

Exterior Conditions Assessment
Harvard Town Hall
Harvard, Massachusetts

Prepared for
The Town of Harvard
May 2011



menders, torrey & spencer, inc.
architecture ■ preservation

TABLE OF CONTENTS:

ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

METHODOLOGY

PART 1: EXISTING CONDITIONS ASSESSMENT

- A) Historic Background and Setting
 - Character Defining Features
- B) Exterior Description
- C) Exterior Conditions Survey
 - Preservation Guidelines
 - Treatment Recommendations
- D) Repair Scenarios - Preliminary Opinion of Cost

PART 2: CONSTRUCTION DOCUMENTS - NOT INCLUDED IN THIS DRAFT

- E) Drawings
- F) Specifications
- G) Project Completion Report

Acknowledgements

Prepared for: **Town of Harvard**
 Harvard Historical Commission
 13 Ayer Road
 Harvard, MA 01451

Prepared by: **Menders, Torrey & Spencer, Inc.**
 Architecture • Preservation
 123 North Washington Street
 Boston, MA 02114
 617.227.1477
 www.mendersarchitects.com

Lynne Spencer	Principal, Historic Preservation
Patrick Guthrie	Registered Architect
Thomas Burgess	Architectural Designer
Lynn Smiledge	Preservation Planner

EXECUTIVE SUMMARY

As part of a comprehensive approach to rehabilitate the civic institutions of Harvard, Menders, Torrey & Spencer Inc. (MTS) was contracted to study and implement recommendations for immediate exterior repairs to the Harvard Town Hall. This project, intended to address deferred maintenance on the building envelope, has been undertaken as a preamble to the more comprehensive approach outlined by the Town of Harvard in its Municipal Buildings Committee Report. The latter initiative has charted the future for the Town Hall as well as the Old Town Library and the Hildreth House. The Town of Harvard has long demonstrated its respect for its built heritage and its commitment to preserving and repurposing its fine old buildings. The recent transformation of the Old Bromfield School to Harvard's public library is testimony to the Town's ability to look forward while honoring its past.

The recommendations found in this report recognize that future renovations planned for the Town Hall are likely to include functional and structural improvements and building code mandates. The suggested treatments therefore seek to best utilize the currently available town funds for essential repairs. This report is submitted as a summary of our findings in a single day of envelope investigation. Our brief did not include structural or other forensic examination. In fact, this report exceeds our scope of services but is provided in the spirit of collaboration and forward thinking offered by the Municipal Building Committee Report. These observations can serve as a benchmark for future in-depth planning for the rehabilitation and expansion of the building.

Our survey concluded by identifying nearly \$500,000 in required repairs to the exterior of the existing Town Hall building. These repairs do not include structural upgrades or desirable improvements to the existing wall structure and the site to address water vapor transmission issues discussed in this report, which are assumed will be addressed during the full scale renovation. Given the Town budget of \$85,000, MTS has provided four approaches to repairs and a single preferred recommendation. A discussion of these options can be found in the repair scenarios portion of this study.

The preferred option recommended by MTS is to restore the facade of the Town Hall. This work will include repairs to the wood siding and trim elements and repainting the facade using the historic polychromatic paint palette. This work is unlikely to be reversed during the course of any future additions to the building or site, and it will achieve results that the people of Harvard will be able to see and appreciate immediately. The estimated cost of this work is \$77,000, leaving a construction contingency of \$8,000.

METHODOLOGY

The Existing Conditions Assessment represents a collaborative effort between Menders, Torrey & Spencer, Inc. (MTS) and the Town of Harvard Historical Commission. The commission was represented by Doug Coots who served as point of contact with MTS and facilitated access to local resources. The project team was assembled and coordinated by Lynne Spencer, principal preservationist at Menders, Torrey & Spencer, who directed on-site investigations and the conditions assessment. She was assisted by Patrick Guthrie, RA, Thomas Burgess, architectural designer/preservation specialist, and Lynn Smiledge, preservation planner, who coordinated final assembly of the report.



Lynne Spencer and Patrick Guthrie surveying the masonry on the east elevation

The building investigation, conducted with the assistance of a personnel lift provided by the Town, took place in April, 2011. The building envelope was surveyed by Lynne, Patrick, and Thomas for areas of deterioration.

The Municipal Buildings Committee Final Report was reviewed in order to coordinate the survey and treatment recommendations with the future proposed work at the Town Hall.

Research resources consulted for the preparation of the Historic Background section included *Directions of a Town - A History of Harvard* by Robert C. Anderson, *Images of America: Harvard* by Michael Volmar, inventory forms prepared for the Massachusetts Historical Commission, and the Municipal Buildings Committee Report.

All photographs were taken by Menders, Torrey & Spencer, Inc. unless otherwise indicated. The final report is issued both as a printed document and in electronic format as a portable document format (.pdf). Hard copies were delivered along with a compact disc.

HISTORIC BACKGROUND & SETTING

Completed in 1872 at a cost of some \$10,000 after several years of wrangling about site and budget, Harvard's Town Hall is the second building devoted to this purpose. It occupies a prominent site on the Town Common, the primary village of the town and its municipal center. Modeled after the Weston Town Hall, it was designed by an unknown architect well versed in the vocabulary of the Italianate, an architectural style expressed in many civic buildings in New England in the second half of the 19th century. The beaded clapboard building with its typical period ornamentation retains virtually all of its original detail apart from the tower lantern. The polygonal rear addition dates to 1899 and is similarly trimmed. Now painted a pristine New England white, the Town Hall would have originally been dressed in a more somber earth tone palette. The character defining features that lend the Town Hall's its architectural personality and frame its significance are described later in this section. The building contributes to both a National Register district and a local historic district, the Harvard Common Historic District.



Historic image showing the Town Hall tower lantern. Note the dark paint scheme. Postcard: Harvard Historical Society.

The Town Hall was the focal point for town activities, both civic and cultural, for over a century. Local government operations were based on the first floor and the upper floor hosted social and enrichment activities for the community – lectures, performances, recreations and celebrations. Social use of the Town Hall ended in the early 1980s when municipal operations expanded into the second floor. The Town's vision, articulated in the 2011 Municipal Buildings Committee Report, would return the upper floor to its original function.



Historic image showing the Town Hall and Common. Photo: Images of America, Harvard.

The surrounding buildings on the Common and just beyond record the evolution of Harvard in an architectural/historical diary – two churches, Congregational and Unitarian, the Victorian brick building that was the former library, the former tavern, houses dating from the early 19th to the early 20th century, and a three-story commercial structure

now reborn as an upscale country store. These buildings are important contributors to the village's character and sense of place.

The Congregational Church was founded in 1821 and granted a "piece of the Common" by the Town for its new building. The Federal style clapboard church has changed little since then, although the sanctuary was raised in 1882 to permit a full first floor providing classrooms and offices. The Unitarian congregation established the town's first meeting house, which also served as the town hall, at the north end of the Common in 1733. The current church, the fifth meeting house, was constructed in 1967 to replace the 1876 building destroyed by fire. Built in the Colonial Revival style, it mimics neighboring buildings.



Congregational Church in 1897. Note the dark paint scheme popular at the time. Photo: Images of America, Harvard.

Local
businessmen
Henry Gale
and Philip

Dickson replaced their Greek Revival general store with the present three-story commercial block in 1896; the old structure became the grain annex. The building retains much of its Classical Revival detail, although the elegant roof balustrade seen in the photograph at left is gone.

Gale and Dickson's General Store (left) and the Center District Schoolhouse (right - no longer extant), 1897. Photo: Images of America, Harvard.

The Old Library was designed in the Richardsonian Romanesque style in 1886 by Harvard architect William Channing Whitney, who donated his services to the town. Interestingly, this handsome brick building was constructed for roughly \$10,000, the same amount spent on building the Town Hall more than a decade earlier.



The Old Library. Photo: Harvard Municipal Buildings Committee Final Report.

Character Defining Features of the Town Hall

Character defining features refer to the significant observable and experiential aspects of a building that define its architectural power and personality. They are critically important considerations whenever building work is contemplated. Inappropriate changes to historic features can undermine the historical and architectural significance of the building, sometimes irreparably. Retaining a building's integrity is essential to eligibility for National Register of Historic Places status and for preservation grants such as the Massachusetts Preservation Projects Fund and Community Preservation Act funds. All the features in the bulleted lists that follow should be retained to preserve the historic integrity and significance of the Harvard Town Hall.

Site and Environment

- ◆ Town Common surrounded by historically significant buildings
- ◆ Prominent location with facade facing the green

Shape

- ◆ Simple gable-front rectangle
- ◆ Symmetrical rear polygonal addition
- ◆ Porch projections and central tower

Materials

- ◆ Wood clapboard
- ◆ Granite foundation
- ◆ Brick chimneys
- ◆ Original window glass

Decorative and Stylistic Details

- ◆ Flat roofed entry porch with square posts and arched braces
- ◆ Rectangular window entablatures on lower level
- ◆ Paired arched windows with molded heads on upper levels
- ◆ Tripart window with molded head in the tympanum
- ◆ Multi-light window sash



- ◆ Corner quoins
- ◆ Paired cornice brackets
- ◆ Paneled entrance doors with transom
- ◆ NOTE: the posts and balustrade at the tower base, installed some time after the lantern was lost or removed, are not correctly proportioned nor historically appropriate. If restoration is contemplated, historic precedents should be studied.

EXTERIOR DESCRIPTION

The original structure is a two and half story wood frame, molded clapboard clad structure with a light gray asphalt shingle roof (slate was probably the historic treatment). A single story porch centered on the south façade offers shelter at the entry. The orientation has the gables facing north and south with the longitudinal elevation east-west and the east elevation hard by the street. Large windows are regularly placed on all elevations. Ornamental wood quoins, a front porch with wood trim forming a slender arch between the posts, projecting entablatures on the first floor windows and rounded heads finished with lamb's ears on the second floor illustrate an Italianate style edifice. The gable roof is finished with a handsome cornice and extended overhang supported by paired brackets. A squat tower surmounts the gable, finished with a simple railing of square pales. Historic photographs reveal an earlier lantern that appears to have contained a bell atop the tower. Today, various antennae tell of another communications story.

The asphalt shingle roof and the metal fire escape on the west elevation are clearly 20th century introductions. Associated with the fire escape was the installation of two doors to provide egress from the second floor and balcony. The most notable changes to the building's historic features are the windows – these are modern thermal pane sash with false interstitial muntins as opposed to wood double hung sash.

Other changes to the exterior are concentrated on the west elevation and include the installation of a concrete ramp and entry porch for accessibility to the front



Facade, south elevation



East elevation, Ayer Road side



North elevation



West elevation, parking lot side.

of the building, and installation of a new at-grade entrance door toward the rear of the building. The fire escape and emergency doors were installed unsympathetically to the buildings ordered, symmetrical design. If the fire escape were to be removed, the doors should be removed and the windows and siding restored. The ramp, porch, and entrance are constructed with wood handrails in keeping with the initial design intent although the detailing of these features is more contemporary Colonial as opposed to the Italianate detailing of the rest of the building.



Detail of bracketed cornice

EXTERIOR CONDITIONS

Roof & Drainage System

The majority of the roofing is a residential grade three tab asphalt shingle that covers the gable faces and the addition. These roofs drain to aluminum “k” gutters that dispense into square aluminum downspouts, some of which dispense at grade and others into cast iron or aluminum boots, presumably into an underground drainage system. The roof is protected by a network of copper lightning rods, terminals, conductor wire, and grounds.

The asphalt shingles are weathered but have not reached the end of their anticipated life-cycle. There are areas of the roof where the shingles have raised as a result of the asphalt bonding giving way. There is also one section of missing shingle on the octagonal roof. Given the grade of shingle used on the roof we would anticipate that through minor maintenance the roofing could be expected to last another five years.

The current gutters are an unfortunate intervention to the building. The installation of gutters prompted the removal of a large section of cornice molding that the gutters’ “k” profile is not large enough to replace. This leaves an area of unprotected wood sheathing between the gutter and the roofing. The gutters themselves are also undersized for the amount of roof area they are meant to drain. The downspouts have an eclectic mix of termination details. On the east side of the building the front downspout empties into a cast iron boot into some form of underground system. At the rear of the building two downspouts drain at grade, one into an asphalt swale leading towards the road and a second that narrowly misses the



Main asphalt shingle roof with lightning protection system



Black membrane roof on tower



Deteriorated fascia board



Tower - Balustrade missing many balusters

swale and empties onto the ground. On the west side of the building at the front the downspout empties at grade adjacent to a storm drain. At the rear of the building one of the downspouts empties into an aluminum inlet into the ground; a second downspout misses a second inlet by approximately a foot.

The lightning protection system is in disarray. The cables are sagging along the ridge and at the rear of the building a terminal rod is hanging off of the roof.

The remaining roofs on the tower and two porches are black membrane. These roofs are also weathered, although they appear intact, without tears or lifting seams. Termination bars are screwed directly through the wood siding.



Lightning protection rod hanging from roof



Downspout misses inlet in ground



Cornice brackets and soffit.



Weathered balustrade on tower.



Missing cornice molding removed for gutter installation (indicated in red)



Missing asphalt shingles on addition roof



Balusters on tower roof



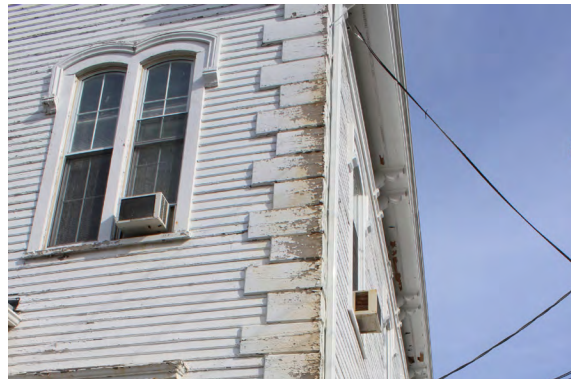
Missing and deteriorated cornice molding.

Wall System & Trim

The walls are sheathed with wood siding that ends in a cyma molding at their base. Although paint failure is a recurring problem, the wood itself is in good condition throughout the building. There are a few selected areas of missing and broken clapboards, as well as a few infilled areas that appear to have been replaced with a composite type material such as a cementitious board. When restoring original features, using like materials, in this case wood, is typically recommended as opposed to contemporary substitutes. One section of clapboards on the addition has been removed for the installation of an air conditioning unit, which has since been closed in with plywood.

The quoins at the four main corners of the building are deteriorating. Of the four quoin locations, the southeast corner shows the most damage. Many of the quoins have been repaired with wood consolidant and sealant at their mitered corners, which have opened up over time. These repairs have begun to fail, allowing water to infiltrate into the sheathing behind and rot the quoins.

Other areas of deteriorated and failing trim include the hoods over the first floor windows. These hoods are protected only by paint, most of which has failed. The wood grain has opened up allowing water to penetrate and deteriorate the wood, causing open gaps between the bed moldings and miter joints. Window sills around the building are beginning to deteriorate in a similar manner to the window hoods.



Quoins on South East corner



Deteriorated and open quoin



Paint failure and damage on quoins.



Missing siding board and scaling paint

We were able to observe and test the soundness of the soffit and eaves from the lift provided by the Town. Aside from the aforementioned rake and cornice deterioration, the soffit boards appeared generally sound with limited shrinkage separation between some boards. The paired brackets, some of which were reportedly replaced recently, proved to be in good condition except at the southeast corner where the southernmost brackets on the east side will need to be replaced.

The wood railings of the two west entrances and the porch over the accessible entrance are rapidly deteriorating. These features were constructed of a low quality wood, probably fast growth softwood that does not hold up against the harsh weather of the North East. In fact, we saw more deterioration of these newer elements than of the 140 year- old wood features used in a similar manner. The bases of all the posts show specific areas of wear. This is an extremely vulnerable detail where the end grain of the wood sits upon a concrete base and absorbs water through the unfinished open end. There is also significant deterioration where the hand rails meet the posts.



Plywood insert in vacant air conditioner opening



Concrete ramp with wood hand rails on west elevation



Deteriorated wood trim board at railing post.



Deteriorated post base

Windows & Doors

The original wood windows have all been replaced with aluminum units. These are in good condition and the only source of concern is where the aluminum frames meet the wood jambs and a bed of sealant exists that will become vulnerable. Aside from the damage occurring at the window hoods and sills, the only other issue noticed was with a single second story window lamb's ear that has cracked through. The bracket was stable to touch but will need repair.

The doors around the building are mostly recessed wood panels and are in good condition. At the rear of the octagon and the west entrance are metal clad doors; the latter is beginning to rust at its base and hinges. The metal clad doors are not in keeping with the historic character of the Town Hall and replacement of the deteriorated doors should take this into consideration.



Typical first floor window



Typical second floor window



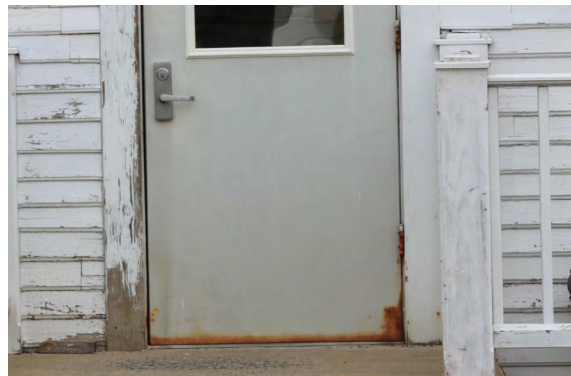
Grade at window sash level - window propped open.



Open joint in window hood



Cracked lamb's ear bracket



Metal door is rusted and historically inappropriate

Painting

The visible and vexing problem of the wall system is the chronic paint failure. The building had been completely repainted systematically, one elevation at a time, over the last ten years. Interestingly, the east elevation was reportedly painted by a professional painting company and yet shows the most acute failure. The paint has no adhesion to the wood and is literally coming off in sheets. A similar type of failure is happening on the rear of the building on the addition. On the front and west elevations, the paint is scaling and flaking off rather than experiencing sheet failure. The one consistency is that the paint is failing rapidly on all four sides of the building.

The likely culprit behind the paint failure is moisture. As damp air migrates through the interior wall it is trapped by the paint layer, which is relatively impermeable. The trapped moisture eventually causes failure of the adhesion of the paint to the wood. Modern latex based paints are less vapor permeable than oil based paints. Latex paints provide protection from external moisture but do not allow internal moisture to escape. Compared to historic oil based paints, latex paints also provide a weaker bond to the wood substrate, which may explain why the most recently painted side of the building is in the worst condition.

The preparation of wood surfaces on the east elevation of the building was superior to the prep work performed on the remaining three sides. Because of this, the new latex primer and paint comprised the only remaining coating on the woodwork. The remaining three sides were less rigorously prepped



Consolidant material on wood clapboards



Peeling paint on soffit



Scaled and flaking paint on cornice



Missing paint tower

which meant that much of the older lead and oil based paint remained and created a substrate for the new paint. Paint on these elevations is failing in the typical manner of scaling and flaking. Also contributing to the moisture problems are the soffit vents, meant to allow air circulation through the attic. These were almost all painted over, reducing the amount of natural convective drying of the soffits.

It is necessary to address the root cause of the paint failure prior to any further painting campaigns. Moisture migration through the walls is typically a sign of one or a combination of the following: water infiltration through holes in the building envelope; moisture caused by human activity such as bathroom and kitchen use, or even simply breathing; or rising dampness from a wet basement. Our survey of the building envelope showed no signs of water infiltration through the roof or wall systems and no leaking was reported during our investigation. While there are several bathrooms in the building and numerous full time employees, the amount of moisture introduced by these factors is unlikely to be responsible for the significant failures we are seeing. It therefore seems possible that rising dampness from the basement contributes to the cause of the paint failure.

Preventing future paint failure will require addressing moisture travel. In a substantial building renovation there will be opportunity to introduce interior vapor barriers.



Soffit vents painted shut



Piece of peeled paint



Peeling paint at soffit and entablature



Paint failure on wood siding

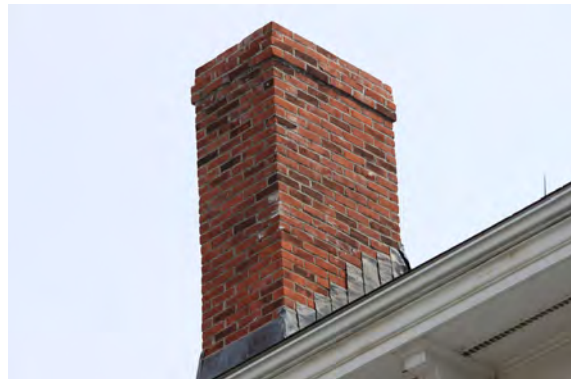
Site

The grade at the rear and west sides of the building is elevated around the wood water table and clapboards. It is likely that grade was raised when the roadway was removed and the current parking lot scheme installed. The high grade around the woodwork has created moisture problems in these areas that has deteriorated the wood. The Master Building Committee Report recommends changes to the hardscape surrounding the building. When these occur, it would be advisable to regrade away from the building.

Masonry

The only masonry features on the building are three brick chimneys and the partially exposed granite foundation. The two chimneys at the rear have been capped with mortar washes. An inspection of the mortar joints revealed no defects and the step flashings were in good condition. The front chimney had no visible problems with the mortar joints or flashings, although the mortar wash surrounding the flue has cracked.

The granite block foundation is exposed from the front of the building to about midway on the west elevation, and all the way to the addition on the east elevation. The remainder has been covered over by grade which extends up to the wood water table. Vertical joints in the foundation are between 4' and 8' apart; no horizontal joints are visible. The mortar in these joints is either badly deteriorated or nonexistent.



West chimney, capped with mortar



South east chimney with cracked mortar wash



Sanctuary from Organ loft



Open mortar joint in granite foundation

Miscellaneous

The painted steel fire escape on the west elevation is in very poor condition and poses a life safety hazard owing to one of the treads which is visibly detached from the steel stringer. The tread has completely rusted through, which suggests that many more are about to fail in a similar manner. The stair is attached to the building with steel brackets and bolts which have rusted and are staining the clapboards beneath. These bolts are also a potential water infiltration point into the wall system. In general, the entire fire escape with associated exit doors is an eyesore on the building. The doors were crudely installed into the wall and are not sympathetic to the architecture of the building.

On the east elevation is a concrete areaway covered by a felt and tar roof over plywood. It was unclear what framing supports the roofing, but the whole is surrounded by a low steel railing. The roofing materials are badly deteriorated and likely to be leaking. One of the railing posts has rusted through and broken off, and is suspended in mid air by the horizontal rails. The concrete foundation is cracked and shows spalling. The areaway is currently sealed shut with roofing and sheathing. It does not appear to be used owing to the advanced deterioration of its components and should be removed if no use is planned.



View of fire escape, staining from brackets, and added doorways



Tread separated from stair stringer



Covered areaway on east elevation



Broken railing, deteriorated concrete and roofing material

PRESERVATION GUIDELINES

In reviewing treatment recommendations, cyclical maintenance and proposed renovations, the Town of Harvard should consider the significance of the building and its site as framed by the National Register and the building's character defining features. *The Secretary of the Interior's Standards for the Treatment of Historic Properties* should be used as a guide. The *Standards* provide advice on the preservation and protection of cultural resources and recognize four treatments: Preservation, Rehabilitation, Restoration and Reconstruction. The first three are relevant to this project and are defined below.

PRESERVATION is defined "as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment, however, the limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a Preservation project."

REHABILITATION is defined "as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural or architectural values."

RESTORATION is defined "as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project."

Application of the Standards

The majority of work currently recommended for the Harvard Town Hall is considered Preservation. Rehabilitation could be applied to alterations made to adapt the interior space for expanded or new uses. Restoring missing elements such as the tower lantern and returning the exterior to the original paint scheme would be considered a Restoration activities.

TREATMENT RECOMMENDATIONS

Our recommendations for the envelope repairs at the Town Hall are directed by the preservation guidelines and based upon the severity of deterioration and the longevity of materials and repairs. They do not reflect future proposed projects for the building and site, which are considered under Repair Scenarios. These recommendations reflect a baseline approach to stabilize and restore the structure in its current state.

Roof & Drainage System:

- Remove and replace aluminum gutters and downspouts. Restore wood cornice to original profile. Install new metal gutters and downspouts or sufficient size to handle roof drainage.
- Investigate underground drainage system (drywells) to ensure operation.
- Replace asphalt shingle roof in 5 years.
- Replace membrane roofs in 5 years.
- Install new lightning protection system.

Wall System & Trim:

- Repair siding at air conditioner opening and miscellaneous areas of deterioration (approximately 100 square feet). Future siding infill and repairs should be done with wood clapboard to match the original using a durable wood such as Spanish cedar. Infill should be toothed into the existing clapboards to disguise the intervention.
- Remove and reinstall wood quoins at southeast corner. Work will include sheathing repairs and replacement of approximately 25% of the quoins.
- Provide selective repairs to remaining quoins.
- Repair wood window hoods and sills with epoxy consolidant. Install copper (or similarly durable metal) flashing over hoods.
- Repair wood window lamb's ear trim.
- Replace post trim at west elevation entrances with a more durable wood such as cedar.
- Replace deteriorated soffit bracket.
- Restore basement windows on east elevation.
- Replace rusting aluminum entry door.
- Replace soffit vents.
- Prepare and paint entire building:
 - Evaluate rising dampness in basement prior to painting.
 - Ensure proper ventilation of wall, attic and soffit prior to painting.
 - Perform a paint analysis and restore the historic color scheme. The

Italianate features of the building will be more pronounced with appropriate paint colors. Painting buildings all white was a popular trend during the Colonial Revival period and is not reflective of the building's original intent.

Site:

- Lower grade at north and west elevations to expose foundation.

Masonry:

- Repoint vertical joints in granite foundation.
- Remove and replace mortar wash on front chimney.

Tower Lantern Restoration:

- Remove and relocate antennae and air horn from tower base.
- Design lantern using appropriate Italianate detailing based on historic photographs and other references, if found, for massing and elements.
- Use materials that can withstand the elements in the high exposure tower environment: copper for the dome roof, cedar or mahogany for trim elements
- Reroof the tower base with copper roofing.

Miscellaneous:

- Remove or repair metal fire escape. Patch all associated holes if removed; if repaired have an engineer certify for structural soundness.
- Determine present use of areaway on east elevation. If actively used, redesign in a safe manner with new railings or bulkhead doors. If no longer used demolish and infill hole.

REPAIR SCENARIOS

The following scenarios take into consideration the Town's current project budget, the planning for future projects at the Town Hall, and the findings of the Existing Conditions portion of this report. Each scenario is estimated to cost approximately \$77,000, which leaves an \$8,000 contingency and accounts for \$15,000 in architectural fees, bringing the total project budget to \$100,000. Our opinion of cost is based on recent experience with similar wood framed structures.

Option 1: Roof, Cornice, Gutters & Downspouts

- Replace asphalt shingle roof
- Replace membrane roofs
- Remove and replace gutters and downspouts, restore wood cornice to original profile

While we recognize that the gutters are undersized for the roof, the roofing itself will remain weather tight for another five years thus making a roof restoration project a lower priority. There is also the proposition for a building addition which will likely interface with the roof and could require revisions to recently installed work.

Option 2: Miscellaneous Carpentry Repairs

- Repair siding at air conditioner opening and miscellaneous areas of deterioration (approximately 100 square feet). Future siding infill and repairs should be done with a wood clapboard to match the original using a durable wood such as Spanish cedar. Infill should be toothed into the existing clapboards to disguise the intervention.
- Remove and reinstall wood quoins at South East corner. Work will include sheathing repairs and replacement of approximately 25% of the quoins.
- Provide selective repairs to remaining quoins
- Repair wood window hoods and sills with epoxy consolidant. Install copper flashing over hoods.
- Repair wood window lamb's ear.
- Replace wood post trim at west elevation entrances with a more durable wood such as cedar.
- Prepare and paint only areas of repaired woodwork.

Although chasing carpentry repairs around the building provides the most holistic approach to repairs, much of this work especially on the west elevation, could be negated by future interventions to the building. There is also a loss in dollar value as the work is spread out around the building creating more time wasted in moving materials and means of access.

Finally, if this job were completed it would be difficult for people to see what work was actually done to the building.

Option 3: Lantern Restoration

- Would involve further architectural and engineering design.
- Replace roofing at top of tower.
- Re-locate tower equipment.
- Restore tower balustrade.
- Restore lantern based upon historic photographs and other references, if discovered.

Restoration of the historic lantern is potentially the most exciting proposed project. It ignores the current state of repair of the building, however, and certain areas of deterioration that need to be addressed.

Option 4: Facade (South Elevation) Restoration

- Remove and reinstall wood quoins at southeast corner. Work will include sheathing repairs and replacement of approximately 25% of the quoins.
- Repair wood window hoods and sills with epoxy consolidant. Install metal flashing over hoods.
- Repair wood siding, wood cornice, and wood post bases.
- Remove paint to bare wood. Prime and paint facade, ideally with historic paint scheme derived from paint analysis.

This is our recommended option. We believe that the wood repair needs on the facade are the most severe of any deterioration on the building, to the point where wall sheathing is beginning to be affected. This work is also unlikely to have to be reversed during any future additions to the building or site, and it will have immediate visible results for the people of Harvard. Not included within this option, however, is a comprehensive approach to dealing with the moisture problems in the building. Without these fundamental repairs, paint failure is likely to remain an issue. In our experience, a well executed paint job using modern technology provides a finish of approximately 5-10 years. This makes it likely that the front facade would require repainting after the upgrades to the existing Town Hall and building addition had been completed.