

St. Thomas' Vestry
East Elevation and Bell Tower Repairs/Restoration - Summary
March 15, 2020/February 6, 2022 (updated)

The following historical summary was initially prepared in March of 2020 (pages 1 and 2) and has been updated for the subsequent evaluation of alternatives to repair the Bell Tower (pages 3 and 4).

East Elevation

In early 2017, it became apparent that a major structural problem had developed in the East Elevation (wall) of the Church Building:

- The exterior wall had bowed in several locations
- Mortar residue was actively leaching out by the crawl space window frames
- Water damage was apparent around the large stained-glass window and backrow pew

Due to the priceless and irreplaceable nature of the stained-glass window, which depicts the "Sermon on the Mount", we filed an insurance claim with Church Insurance. The Donan Engineering Company, Inc. conducted an engineer's inspection. The claim was denied as the deterioration was the result of time, the original design and building materials utilized, rather than a covered peril.

During this time, we also reached-out to the Diocese for guidance and counsel. The Diocese of Maine is the owner of all church properties in Maine, including St. Thomas'. The parish maintains and holds the properties in trust for the benefit of our members and the Diocese. The Diocese referred us to Building Envelope Specialists (BES), which had performed the engineering and project management for several restoration projects in the Diocese, including St. Luke's Cathedral in Portland.

In July 2017, BES provided a proposal to conduct an Exterior Envelope Assessment and Repair Documents of the East Elevation. The inspection took place in the Fall. The assessment report, including mortar analysis report and engineering drawings of the required repairs were delivered in January 2018. The report concluded an inappropriate mortar mix was utilized in construction, as well as subsequent repairs, resulting in excessive mortar deterioration and freeze/thaw damage. The Assessment and Repair Documents **total cost was \$19,666.41.**

In March 2018, BES submitted its repair/restoration proposal. Joseph Gnazzo Company, Inc. was selected as masonry contractor. Gnazzo had been utilized on other Diocesan building projects and are considered experts in dealing with this type of stone and rubble construction. The project began in September and was completed shortly after Christmas. The project was completed on budget at a **cost of \$404,144.00.**

Bell Tower

In the Spring of 2019, BES conducted an exterior envelope conditions visual inspection of the remaining masonry, as well as the slate roof, at a **cost of \$8,485.60.** This report contained the following conclusions/recommendations and cost estimates, in order of priority:

- Bell Tower had significantly deteriorated, estimated cost to repair \$680,000
- Slate roof had outlived its useful life, estimated cost to replace in slate \$400,000
(we discussed using other roofing materials at an estimated cost of ~\$100,000)
- Nave, Entrance & Sacristy walls, window surrounds and woodwork \$150,000
(these repairs to be completed as permitted over time)

In June 2019, BES provided a proposal to conduct a Masonry Tower & Roof Assessment and provide Design Documents **at a total cost of \$112,989.20**. The project costs were further delineated as follows:

• Pre-design phase (field measure & drawing prep of tower elevations)	\$5,718.15
• Assessment phase (scaffolding and masonry assistance)	\$47,625.00
• Assessment phase (BES)	\$8,613.00
• Assessment phase (insurance, mileage, tolls, supplies)	\$2,954.55
• Construction documents	\$46,170.00
• Project insurance and supplies	\$1,908.50

BES was questioned as to why the cost was so much higher than the ~\$20,000 assessment and repair documents cost for the East Elevation. Their response was the cost of scaffolding versus using a hydraulic lift contributed nearly \$50,000 in cost due to safety concerns for the Masons removing the stone block, as well as the architectural complexity and scale. After much discussion by the Building & Grounds Committee and the Vestry, it was determined to go forward with this phase.

In September 2019, BES completed the assessment and drawing phase. Their assessment indicated the extent of the deterioration was much greater than expected (essentially the upper third of the tower had to be completely dismantled and rebuilt) and proposed a budget of \$1,307,405.79 to restore the Bell Tower utilizing original building materials. This cost was double the initial visual assessment estimate.

At this point, St. Thomas' requested BES conduct an engineering analysis of potential, less costly solutions. A budget not to exceed **\$2,500.00** was established. The following is a summary of the potential restoration/repair options BES considered. The costs are based on BES acting as Construction Manager at Risk and providing a warranty:

• Restoration using original building materials	\$1,307,405.79
• Restoration using modern building materials	\$979,817.11
• Wood rebuild of upper third	\$842,994.16
• Upper third removed with lowered crenellation*	\$799,749.71
• Upper third removed with hipped wooden roof and gutter*	\$732,253.89
• Tower stabilization wrap from crenel to grade	\$76,753.35

(* in both of these options the bells would be removed and St. Thomas' would no longer have a functioning bell tower)

None of the permanent alternatives were considered acceptable. Therefore, a determination was made for a stabilization wrap be applied to the Bell Tower at **a cost of \$57,272.20**. St. Thomas' is the at-risk party. The wrap has an estimated life of three-years, which should be sufficient for St. Thomas' to consider alternative restoration plans, designs, engineering firms and raise the necessary funding. The membership of St. Thomas' will be consulted, have the opportunity to provide input, as well as have their concerns and questions addressed before a final determination is made.

Throughout, the Building & Grounds Committee, Vestry, Wardens and Rector have provided leadership, been consulted, and approved each expenditure. In addition, tidings articles and several meetings were held to brief the membership on the status of the East Elevation and Bell Tower repairs.

Costs incurred through March 2020 for both the East Elevation and Bell Tower restorations have totaled \$605,057.44.

January 30, 2022 (update)

Bell Tower Alternatives

Recognizing that none of the above options outlined by BES were acceptable, St. Thomas's retained local architect Chuck Campbell, assisted by the Cordjia Capital Projects Group (Camden based construction risk management, architecture and engineering firm) in developing alternative recommendations.

Utilizing the assessment and drawings completed by BES (the Bell Tower is currently wrapped and not available for physical inspection), Campbell and Cordjia provided the following class 4 estimates for reconstruction of the Bell Tower:

- Stone Tower Reconstruction (original building materials) \$934,571
- New Stone Tower (stone veneer and CMU block) 722,221

Further investigation led the Building and Grounds Committee to determine the Bell Tower has been subject to periodic failure and has required significant maintenance over time.

A December 21, 1993, letter to Fellow Parishioners from the Finance & Stewardship Committee indicated "The recently discovered disastrous leaks in the Lady Chapel roof and the direct threat it poses to our beloved new organ proves that we cannot give up a substantial reserve for repairs. Today we have been informed that there is substantial water damage to the bell tower which will result in considerable unforeseen expense. These repairs will have to be carried out immediately if we are to avoid major structural damage to both the tower and the organ."

Thirty years later we find ourselves in a similar situation. As many are aware, the third-row keys of the organ are not in use due to water damage to the bellows. It is believed water seepage from the cricket between the Church roof and the Bell Tower south elevation was the cause.

This concern regarding periodic failure and maintenance costs led the Building and Grounds Committee and Vestry to seek an alternative. Recognizing these concerns, Campbell and Cordjia presented a third alternative class 4 estimate for St. Thomas' consideration:

- Tower Removal with New Hip Roof (over the Lady Chapel) \$483,704

This alternative retains at least one bell for liturgical purposes. The disposition or relocation elsewhere on Church property of the remaining bell carillon will be considered if this alternative option is pursued.

As noted by BES the slate Church roof has outlived its useful life and in need of replacement. Campbell and Cordjia provided the following four options for consideration:

- Asphalt Shingle Roof (20-year useful life) \$135,836
- Standing Seam Metal Roof (50-year useful life) 202,777
- Faux Slate/Composite Roof (50-year useful life) 226,426
- Slate Roof (100-year useful life) 272,461

Bell Tower & Church Roof Recommendation

The Building & Grounds Committee and Vestry are proposing the following course of action for the remediation of the Bell Tower and Slate Roof:

• Tower Removal with New Hip Roof (over the Lady Chapel)	\$483,704
• Asphalt Shingle Roof (20-year useful life)	\$135,836
Total estimate cost, approximately	\$620,000

Tower Removal with New Hip Roof

Recommendation is based on the following:

- The history of architectural and maintenance challenges with the existing bell tower
- The propensity for freeze-thaw damage to the existing bell tower stonework
- The lower ongoing maintenance cost, as a result of improved rainwater and snow shedding provided by a pitched roof, as well as reduced exposed stonework
- It is the most fiscally responsible choice, given the limited resources of St. Thomas'

Asphalt Shingle Roof

Recommendation is based on the following:

- Advancements in solar panel design and architectural aesthetic are likely to continue at an accelerating pace
- The southern roof exposure represents a substantial surface to generate solar energy
- Using the lowest cost alternative, best positions St. Thomas' to take advantage of clean energy alternatives, as the costs and aesthetics become optimal

Next Steps

- Parish considers alternatives and recommendation at a February 2022 meeting(s) and approves final selection
- Final architectural and engineering drawings completed
- Contractor and sub-contractor bids attained
- Building permits filed with Town of Camden and State (registered historic building/landmark)
- Capital campaign to raise necessary funding
- Disposition or relocation of bell carillon, if appropriate
- Building permits attained
- Execution of construction contracts
- Construction targeted for Spring/Summer 2023