1. Introduction

This purpose of this decision paper is to summarize information from previous OHM Advisors presentations, memoranda, and site assessments regarding the Giles County Courthouse. OHM Advisors assessed the Courthouse in May 2022, identifying critical deficiencies in the building's Mechanical, Electrical, and Plumbing (MEP) systems. A follow-up site visit in December 2024 confirmed the continued deterioration of exterior façade and critical mechanical systems. The State of Tennessee has since adopted the 2021 International Building Code, which has been incorporated into current recommendations.

With the Commission scheduled to act on a preferred scope of work this month, this paper brings together the technical information and cost comparisons necessary to support an informed decision. I hope it will also be useful to the public in understanding what's at stake as we plan for the long-term future of our historic Courthouse.

Previously, the Commission requested analysis of three potential HVAC options:

1. **Ground-Source Heat Pump (GSHP)**
2. **Variable Refrigerant Flow (VRF)**
3. **Central Air Handler / Forced-Air System**

In addition, window replacement, fire suppression, accessibility, structural, and security improvements were considered in developing overall restoration strategies.

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2. Existing Conditions

A. Mechanical Systems

- Heating provided by a steam boiler with corroded distribution piping; several radiators have been removed due to leaks.
- Cooling provided by a patchwork of DX split units and window AC units, most beyond their useful service life.
- Attic installation of rooftop units is compromising system lifespan due to execs heat buildup; access for maintenance is unsafe.
- Ventilation is insufficient; outside air is required to improve indoor air quality and reduce contamination and disease transmission.

B. Electrical Systems

- Existing service: 800A main, with two 400A fused disconnects in basement.

- Certain panels will require replacement with 225A, 3-phase, 42-circuit panelboards.
- New LED lighting and emergency power upgrades anticipated.

C. Security & IT

- Security currently minimal; recommended upgrades include POE cameras, access control, and centralized IT closets.
- Emergency power for fire pumps and critical IT equipment recommended.

D. Plumbing

- Galvanized piping with potential lead presence; hot water circulation is inadequate, posing health risks.
- Recommended improvements include PEX piping, point-of-use tankless water heaters, and selective plumbing upgrades to accessible toilets.

E. Windows & Envelope

- Original 100-year-old single-pane oak framed windows, many inoperable.
- Replacement recommended to improve energy efficiency, ventilation, and compatibility with new HVAC systems.

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3. Options

A. Option 1 – Full Package ($13.3M)

Includes everything from June 25 presentation:

- Full VRF system on all floors with below-grade vault for outdoor units
- Removal of boiler, radiators, air handlers, condensers
- Full window replacement
- Full plumbing / ADA toilet rooms replacement
- Fire suppression and life-safety systems fully implemented
- Full IT/security system (cameras, access control)
- Exterior stonework repair
- Structural repairs
- Perimeter drainage improvements

Pros:

- Comprehensive long-term solution addressing all MEP, structural, and envelope issues
- Maximizes energy efficiency and sustainability
- Preserves historic character of the building
- Reduces future maintenance and operational costs
- Meets full accessibility, safety, and ventilation requirements

Cons:

- Highest upfront cost
- Most disruptive construction; longest project timeline
- Requires significant capital outlay

B. Option 2 – Moderate Package ($8.5M)

Deferred / excluded relative to Option 1:

- Below-grade vault removed; outdoor condensing units placed on-grade
- Cameras and security system eliminated
- Plumbing reconfiguration delayed (except essential work)
- Window replacement delayed
- Exterior stonework repair delayed
- Perimeter drainage improvements delayed
- Exterior painting delayed

Note: Delaying these items will require additional mobilization costs for future phases, plus inflation.

Pros:

- Reduces initial capital outlay by ~$5M
- Full VRF system still installed on all floors (efficient heating/cooling)
- Addresses essential attic/roof HVAC access issues
- Less disruptive than full package
- Fire alarm and fire suppression systems retained
- Accounts and plans for future delayed improvements to occur

Cons:

- Deferred items increases future mobilization costs and project inflation

- Does not fully address historic preservation and energy efficiency
- Security, IT, and ventilation improvements limited
- Exterior masonry degradation will worsen with time.
- Requires planning to fund deferred improvements in near future.

C. Option 3 – Budget-Limited ($5.1M)

Additional deferrals relative to Option 2:

- Only high-priority ADA toilet rooms replaced (basement + 2nd floor); other plumbing deferred
- Full building HVAC upgrade with recommended VRF system; only critical units replaced with similar units to current (courtrooms, basement fan coils)
- New stand alone forced air heating/cooling units locally installed in multiple locations to tie into existing ductwork.
- Boiler removal optional, radiators abandoned if budget limited
- Condensers replaced with new but remain visible on ground and roof; additional condensers added, attic heat issues not addressed
- Full window replacement still deferred; windows repaired where AC removed
- Exterior stone repairs, tuckpointing, sealant repairs, column repairs, fireproofing patching, extended stoops – all excluded
- Security hardware, cameras, and access control – excluded
- Technology improvements – excluded
- Linen removal and plaster ceiling repairs – excluded
- Full plumbing upgrade / water system – excluded
- Remaining hazardous materials outside work areas – left in place

Pros:

- Cheapest short-term cost
- Addresses critical safety, accessibility, and HVAC needs
- Minimizes upfront expenditure

Cons:

- Many deferred improvements will likely increase future costs
- Limited energy efficiency, ventilation, and historic preservation benefits
- Multiple heating/cooling units with differing maintenance requirements and no ability to centrally control.
- Does not account for or consider additional future improvements or upgrades.
- Many deferred improvements will increase future costs

4.Comparative Summary Table

Scope / Feature	Option 1 – Full Package ($13.5M)	Option 2 – Moderate Package ($8.5M)	Option 3 – Budget-Limited ($5.1M)
HVAC System	Full VRF system all floors, below-grade vault	Full VRF system all floors, outdoor units on-grade	Critical units only (courtrooms, basement fan coils) replaced like for like, boiler removal optional, radiators abandoned if budget limited. New stand-alone forced air heating/cooling units in office areas connected to existing ductwork. Rooftop units remain plus additional units on ground.
Windows	Full replacement	Delayed	Only repaired where AC units removed
Plumbing / ADA Toilets	Full replacement & reconfiguration	Delayed	Only three high-priority ADA toilets replaced; other plumbing deferred
Fire Alarm / Sprinkler	Full system	Full system	Full system
IT / Security System	Full cameras, access control, data closets	Reduced scope-battery-powered alarms at first floor doors. Remainder eliminated	Excluded
Exterior Stonework / Structural Repairs	Full stone repair and tuckpointing, sealants replaced.	Arches repaired. Landings extended with new railings. East porch repaired. Other stone work and sealants delayed	Only east porch slab and marble, cracked basement arches repaired; other exterior work excluded
Perimeter Drainage	Full improvements	Delayed	Excluded
Roof / Attic HVAC Issues	Addressed	Addressed	Not addressed

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Hazardous Material Abatement	Addresed	Addressed	Only where impacted
Electrical	Upgrades due to new equipment. Generator for fire suppression system	Upgrades only as required for new HVAC equipment	Connection to replacement equipment only. No upgrades except for replacement equipment as-needed.
Fire/smoke separation for exiting	Addressed	Delayed	Eliminated
Building Code Upgrades	Addressed	Delayed	Eliminated
Additional Deferred / Excluded Items	N/A	Mobilization / inflation costs for future deferred work	Extended stoops, sealant repairs, column repairs, fireproofing patching, smoke separations, internal exiting, linen/plaster repairs, full plumbing upgrade, technology improvements, remaining hazardous materials, Mobilization / inflation costs for future deferred work

5. Decision:

- **Option 1 (Full Package)**: Provides the most comprehensive long-term solution; aligns with historic preservation and energy efficiency goals; highest upfront cost.
- **Option 2 (Moderate Package)**: Balances cost savings with essential upgrades; defers non-critical work to future phases.
- **Option 3 (Limited Scope)**: Resolves most critical issues; many deferred improvements and continued exterior degradation will result in higher future costs.

Available Funding:

- Fund 189—adequate to service a ~$10M bond
- $8.5M in Fund Balance reserves
- Possible $500K in grant funding

Next Steps:

- Building Committee, 14 Oct—assess three options.
- Pass resolution committing funds to approved scope of work.

v/r,

G. S. Stowe
County Executive

07 Oct 2025