



**OAKWOOD CEMETERY CHAPEL**  
**Austin, Texas**  
**FEASIBILITY REPORT**

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# Oakwood Cemetery Chapel Feasibility Study

## Overview

In 2009, Heimsath Architects was asked to collaborate with Save Austin's Cemeteries in order to create a feasibility study to help preserve and restore the Oakwood Cemetery Chapel. The study will explore architectural restoration solutions, programming for community use of the chapel, and the potential for creative funding for the project. The architects made use of the extensive historic research, measured drawings, and photographs from Save Austin's Cemeteries. Also referenced were the following:

- Structural Evaluation for Oakwood Cemetery Chapel by Sparks Engineering, Inc.
- Geotechnical Investigation – Foundation Recommendations – Oakwood Cemetery Chapel by MLA Labs, Inc.
- Oakwood Cemetery Chapel – Mortar Analysis by Cates Laboratories
- NESHAP Asbestos and Lead Paint Inspection – Oakwood Chapel by Maxwell Envirotech, Inc.
- Oakwood Cemetery Chapel – Foundation Plan by Structures, Inc.

The Feasibility Study includes:

- Site and building plans
- Renderings and presentation materials
- Phasing recommendations with specific descriptions of Phase I work
- Estimate of probable cost for the overall restoration and Phase I
- Establish an estimate of project time frame
- Zoning and code report
- Community outreach presentation

The architects' conclusions and recommendations are provided in the following report.

## Condition Assessment

A condition assessment of the chapel was done and is based on visual inspection by the architects. No access was available to the main roof or tower roof. Overall, the building is in fair condition, though there are some significant problems that need to be addressed. This report summarizes the observations of deterioration for the entire structure, and should help provide a planning tool for future renovation work.

## Exterior

Foundation: Due to the expansive soil on the site, the existing foundation has moved significantly, causing differential settlement of the foundation creating as much as a 5" difference in elevation of the foundation and the interior floor slab, as noted in the Structural Evaluation by Sparks Engineering in 2008.

Masonry, General: There is significant cracking and lateral displacement in the limestone load-bearing walls of the chapel, due to foundation movement, again as noted in the Structural Evaluation done by Sparks Engineering.

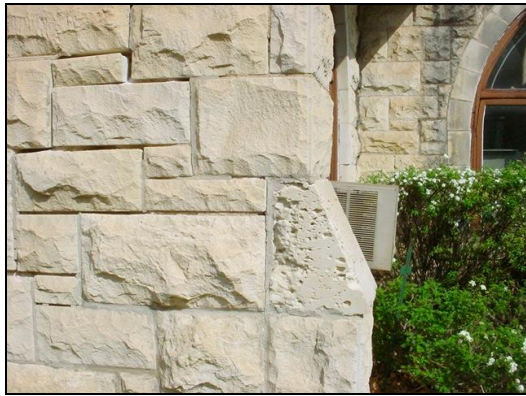


*Open joints & displaced stones*

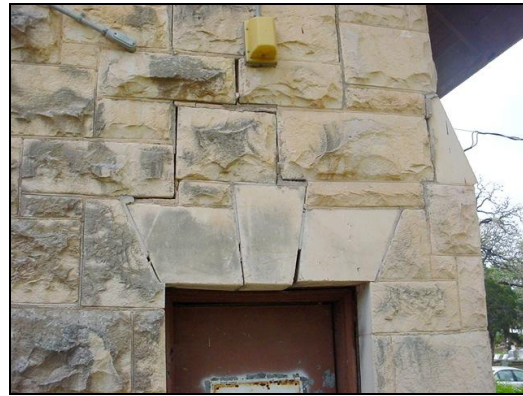


*Open joints and badly deteriorated stone sill*

Several of the stone windowsills and coping stones are badly degraded. Many of the mortar joints are open or badly eroded. Some of the joints have been repointed in an inappropriate hard portland cement mortar.



*Open mortar joints, cracks and deteriorated stone*



*Cracking above north door*

The stone on the tower and the north wall, in particular, are badly stained by mildew indicating that moisture is migrating in the stone, probably through the tower parapet and window sills, and rising damp from the ground. This water infiltration is causing serious deterioration in the stone as indicated by some of the stones at the windowsills and the delamination of the interior plaster.



*Mildew stains on tower and north wall of chapel*

Roof: The original chapel roof was wood shingle, and had leaked for many years, contributing to the deterioration of the interior plaster, wood trim and limestone walls. A new asphalt shingle roof was installed several years ago and is in good condition. However, the flashing between the tower and the main roof was not replaced, and is still leaking. There are no gutters and downspouts on this roof, which could be contributing to the water problems at the base of the walls.

Based on the water stains on the interior walls and the discoloration of stone, the tower roof appears to be leaking. It is probable that there is no waterproofing on the back of the parapet or on the coping stones. There is one conductor downspout that drains the tower roof, and it is in poor condition with open joints and peeling paint.

Windows and Exterior Wood Trim: All of the exterior wood on the chapel is in very poor condition. Some of the decorative wood brackets are rotted. Most of the windows are badly deteriorated with rotted sills, frames and sashes. All of the windows and trim have open joints with checked, crazed, and peeling paint.



*Rotted windowsill on west facade*



*Rotted frame and sash on east facade*



*Rotted wood bracket*

**Exterior Doors:** There are four exterior doors. On the north façade, there is one hollow metal door that was added for an outside entrance to a restroom. The two wood doors on the north façade are in very poor condition, and need to be replaced. The main entrance door on the south façade appears to be in better condition, and can be refurbished.



*Rotted wood door on north façade*



*Main entrance door*

## **Interiors**

**Flooring:** The floor slabs in the building are cracked and uneven. Though the uneven floors are not an indication of a structural problem, they are not serviceable for use in a public space. There is also asbestos tile and mastic, which will need to be abated on most of the floor surfaces.



*Uneven floor surface with asbestos tile (SAC Photo)*

Plaster: Much of the original interior lime plaster appears to be intact. However, further evaluation will be needed to determine if the plaster is still well adhered to the masonry substrate. Some of the plaster has delaminated particularly at the base of the walls, and will need to be patched. There are many holes and damaged areas due to long term use of the building that will need to be addressed.



*Plaster delamination*



*More plaster damage*

Wood Trim, Doors and Ceiling: The wood ceiling and trim on the interior appear to be in good condition, though there is evidence of water damage from the leaking roof. Some of the wood trim is missing and will need to be replicated and reinstalled.



*Water stains on interior wood*

Lighting/Electrical System: The existing electrical service is antiquated and inadequate, and does not meet current code requirements. All new electrical that has been added is surface mounted and also does not meet current code.



*Old knob and tube wiring*



*Surface mounted electrical*

Mechanical: Currently there is no mechanical system in the building. There is one window air conditioning unit.

Plumbing: There are two existing restrooms in the building, but neither is handicap accessible and both are non-functional and in poor condition.

## **Recommendations for Renovation of Oakwood Cemetery Chapel**

Specialized craftsmen, who understand working with historic materials and structures, are usually required to make repairs or replace badly deteriorated materials. Maintenance on historic structures is often neglected because the materials and craftsmen needed are not readily available, causing maintenance issues to be daunting and overwhelming. Oakwood Cemetery Chapel is no exception to this. Much of the work required on the building is due to delayed maintenance, and it is recommended that once the building is restored that a maintenance fund be set up to address issues as they arise.

Foundation: Sparks Engineering, who did the structural evaluation of the chapel, recommended that the exterior walls be underpinned with drilled piers and that storm water control and surface drainage around the building be improved by lowering the grade and sloping the ground away from the building. They also recommended the installation of below grade storm drains to collect rainwater from the roof, which will require the installation of gutters and downspouts. Because of the sloped site, there may be the need to install a retaining wall to direct drainage away from the north side of the building.

Structures, Inc. has provided drawings for the foundation stabilization.

Masonry, General: There are areas of mildew stains on the surface of the stone, especially on the tower and north facade. These areas should be cleaned by gently washing the surface with a mild chemical product and low-pressure spray. It is recommended a breathable masonry coating be applied on the horizontal surfaces of the stone in order to prevent future water penetration.

All open and deteriorated mortar joints should be repointed with a mortar that is closely matched to the original mortar mix. An evaluation of the original mortar was done by Cates Laboratories for Sparks Engineering, Inc. The mortar joints in the areas of water infiltration, particularly on the parapet of the tower, should be tested to make sure that the mortar is still sound. If not, then the joints should be raked and repointed.

All badly deteriorated stone should be replaced with new stone to match. Stone that is soft, but still stable may be consolidated and patched with appropriate patching compound. All structural cracks in the masonry should be injected with a lime-based grout as directed by the structural engineer and patched with appropriate patching compound.

Once all of the cracks in the tower parapet are injected with a lime-based grout, it is recommended that the parapet cap have a mortar wash installed on top to provide waterproofing and a sloped surface that will prevent water from standing on the top of the wall. The back of the parapet should also have stucco parging installed to prevent water infiltration.

Roofing: The shingle roof on the main portion of the chapel building is in good condition, and should serve well for another 10-15 years. However, the valley flashing and counterflashing around the tower are still leaking and should be replaced with new high-heat self-adhering underlayment and new metal flashing.

The tower roof should be replaced in the near future with a new modified bitumen roof system that provides proper slope to the scupper. It is recommended that the scupper be enlarged to provide faster drainage off of the roof.

The deteriorated tower conductor head and downspout should be replicated and replaced, and an overflow scupper should be added to provide backup in case the main scupper becomes clogged. All sealant should be replaced.

The structural engineer is recommending the installation of gutters and downspouts to be connected to an underground drainage system to help keep water away from the building foundation and help prevent movement. Though this will alter the historic appearance of the building, this should be considered in order to help prevent further structural damage to the building. If gutters are not added, an alternate approach could be to add sloped concrete paving around the building to direct water away from the foundation.

Exterior Wood: The damaged and rotted wood on the exterior should be replaced with an appropriate replacement wood. Wood that is soft, but still solid, can be epoxy consolidated and patched to maintain as much of the historic fabric as possible. All open joints should be sealed. All peeling paint needs to be removed and disposed of according to the OSHA guidelines for removing lead-based paint. All exterior wood should then be primed and painted.

Windows and Exterior Doors: Most of the existing windows are in such bad condition that most of them will have to be completely replaced with new sashes and frames of an appropriate replacement wood. All new windows must match the historic configuration.

It is recommended that the exterior wood doors and frame at the main entrance be refurbished by rebuilding them and replacing any rotted wood. New wood doors to match historic configurations should be provided to replace the existing doors on the north façade. Once all restoration/replacement work is completed, all should be finished by painting/staining them. If it is possible to determine the

original paint color from scrapings, it is recommended that the chapel exterior be returned to its original color scheme.

New weather-stripping should be installed on all windows and doors.

Interior Wood: Existing interior wood should be refurbished and refinished where necessary to address water damage. Rotted and missing wood should be replaced with new wood that matches the original species and configuration.

Interior Plaster: All deteriorated/loose plaster should be removed back to sound well-adhered areas. Replace all damaged and missing plaster with new to match the original finish and mix.

Mechanical: The building currently has no heating or air conditioning system. In order to make the building serviceable for use today, these will need to be added in a manner that meets current code requirements, and is sensitive to the historic fabric of the building. The areas above the ceiling on the north side may be a good location for a mechanical unit.

Electrical/Lighting System: The entire electrical system and service are antiquated and not adequate to serve the needs of the building's users. These too will need to be upgraded to meet current code requirements in a manner that is sensitive to the historic fabric of the building, providing eliminating surface-mounted conduit and mounting new panels in locations that do not detract from the historic building.

Light fixtures that provide adequate light levels and maintain the historic look are recommended. It may also be possible to install new supplemental lighting on the ceiling that would increase the light level and be unobtrusive to maintain the historic appearance of the chapel. Exterior light fixtures must be configured to meet current City of Austin guidelines.

Handicap Accessibility: It is recommended the existing restrooms should be removed, and that new handicap accessible restrooms be provided for the chapel in a new small building behind the existing structure.

### **Phasing of Work:**

If funds are available, the ideal program would be for all improvements to be completed as a single project. The restoration and new restroom/storage building do lend themselves to phased construction that may be accomplished as follows:

Phase I: Work of this phase should include all roof replacement and repair, consisting of a new tower roof, replacement of the flashing between the tower and main roof, enlargement of the existing scupper, and installation of an overflow scupper and new conductor head and downspout. After making sure the building is watertight and not leaking, of primary importance is the stabilization of the foundation and regrading of the site to address water flow around the building. This must be done before any other work can be attempted. Installation of foundation waterproofing and, if feasible, install an underground drainage system to collect water from downspouts, which would be installed in Phase II. New utility lines for water, wastewater and underground electrical service, and upgrading of the electrical panels should be included in this portion of the work.

Phase II: Once the foundation is stabilized, the restoration of the exterior of the building is the next most important. Work would include masonry restoration, consisting of masonry cleaning, stone repair and replacement, repointing of mortar joints, stabilization of cracks, parging of the inside of the tower

parapet, and a mortar wash on the tower copings. All horizontal masonry should be treated with a breathable water repellent to prevent water infiltration. Restoration of all exterior wood, including all wood trim, brackets, window frames and sashes, and all doors and frames should also be included. If it is determined that gutters and downspouts will be added, this work should also be done in this phase.

Phase III: Work of this phase will comprise the interior renovation, including the demolition of all hazardous materials, concrete slab, restrooms and non-historic walls. New work will include installation of a new slab, new electrical, plumbing and mechanical systems, repair of the plaster walls, refurbishment/repair/replacement of the interior wood trim and doors, and reconfiguration of the space for new uses. Also included in this phase is the addition of a small restroom/storage building behind the existing chapel to provide necessary services.

### **Code and Zoning**

Since Oakwood Cemetery and the Chapel are listed on the National Register of Historic Places and are also Historic Austin Landmarks, the project to restore the chapel will be subject to review by the Texas Historical Commission and the Austin Historic Landmark Commission. Review by both of these groups will require additional time be added to the City of Austin permitting process.

The cemetery is zoned P-H-NP (Public – Historic – Neighborhood Plan)

The site development process for the chapel restoration, regrading the site, and the addition of a small restroom/storage building to the north of it will require an application to the City of Austin for a Site Plan Exemption. Generally, if the site work increases impervious cover by 1,000 square feet or less, and the limits of construction are 3,000 square feet or less and it meets the requirements of Section 25-5-2 of the City Code, Site Plan Exemptions, a project is exempt from the Site Plan process.

If the project does not meet the requirements for exemption, then the project will need to go through the Site Plan process. This will involve review of drainage, parking, landscaping, tree removal, and compatibility standards. Because the site is designated historic, it may be exempt from most of these requirements, but a review by city staff will be needed in order to determine what criteria the City will require the project to meet. This process can take a few days to many months depending on the complexity of the project.

Once a site plan exemption or an approved site plan is received, a building permit can be obtained. This process takes a minimum of one to three months.

All new work on the building will need to meet the requirements of all current codes applicable, including the building, fire, electrical, mechanical, plumbing, and energy codes. It will also be required to meet the minimum requirements of the Texas Accessibility Standards. Because the building is historic, all codes allow for some alternate compliance, unless there is a life-safety issue.

### **Potential Uses for Oakwood Cemetery Chapel**

In addition to small memorial gatherings, the Chapel was originally intended for use in preparing bodies for burial. While it appears it served this function for only a few years, as other spaces became available due to the increasing use of funeral homes. It is quite unusual to have a chapel of this kind built and owned continuously for almost a century by a municipality. The restored Chapel will be ideal for small receptions, presentations, or performances. In the main room, an estimated 30+ can be seated for a presentation or performance. Receptions of 50+ could be accommodated by including the tower room. It is also significant that prayer or worship activities may be continued in the space.

A range of potential groups may make use of the Chapel. These may include neighborhood activities or cemetery-related gatherings. Small meetings, presentations, or receptions may be held by any number of local groups, particularly those with an interest in history or historic preservation. Music performances may also be an important use. With the solid stone walls and exposed wood ceiling, the acoustics will be ideal for chamber music or similar small ensembles.

The Chapel could also be used as it was historically for small memorial services and public remembrances. The potential for small prayer service or congregational meetings is also a great opportunity as there are virtually no non-denominational spaces available in the area for meditation, prayer, or worship.

The north room may serve as office space for the maintenance contractor, or could include educational and interpretive uses, including the possibility of maintaining some of the cemetery records for the public to do research.

Public access to the space will need to conform to the City of Austin and Parks and Recreation Department requirements. Similar to other PARD facilities, this may be established with a reservation system and an established fee schedule.

There is the potential for use by a wide variety of groups who may or may not have any other association with Oakwood Cemetery. It should be noted that coordination with cemetery activities will need to be included. For example, in the winter the cemetery gates close between 5:30 or 6:00. This could be remedied by having a system for staff to open and close the building and gates for evening uses in winter.

### **Potential Costs for the Project**

The Architects have provided Save Austin's Cemeteries with a preliminary budget estimate for implementation of the rehabilitation of the chapel. Costs are based upon preliminary planning information and approximated unit costs for each of the spaces. Refinements in cost will be necessary as the design scope changes. Though very preliminary, the purpose of these estimates is to set realistic expectations for the eventual building program. In this manner, realistic goals can be set for the implementation of the rehabilitation program. The estimated probable cost for the construction is approximately \$437,000. When soft costs, contingencies, and permitting costs are included, the overall project budget should be in the range of \$568,000.

Note that the estimate is based upon present construction cost data. Inflation or other factors will influence construction costs and should be included for future budgets. The estimates assume the Project construction will be completed in one effort. The project could be accomplished in phases, however, there would be additional costs and fee associated with the phasing of construction that are not included in the above estimates.