still in place in 2017; the entire band has fallen to the deck below. Resulting open backup masonry lacks the inherent structural capacity to indefinitely support the cast iron lantern above it, and it is allowing significant water to penetrate the Tower stair. **HIGHEST PRIORITY**

“Boarded and blocked windows (and windows altogether removed at the mansard level) have eliminated natural light, while hood vents intended to allow natural ventilation are not adequate in number or location and have been physically damaged and left to rust;

Present Condition & Priority Rating: This condition is generally unchanged. Vents remain open to outside air, and their configuration has precluded the accumulation of debris. **LOW PRIORITY**

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“Gutters installed at the eaves of the mansard roofs are improperly sized and installed, and serve now as effective bird nesting habitat, which further allows them to become clogged with debris and, in the winter, snow and ice, leading to further deterioration;

Present Condition & Priority Rating: These were in bad condition in 2017, and remain so today. Nesting has increased around the Lighthouse, notably by osprey, cormorants & gulls. There is more vegetation growing within gutters and, now, adjacent masonry joints. **HIGH PRIORITY**

“Radiant heating has been eliminated from the entire lighthouse, which is the principal culprit of the damage noted in points 1-3 above; that is, the effect of freezing within the brick and stone masonry has led to major unchecked structural damage that – at this time – is progressing and even accelerating.”

Present Condition & Priority Rating: This condition, and its effects, remain unchanged. **HIGHEST PRIORITY**

In addition to the above, other observations were made that are both positive and negative, as follows:

POSITIVE

- Lightning protection has continuity and seems stable.
- Lantern glass is intact.
- The Lantern hatch (inner & outer leafs) are operational, and the Gallery is relatively stable.
- The Lighthouse roofs remain intact and watertight (though not gutters & leaders).
- Interior living quarters remain dry and refreshed with passive ambient air exchanges.
- Timber structural framing is intact, dry and stable.
- Perimeter masonry walls remain dry and stable.
- Despite limited accessibility, the interior does not seem to be inhabited by birds or mammals.

NEGATIVE

- The main (south) entrance to the Lighthouse is unsecured and difficult to properly close; there is evidence of unauthorized entry and vandalism within the Lantern.
- The inner roof liner of the Lantern dome has been ripped away from its substrate along its base, rendering it deformed and allowing water to collect and drip onto the Tower stairs below.
- The north leaf of the Tower entrance protective outer door has blown off and is lying on the deck; as a result, water is beginning to infiltrate the inner door and Tower interior at its base.
- Additional water migrating through dislodged brick & stone beneath the Lantern's west facade has caused nails securing plaster lath to rust; as a result, plaster has fallen within Tower stair.
- Wooden fascia and trim elements are falling from the exterior, likely resulting from a combination of rusted fasteners, wind and deterioration; they are unsightly and give the appearance that the Lighthouse is in worse condition than, in reality, it is.

Indirectly related to the Lighthouse stewardship is the partial installation of steel pilings intended to serve as the basis for both a docking facility and gangway. We were able to maneuver successfully through them as we prepared to disembark onto the existing ladder, and they eased our travel. This is crucial, as the completion of a permanent landing facility would greatly benefit both the economics and logistical concerns related to remediation campaigns that, first, stabilize the Lighthouse, then ultimately restore it for a variety of beneficial community-based programmed uses.

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PRELIMINARY BUDGET ESTIMATES

A Word About Budgets

Budgets are not contractor bids; that is, while they reflect anticipated cost of construction, they also include allowances for contingencies that are not yet fully known or defined. **WSA|ModernRuins** develops budgets in a very specific manner: estimated costs are calculated based on unit costs of similar work conducted in the New York metropolitan area; these unit costs are maintained in the firm's database and are continually updated. Projected costs represent the mean, or average, cost for defined work, not the lowest cost; that is, our projections are where we expect the center of a bell curve of bid responses to fall. It is reasonable to expect that actual bids received from qualified contractors may be lower or higher than calculated budgets, depending on market conditions, a more refined scope or other factors in play at the time of bidding. All budgets indicated as "preliminary" include a contingency in the range of 7-10% to cover unknowns at this time or discretionary additions to a construction project while it is underway. We have found that oftentimes it is the case that when a well-performing contractor is on site, owners prefer to complete additional similar work based on convenience or cost-effectiveness. Therefore, our budgets seek to eliminate a shortfall of funds, while establishing a relative value for each work element identified. Budgets reflect a quality of work consistent with the construction of the original building. Unless otherwise indicated they do not include A/E professional services or regulatory fees. Budgets are shown in current (2022) dollars.

1st Priority: Stabilization (Immediate)

Seq No.	Summary Scope	Est Budget
1.001	Site: Complete Docking/Landing Platforms w/Controlled Access & Storage	\$ 225,000
1.002	Site: Temporary Facilities & Controls, Scaffold, Rigging, Sanitary, Logistics	75,000
1.101	Masonry: Replace Missing & Reset Dislodged/Rotated Foundation Stones	103,000
1.102	Masonry: Reconstruct Tower Cornice Band Brick & Stone	91,000
1.103	Masonry: Repoint & Stabilize All Exterior Brick & Stone Walls	79,000
1.201	Concrete: Stitch Open Crack Through Foundation Walls, Deck & Flooring	49,000
1.301	Stormwater: Refine Gutters, Leaders & Drainage Routing System	73,000
1.401	Carpentry: Repair All Doors, Windows, Trim, Seals to Render Secure	58,000
1.501	Systems: Establish Radiant Heating Loop, Solar Electric, Data/Com	166,000
1.601	Misc: Site & Interior Cleaning, Minor Repairs, Fencing, Safety, Refinements	<u>50,000</u>
	Subtotal Docking/Access Facility	\$ 300,000
	Subtotal Lighthouse Stabilization	\$ <u>669,000</u>
	TOTAL	\$ 969,000

— END OF SUMMARY REPORT OF INVESTIGATION —

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Photo 1. View of the approach to Stepping Stones Lighthouse, looking NE. Steel piles represent the initiation of a project to create a landing facility and gangway, which would simplify access for stabilization, restoration, ongoing operations & maintenance, as well as programmed visitation. Completion of the landing facility is an important and integral step in the ongoing stewardship of this historic Lighthouse.

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Photo 2. View of Stepping Stones Lighthouse, looking north. Surface conditions have worsened since WSA's 2017 report, but the underlying structure remains sound and imminently restorable. For now, stabilization of the site is paramount.

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Photo 3. View of Stepping Stones Lighthouse, looking east. Surface conditions have worsened since WSA's 2017 report, but the underlying structure remains sound and imminently restorable. For now, stabilization of the site is paramount.

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Photo 4. View of south (landing) facade and unsecured entrance door, looking W. Nesting, vegetation and generally unkempt conditions send a signal that the site has been abandoned, which invites unauthorized access. Evidence of this already exists, and may affect the USCG's ability to properly maintain the light, which is an active aid to navigation.



Photo 5. Propagation of a crack through the concrete and masonry foundation was noted in WSA's 2017 condition survey. The crack continues to open because of the effects of ice forming, but it is not affecting adjacent elements significantly more than already noted in 2017.

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Photo 6. Collapsed plaster & lath of the Tower stair, looking up. This is the direct result of water entering the structure and rusting the lath nails, and is a surface condition, not a structural failure. The Tower's dislodged masonry must be addressed (Photo 8) to stabilize this condition.

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Photo 7. Collapsed plaster & lath of the Tower stair, looking down. This is the direct result of water entering the structure and rusting the lath nails, and is a surface condition, not a structural failure. The Tower's dislodged masonry must be addressed (Photo 8) to stabilize this condition.

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Photo 8. Dislodged brick at the upper reaches of the Tower's west facade was noted as a high priority concern in WSA's 2017 condition report, yet was never addressed. It has gotten worse, including fallen granite blocks in addition to the brick masonry. Resulting breach is unstable long-term, and allowing water to enter the Tower interior stairs, causing further damage. If attended to, this is a very straightforward masonry repair; if ignored, it's negative effects will accelerate.

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Photo 9. While degradation of the overpaint presents an image of vast deterioration, the underlying structure and surface conditions are sound. It looks far worse than it is. The ventilator ball and lightning protection system are intact and functioning; both are important contributors to the Lighthouse's well-being.

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Photo 10. View of Lantern looking SE, toward King's Point. Generally, the space and its features are in relatively stable weathertight condition, with the exception of the dome liner, which shows damage likely related to unauthorized access via the unsecured south entrance door.



Photo 11. Breaches in Lantern dome liner. The nature of the damage seems to indicate vandalism rather than the result of natural effects, such as rust jacking or ice forming behind the sheets. Inner surfaces are very wet.



Photo 12. Accumulated water within Lantern dome liner is continuously dripping on Lantern stairs & flooring, affecting Service Level ceiling below.