



Chester Congregational Church

Existing Conditions Assessment (Part 1 of 2):

4 Chester Street
Chester, NH 03036

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PART ONE: History and Development

Architectural Description:

See National Register of Historic Places Application attached as Exhibit A.

Statement of Significance:

The building is listed on the National Register of Historic Places. See National Register of Historic Places Application attached as Exhibit A.

Character Defining Features:

The Chester Congregational Church is defined on its exterior with its Southwest facade and steeple. The Greek Revival features exemplified here are the result of a major overhaul of the exterior in 1839. The large shuttered windows along each eave coupled with a belfry and four sided spire make this building remarkable. It does not take long, however, to recognize the lines and features of the original 1733 meeting house as seen in the body of the church.

Interior features include a light and airy sanctuary accented by a magnificent pipe organ at its Northeast gable. Slip seat pews face the pulpit and at the opposite Southwest end of the sanctuary a wonderful narthex and balcony welcome church goers as they enter the large double doors at the Southwest gable of the church.

Building Chronology: See Exhibit B and C

A chronology of this church structure is best illustrated with two brochures provided by the church outlining the buildings changes both physically and congregationally. The church was established in 1731 as a meeting house. It contained a steeple at the Southwest facade standing in front of the sanctuary. The current building incorporates the original steeple base frame with wings on either side to create the Narthex. The exterior facade is dressed in the Greek Revival style of architecture. These alterations according to history provided by the church occurred in 1839 with significant changes occurring to the church interior as well.

Physical evidence corroborates the changes described in the written history. Photographs taken during our investigation will illustrate these changes. We also know that the church foundation was supported and excavated in the 1960's for the purpose of creating a community space beneath the sanctuary. A large stone foundation was installed beneath the church and it has undergone significant repair over time. The Southeast eave wall facade in particular has been replaced with new blue granite stones. Most of the brown granite remains on the remaining three facades.

End of Part One

PART TWO: Preservation Objectives

Preserving the integrity of the structure through necessary Rehabilitation/Renovation for continued use as a Church is the main objective. Character-defining and significant features along with priorities will be determined upon receipt of the completed assessment report and review of said report by the Board of Resource and Finance.

Ownership/Management Goals:

Provided by others. Attached as Exhibit D and included below.

The Chester Congregational Baptist Church is a Protestant house of worship with dual memberships in the United Church of Christ and the American Baptist Churches. The main goal is the preservation of the Church building, a rectangular wooden structure in the Greek Revival style with a gable roof and traditional steeple.

The Church has a prominent position in the historic center of town. It is located at the intersection of routes 102 and 121 in Chester NH. Its mission is to serve the town and surrounding areas as a place of worship and to provide community outreach activities. Some examples of this include a food pantry, a vegetable garden to provide free produce to the community, a June Barbeque, and a widely attended Christmas Craft Fair. The church has participated with other areas churches to provide overnight shelter for homeless women and children as part of Families in Transition. The Church Pastor has historically been asked to offer prayers at town observances and functions.

With its rich history, the building is included in educational tours for the local school children organized by the Chester Historical Society. Many historic meetings were held here before, during, and after the American Revolution. The first public reading of the Declaration of Independence in NH was held in this building. In 1784 the town purchased the first bell to be hung in the belfry and in 1788 the polls opened in this building to vote for George Washington in the first national election.

Anticipated Use or Re-Use:

The Church is in active use by the members of the Chester Congregational Baptist Church as it has been since 1773. We do not anticipate that the use of the building would change after any renovation/restoration projects are completed.

End of Part Two

PART THREE: Existing Conditions Assessment

On Wednesday, March 21st, 2018 Arron Sturgis and David Ewing of Preservation Timber Framing, Inc. performed an onsite existing conditions assessment for the Chester Congregational Church in Chester, New Hampshire. The weather was cold and cloudy with snow remaining on the ground. The assessment begins on the building exterior and works up through the roof system and steeple. The following conditions were observed:

Exterior Inspection:

Foundation:

The foundation supporting the Chester Congregational Church is wonderful. It consists of large cut granite blocks above and below grade. On the Southeast eave the stones are blue granite and they are not original. In the 1960's this wall was exposed and excavated away to dig under the sanctuary to gain important community and classroom space (See Photos: 10-20).

The three remaining sides consist of brown granite well placed. The soils appear quite sandy under the structure and it appears that the foundation below grade reaches the frost line. The granite rises above grade on all sides of the church and paved drip lines catch roof water on both eaves in an attempt to carry water away from the building.

Two retaining walls exist. One is created in concrete perpendicular to the Southeast eave wall and divides the Narthex portion and stairwells of the church from the community space beneath the sanctuary. Another earlier retaining wall created with rubble stone extends from the North corner of the foundation allowing an immediate drop in grade from the Northwest eave to the Northeast Gable end of the structure.

As inspections were made around the building perimeter, we found the foundation in excellent shape with only the stone retaining wall requiring some maintenance. The front of the church (Southwest Gable) also hosts a handicapped access ramp created in concrete running parallel to the west wall and culminating at the front double door entry to the Narthex. Original stone steps have been drawn away from the doorway to make way for the concrete accessible ramp platform. The stairs front the platform for easy access to the front doors. A paved walkway links the nearby road to the front entry ramp and stairs.

Exterior Facades:

The church measures 76 feet 3 inches along each eave by 45 feet 6 inches at the gable ends. It is a magnificent timber framed structure clad with rough board sheathing and protected by painted clapboard siding. Wide corner trim, horizontal mop boards, and a wide fascia board and soffit with crown molding surround three sides of the structure. The front is embellished with a full pediment and Greek Revival elements over flush board siding that complete the facade. (See Photos: 3-9, & 26-28).

Shutters grace all windows on the structure and their condition varies from side to side. The clapboards are in very good condition for their age, but will require a full scraping and painting to bring back the full glory of the exterior. Minimal replacement of damaged clapboards will be

necessary. The flush board siding on the Southwest facade will require some repair and the pediment trim will have to be removed in sections where water has penetrated the wood and rot has occurred.

Windows and Exterior Shutters:

Beautiful double hung windows light the large and airy sanctuary. The 1839 six over six windows are in very good shape overall as they are protected by exterior storm windows. The Southeast facing eave wall has some deteriorated glazing and the exterior shutters are in need of in kind replacement. The cellar windows along the Southeast eave are c.1960 and appear to be in relatively good shape save some glazing deterioration. The Northwest eave wall windows are better protected from weather and the shutters here can be repaired.

The two over two windows within the front/Southwest facade will require maintenance glazing but also remain in very good shape overall. Some of the shutters here are repairable with one or two needed in kind replacement. The pediment louver will need to be rebuilt.

The window at the Northeast gable may be one of the original sash and it will need to be repaired and reglazed. Two small arched shutters in the rear bump out will need to be rebuilt.

(See Photos: 21-23, 30, 41-43)

Entry Doors:

There are two primary entries into the building. The lower entry along the Southeast eave wall permits access to the community space through an attached dog house with storm door followed by a step down into the community space and church offices. It is decorated with Greek Revival pediment and vertical siding. It requires some patching and painting as it takes the brunt of the snow falling from the large sanctuary roof above.

The front double doors on the Southwest gable date to the 1839 upgrade and addition of the Narthex. These doors retain early hardware and because they are set into the wall and open in, they have been protected from the weather. The Narthex wall is 12 inches thick because the original 1733 tower posts are hidden within it. This creates a deep heavy trim detail around the doors that give the front facade depth and character unparalleled.

These doors will need to be scraped and sanded and repainted as part of the overall exterior restoration. The entire church is in need of a very serious preparation and scraping and a new paint job.

(See Photos: 31-34)

Handicap Accessibility:

Church members at the Chester Congregational church have designed and implemented a very thoughtful accessible ramp combining a concrete ramp and platform with an asphalt paved walkway from the street. They have also incorporated two astoundingly beautiful original brown granite steps

that appear to be from the 1733 meetinghouse into the front entry design. These steps are as wide as the double entry door and perfectly placed. Handrails have been added to ensure safety for parishioners. An almost level door threshold is the only aspect of the ramp that is not fully code compliant within today's standards. (See Photos: 36 - 38).

Roof:

The roof covering of the sanctuary is asphalt shingles. They appear to be relatively new and in good shape. With the installation of new asphalt shingles, the flashing against the Northeast, Southeast and Northwest facades of the steeple has been improperly installed allowing water to penetrate into the church and impact the arched ceiling just above the balcony. This flashing will need to be done properly when the roof coverings on the tower box and belfry are replaced. (See photos 107, 108).

Steeple Exterior Cladding:

The steeple extends from the roof line in three distinct sections. The first section is the Tower Box. The tower box is timber framed and original to the 1733 meetinghouse. Its exterior cladding is horizontal tongue and groove boards with wide corner trim likely from the 1839 upgrade. The base flashings on the tower box where they meet the asphalt roof is improper as noted above. The exterior is coated with many layers of lead paint and shows extensive decay with the addition of layers of latex caulking forced between the seams of the tongue and groove boards.

The next section, the belfry box, sits atop the tower box and it, too, is clad with tongue and groove boarding but here the boards are vertical providing depth and character with wide pilasters on each side of the centered louvers. A small skirt of vertical tongue and groove boards below the louvers extends around the outside of the belfry frame. This skirt is capped with wood trim and it is deteriorated. Four Greek Revival pediments complete the belfry trim detail.

Tower Box Roof:

The Tower Box roof under the bell is created with rolled roofing and cannot last. This roof covering is fine for a shed or chicken coop, but at elevation, water can find its way between the layers and enter the interior. This roof covering will need to be removed and replaced with folded seam and soldered copper roofing.

The Belfry Roof:

The belfry roof is really two roofs that need to become one. At the base of the spire there is a flashing detail that covers a decorative square box that surrounds the spire rafters. This box is degrading and large sections of paint have fallen from it. At the base of this spire box are short sections of copper roof that extend to the edge of small Greek Revival pediments along each facade of the belfry box. Water has penetrated the roof over the belfry and considerable rot has occurred below. This roof should be replaced in new copper and extend fully from the base of the spire to the tips of the belfry pediment roof plane. Damage to the timber frame will be covered elsewhere in this document.

Interior Inspection:

The Parish Hall and Classrooms:

The ground floor of the church houses community space, church offices and classrooms. It also contains two bathrooms. These spaces are well lit and spacious. They have been well maintained since installation under the church in the 1960's.

The Sanctuary:

The sanctuary of the Chester Congregational Church retains much of its 1839 configuration in excellent shape. The "slip seat" pews are beautifully cared for and intact. A large pulpit expanded for a sound board and sitting areas at the organ usurps the front row of pews and they have been carefully removed with only their floor mortises nicely patched as evidence of the original pew layout.

Flooring is narrow pine flooring well cared for but aged with runners of red carpet. Walls are plaster with few blemishes save the peeling ceiling near the balcony; the result of poor flashing and water penetration from the tower. The walls show no signs of original timber framing. 1839 wall studs were added when the 1733 windows and side galleries were removed in favor of the smooth continuous walls now in place.

An exquisite organ highly decorated sits within and extends from the rear/Northeast arched gable bump out. It is a pipe organ and it becomes the central fixture behind the pulpit. It is a stand-alone unit of exceptional beauty.

At the opposite/Southwest end of the sanctuary there is a balcony with clock at its center. This balcony is accessed from a stair tower West corner of the Narthex. The balcony extends into the sanctuary from the original gable end of the 1733 meetinghouse. It is fully incorporated within the 1839 upgraded and built out Narthex.

The Narthex wall is 12 inches thick with beautiful doors at each aisle entry into the sanctuary. Paneled doors protect shelving along the narthex wall and a horizontal flush board wainscot extends around the perimeter of the sanctuary to accept the ends of the pews.

The thick narthex wall hides two of the four original tower posts. Evidence of the posts is seen in two of three columns extending above the balcony to the ceiling above. The third center column is not solid and provides chase for clock weights.

The Narthex:

The narthex contains stairs to the balcony and to the parish hall below. The narthex contains within it the original tower framing from the 1733 meetinghouse with wings added to each side of this original form to create the full width Greek Revival form seen now at the Southwest gable of the church. This is clearly visible from the attic space where the timber frame structure has been clearly added onto to create this wonderful space. The full length balcony that provides the ceiling for the first floor of the narthex is decorated with layers of Greek Revival moldings and provides a sense of majesty within the sanctuary for parishioners.

The Timber Frame:

The timber framed structure of the Chester Congregational church retains its 1733 meetinghouse form with full length perimeter posts supporting a series of queen post roof trusses. The frame is joined in the Scribe Rule method of timber joinery with full length tie beams and top plates. The frame is constructed of pine and oak and the condition of the frame is excellent. The roof is created with principal rafters, principal purlins, and common rafters. The tie beams extend over the top plate to create an overhang. Lateral bracing between the trusses also stiffens the roof framing. (See Photos 84 - 97).

The church is created in 7 bents beginning at the Southwest Gable. The original steeple posts in the tower box in Bent 1 at the front of the church remain intact and extend from ground 50 feet up to the base of the belfry. In Bent 2, the tower posts are also 50 feet long and the original gable end tie beam is interrupted by the posts. This is an unusual configuration. It does not rely on the adjacent roof trusses to support the upper tower framing. Queen post trusses in Bents 3, 4, 5, and 6 allow for an open span across the width of the sanctuary. They are exquisitely cut and perform as originally intended with no visible decay or deflection. The Northeast gable is not a truss, instead it is studded and braced across its width. A later added chimney rises up through the Northeast Gable. (See Photos 79, 87, and 88).

The attic space above the sanctuary reveals much about the original meetinghouse construction. Each continuous tie beam supports ceiling joist that are joined at the bottom plane of the tie beam. A short steep vault remains hidden behind the current elliptical vaulted ceiling indicating that before 1839 the timber frame was visible inside the sanctuary. The original studs between the posts remain in place from 1733 but have been added onto with full depth 12 inch studs surrounding the window frames below allowing the interior of the sanctuary to be upgraded with no frame visible to the interior. (See Photos 76 - 89).

The Steeple:

The Tower Box Frame of the 1733 meetinghouse remains in place within the 1839 upgraded Southwest Gable of the church. Originally, it stood forward of the original gable which in the drawing is Bent 2. The tower box frame was taller originally but has been cut down to accommodate the 1839 belfry and spire.

The Belfry Box frame and Spire frame are created with the square rule method of timber framed joinery. Two wings on either side of the original tower box frame are also added to the structure using the square rule method of joinery. In this way, a full width Narthex is created. The entire facade of the Southwest gable is 1839 including the belfry and spire frame above.

The original tower box frame is in excellent condition. As it rises to the belfry it contains the clock room housing an electrified cast clock mechanism in full operation. The square ruled belfry posts extend down to the base of the clock room and rest on bed timbers that cross from girt to girt in the tower box. In this way the frame is redundant and telescoping making the overall steeple very rigid and strong.

At the top of the tower box there is a set of perimeter girts just below the tops of the cut off posts. These girts accept the roof system that supports the bell cradle and bell. The roof framing consists

of two massive roof rafters created with hewn camber to help create the hip roof from beneath the bell. It is perhaps the most impressive bell support system I have seen in my career. The photos simply do not do justice here. (See Photos 98 - 113).

The Belfry Box frame is extensively damaged due to water penetration over time. Most of the damage is in the West Corner post above the bell roof. In this corner the post has completely rotted away and it has been bolstered with pressure treated wood and clasped with flat stock steel with errant lag screws into rotten wood. Fortunately, the belfry box is just over ten feet square and strongly built with redundancy in the frame as it telescopes about 9 feet or so down into the tower box below. (See Photos 102 & 103).

The West corner post of the Belfry frame will need to be replaced in kind. The adjacent top plate and spire girts along the Northwest and Southwest faces will also need to be replaced in kind as extensive white mold is present indicating a definitive level of rot in this area. The Southeast top plate is also very rotten and will need to be replaced in kind. (See Photos 114 - 120, and 128 - 130).

The bell cradle is ancient and appears earlier than the bell itself. It is white oak and created with through mortises and well braced. It has some significant dry rot on the East Corner post that will need a dutchman repair. Steel straps hold the cradle to the belfry posts and they too need to be replaced and strengthened. The bottoms of the cradle posts are tarred into the rolled roofing but there is not tension connection here. The cradle simply sits on the roof utilizing the angled steel straps and its own weight to keep it from moving. (See Photos 131 - 137)

The spire of the steeple is unusual in that it is four sided and constructed with four principal rafters and four adjacent struts that rise up and attach to a central mast. At the base of the spire there are two crossing bed timbers that are bolted to a heavy girt 20 inches below and parallel to the top plate. This creates a four sided spire with the sides 45 degrees to the face of the belfry box.

A reinforcing trim detail rises from four shallow pediments atop the belfry roof. This trim detail is both decorative and structural made out of heavy 6/4 trim that helps secure the base of the spire to the belfry roof. This spire box is decayed and water penetrates into the belfry below causing the extensive damage to the plates, girts and West post.

The spire itself is clad in vinyl siding emulating clapboards closely spaced over vertical sheathing. It appears in good shape, but it was impossible to see the spire up close during this investigation. The interior framework of the spire, however, was visible and appears in good shape with the principal rafters connected horizontally with two by four purlins spaced about 16 inches apart supporting tongue and groove cladding boards. Some small one-inch cross bracing was also observed up through the height of the spire. The spire measures close to 30 feet tall (See Photos 3, 24, and 27).

End of Part Three

PART FOUR: Prioritized Repair Recommendations and Estimates

The tasks described below are prioritized according to the needs of the historic building and can be phased over time.

Leaking roofs and structural problems are always a high priority. The building exterior also needs a good scraping and painting and the shutters are near the end of their lives. The following is a prioritized list of repairs necessary to preserve the church. Descriptions of the tasks ahead are provided with a summary of costs to follow.

Steeple Repairs:

Belfry Timber Frame Repairs: \$102,650.00

Belfry Roof: \$48,050.00

The belfry roof has leaked over time and the frame has suffered. The only visible aspect of this leaking is seen in the sanctuary ceiling until you climb up into the belfry itself above the bell level. Here the West Corner post and adjacent girts and top plates are rotten and they will need to be replaced in kind.

To do this work, it will be necessary to fully stage the steeple for access and safety. It will be necessary to remove the spire base box trim and the four pediments that make up the belfry roof frame. This provides access to the rotten plates on the Northwest, Southwest, and Southeast sides of the belfry. Once exposed, these timber plates can be carefully recorded, removed, and reinstalled to exact measurements to match the historic fabric.

While the old rotten plates are off the building, it is wise to cross brace the spire itself as the roof helps to clasp the spire in place. It will also be necessary to hold up the spire base bed timbers in order to access the girt repairs. Once the spire girts and belfry top plates are replaced, the belfry roof can be rebuilt using as much of the original pediment trim and spire base box framing as possible. Any and all rotten materials are to be reproduced in kind before roofing.

Unlike the current stepped roof system which has failed miserably, a new roof of folded seam and soldered copper is highly recommended. This roof would pass from the base of the spire over and around the spire base box trim and culminate at the roof pitch edge of each of the four pediments. The look of the spire base box trim is retained but clad in copper. Only in this way can this roof system be weather tight. Red copper is recommended for this purpose and it can be cleaned and successfully painted to provide the continuity of color up through the spire.

Tower Box Roof: \$57,700.00

The tower box roof currently has rolled roofing covering the hip roof. This rolled roofing is not long lasting and with the expense of staging the steeple for the leaking upper belfry roof it is recommended that this roof be done in folded seam and soldered copper.

To do this work it will be important to secure and hang the bell and cradle from the newly restored belfry framing above. Once suspended, the rolled roofing can be exposed and removed and discarded. During this phase of work, two louver studs will be repaired with new feet and new shoes for the bell cradle will be made and clad with copper in preparation for the cradles return to the roof plane.

A flat seam and soldered copper roof is the longest lasting roof one can place on this type of hip roof. It will ensure longevity and be much easier to maintain than the asphalt roof. In addition, new crickets can be formed in each inside corner of the belfry box to disperse water out and away from the belfry posts and louver studs. This changes nothing with regard to how the exterior looks but increases the performance of the roof fully protecting the belfry interior and tower box below.

Tower Base Flashing and Trim Repairs: \$29,100.00

The tower base flashings must be replaced with copper. This requires the removal of the horizontal exterior cladding to allow for counter flashing to be placed behind the boards and out over the roof step flashing. New exterior cladding to match the original in size and species will need to be reinstalled.

Exterior Preparation and Painting: \$80,000.00

The exterior of the steeple and the exterior of the church needs scraping and painting. The steeple can be done from the staging in place for the structural repairs. The main body of the church can be done from a man lift or pump jack staging. The painting contractor should fully scrape as much of the old lead paint and added layers of latex overcoat to bare wood where it is loose and falling off. This will leave the exterior almost entirely to bare wood.

As much of the exterior paint is lead, it must be contained and discarded according to current regulations by a licensed firm trained in lead abatement procedures. Some clapboard replacement is expected but overall, most of the building exterior cladding can be retained. A very high quality oil based primer can rejuvenate the bare wood followed by no less than two coats of a latex overcoat for long term protection. Modern paints do not perform as well as early lead based coatings. They require vigilance and repainting no more than every seven years. The cost of repainting is reduced significantly if a regular maintenance schedule is kept. Yearly inspections and immediate touch up painting is highly recommended.

Exterior Shutters: \$61,225.00

Exterior shutters on the Southwest eave wall will need to be removed and remade in kind. Other shutters can be removed and replaced or repaired as needed around the rest of the building. A new front pediment louver must also be reproduced in like materials.

Window Glazing & Repair: \$31,125.00

While not a high priority, window glazing is a long term maintenance issue that should be addressed on an annual basis in some form. The glazing can be done over time starting with the Southeast eave and working steadily around the structure to repair all of the sash units including the two very early sash at the upper East gable and East wall of the tower box.

Foundation: \$7,125.00

The foundation of the Chester Congregational Church is profound and needs only maintenance. The retaining wall should be rebuilt at the North corner at some point. Regular inspections of the

foundation overall is very important. The performance of the asphalt skirts must be monitored and the grade around the church maintained. Estimates here include only the retaining wall rebuild.

Summary and Estimate:

The following estimates are based on projects of similar scope and size. These estimates can be used for planning purposes and fundraising. Actual cost estimates from qualified contractors should be acquired prior to commencing work.

Belfry Timber Frame Repair: (includes staging)	\$102,650.00
Belfry Roof Trim and Copper Cladding:	\$48,050.00
Tower Box Roof in Copper:	\$57,700.00
Tower Base Flashing and Trim Repairs:	\$29,100.00
Exterior Preparation and Painting:	\$80,000.00
Exterior Shutters:	\$61,225.00
Window Glazing and Repair:	\$31,125.00
Foundation Repair:	\$7,125.00
Estimated Total Project Cost:	\$416,975.00

End of Part Four

PART FIVE: Supplemental Information

Secretary of Interior's Standards for Preservation

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place and use. Work needed to stabilize, consolidate and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color and texture.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

Attached Exhibits:

- A. National Register Nomination.
- B. Church Chronology
- C. Church Chronology
- D. Management Goals and Objectives
- E. Photo Report (Existing Conditions Assessment (Part 2 of 2))
- F. Drawings