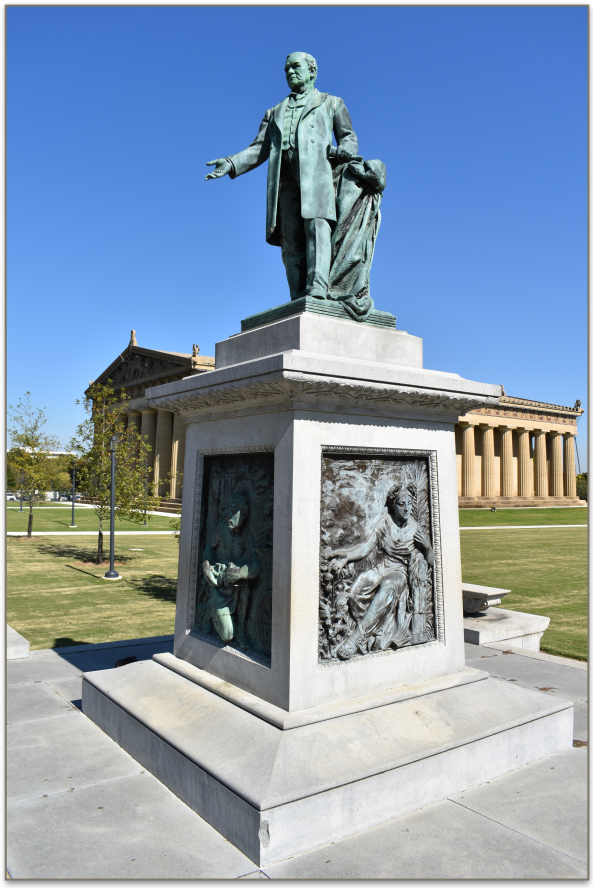
CONSERVATION ASSESSMENT REPORT
and
RECOMMENDATIONS FOR METRO-OWNED PUBLIC ART
CITY OF NASHVILLE, TENNESSEE



Prepared For
Anne-Leslie Owens, Public Art Project Manager
Metro Arts Nashville

Prepared By
Andrew Smith, Principal
Smith Art Conservation, LLC

TABLE OF CONTENTS

INTRODUCTION

Smith Art Conservation, LLC (SAC) as part of its agreement and contract with Metro Arts Nashville performed a baseline conditions assessment of a select group of public artworks/monuments owned by Nashville Government (Metro) in the City of Nashville, TN. The findings in this assessment are meant to guide Metro on decisions regarding restoration, conservation, and long-term maintenance of the collection. All observations and recommendations, while carefully conducted and examined, should not be considered the sole and ultimate resource for implementing work based off findings. Independent analysis prior to any future work undertaken will augment this assessment report aiding comprehensive plan forward.

SURVEY SCOPE

Metro Arts Nashville as part of its Request For Bid called for assessment of existing Metro-Owned artworks and review of five (5) newly commissioned Metro Public Art Projects. The assessment of existing Metro-owned artworks includes eight (8) artworks requiring on-site observation. These eight artworks were surveyed by SAC on October 6, 2020 and are included in this report along with photograph documentation. Sculptures were viewed and photographed without aid of ladders or specialty access equipment, therefore future analysis may require additional access methods. All conditions noted in the report are current as of October 2020.

On the morning of December 25, 2020 a large bomb explosion occurred on 2nd Ave. N near the intersection of Commerce St. The blast damaged dozens buildings within the immediate area causing windows to be blown out over a half mile away. Because the *Founding of Nashville* monument and Courthouse windows are under a half mile from the blast, an additional assessment and comparative photography was conducted on 1/22/2021. Extensive observation of both artworks revealed no additional damage or change in condition.

CONDITION DETERMINATIONS

The conditions assigned to each object are based on a general scale according to SAC's observations of the collection. Factors weighing in to the cumulative ranking include: age of the object, usage or functionality, history of maintenance, and state of deterioration. The following terms are used in the report to designate condition:

- **Excellent**: The artwork represents an ideal of preferred state given the object or structure's age and usage. Little or no immediate treatment concerns are evident and there is little likelihood of deterioration over the intermediate to long term.

- **Good:** The artwork represents a reasonably acceptable state given its' age and usage. While some conditions requiring treatment may exist, none represents a source of major immediate concern. There is an expectation of modest deterioration over the immediate to long term.

- **Fair:** The artwork represents an average state given the object, element or structure's age and usage. Conditions requiring treatment exist including some that should be treated soon. There is no immediate concern for catastrophic loss, but continued deterioration should be expected over the intermediate to long term.

- **Poor:** The artwork represents a below average state given the object, element or structure's age and usage. Major conditions requiring treatment exist including some that should be treated

immediately. There is some concern for catastrophic loss over the immediate term and continued deterioration over the short term.

- **Deteriorated:** The artwork represents a state of advanced loss and failure given the object, element, or structure's age and usage. Major conditions requiring treatment are endemic and require immediate stabilization treatment. There is concern for catastrophic loss over the short term.

TREATMENT PRIORITY

A general priority ranking, which has been used by Metro Arts Nashville in the past will be used in this report for sake of congruity. "Priority" is somewhat subjective as public safety weighs more heavily and given budget realities for treatments. The following rating is used by SAC. :

- **Low**: Artworks categorized as low may be new with no conservation required at this time. They may be designed to require no maintenance or be temporary. They may be in a less visible public location. They may have little to no historical or cultural significance. They may have little to no community support. Artworks of low priority still require a routine cleaning and may require conservation in the future.

- **Medium:** Artworks categorized as medium have some condition issues and will require some conservation in the near future. They may be in a more visible public location. They may have some historical or cultural significance. They may have community support.

- **High:** Artworks categorized as high are overdue for conservation and require extensive work. They are so historically or culturally significant that their conservation is a priority. They may be in a highly visible location. They may have community support.

TREATMENT RECOMMENDATIONS:

Each artwork includes a general plan of operations to address all conditions requiring treatment. Recommendations are based upon expertise of SAC, however often there are more than one way to achieve the same result. Any eventual treatment should follow the American Institute for the Conservation of Historic and Artistic Works (AIC) code of ethics and US Dept. of the Interior's Standards for Historic Preservation. In the case of the artworks in this report, SAC has implemented the most direct/ efficient means of achieving a result. Specific order of operations is somewhat subjective.

BUDGET

A general budget estimate for initial conservation/ restoration treatments is listed per artwork (see page 50). The estimate range takes into account: estimate of labor hours (using median hourly rates of objects conservation professionals and technicians), materials, and access equipment. A secondary budget estimate for ongoing maintenance (post-treatment) is also listed.

Artwork: Founding of Nashville
Artist: Puryear Mims
Date: 1962
Materials: Bronze, Tennessee Marble (limestone)
Location: Cumberland River Greenway. 1st Ave N. at Gay St.

Description: The monument depicts heroic-scaled versions of James Robertson (at left holding an ax over his left shoulder) shaking hands with John Donelson (at right holding a musket resting vertically) Commemorating a historic moment when both founders of Nashville reunited at this spot. Both men are dressed in period attire and are rendered with a slightly stylized form and texture. Placed on a gently sloping open lawn, the monument is freely exposed with no visual interference.

The construction of the monument consists of a rectangular two-tiered Tennessee Marble slab base (2" thick slabs), bronze figures centrally mounted on top, commemorative bronze plaque (mounted vertically on west-facing base wall, and bronze plaque mounted horizontally on shallow concrete footer at ground level (west). Three small bronze rectangular plaques are affixed to the monument to identify each figure and the artist.

Condition: Poor

Founding of Nashville is located in a popular and highly visible area along the Cumberland Greenway but has fallen into neglect and disrepair. Multiple factors have led to deterioration and an overall compromised integrity:

- *Bronze figures* - the bronze shows no evidence of protective coating and exhibits overall heavy verdigris oxidation on all surfaces. It is likely that the original intended patina was a standard dark brown color as is detected on protected areas and crevices of the bronze. Corrosion is not powdery and does not pose immediate threat to the bronze itself however the accumulation of oxidation is significant in several areas. The oval-shaped bronze base in which the figures are conjoined to has a slight depression on the surface near the feet of both men which causes pooling water. Weep holes were found however are clogged with dirt and debris - a drainage point for the weep holes is unknown. All bronze surfaces exhibit heavy accumulation of dust, dirt, and debris including dirt dauber nests in deeper crevices.
- *Plaques* - The plaques are all secure in their mounting. The ground-mounted plaque (mounted on concrete footer) features the names of the signers of the "Cumberland Compact" signed in May 1780. The names (raised lettering) are arranged in six columns set against a leather textured background. Verdigris corrosion staining is the primary issue associated with this plaque. Once intended to display a bright brass-toned lettering against a darkened bronze background, the plaque is currently stained with a uniform light-green verdigris wash. Legibility is reduced due to the staining. The plaque affixed on the front of the base displays historical information about the founding of Nashville with raised brass-toned lettering and border against a leather textured dark brown background. The clear lacquer coating has largely deteriorated - reducing legibility through increased oxidation of raised surfaces. Evidence of graffiti sprayed on and contacting 75% of the plaque surfaces is obvious in the form of a "ghosting" of spray paint in a light color which has been

attempted to be removed via solvent wash. The smaller plaques show similar condition (minus the graffiti). Clear coats are actively flaking, verdigris corrosion developing on exposed bronze, and contrast of lettering/background reduced.

- *Stone* - A variety of issues are affecting the visual and structural integrity of the monument. Biological growth in the form of yellow, brown, and black staining is obvious on all surfaces of the stone. Approximately 95% of the mortar seams between each slab are no longer viable either no longer attached and loose within the cavity, washed out, or entirely displaced. The slabs do not exhibit movement however are obviously displaced and will require re-setting. This condition is primarily found on the East-facing vantage. A large triangular-shaped loss of slab is located on the lower tier SW corner and will require dutchman repair or entire slab replacement while a small loss of slab is found near the NE corner adjacent to the bronze base. All lower stone surfaces near intersection of the grass are marred with abrasions, shallow gouges, losses, and chips consistent with lawn mower / landscaping maintenance impact.
- *Concrete* - A large loss (approx. 36" L x varying depth) is evident along the west edge of the lower plaque footer

**2021 Condition Update* : Extensive observation revealed no additional damage or change in condition as a result of the December 25, 2020 bomb explosion*

Treatment Priority: **High**

Treatment Recommendations:

- Reset/realign slabs as necessary to achieve flat profile and correct in-plane structure.
- Repair / patch losses on the stone via dutchman repair using in-kind Tennessee marble correctly bonded to achieve seamless repair.
- Removal and replacement of all mortar seams
- Biological growth removal and cleaning of all stone surfaces using D/2 Biological Solution
- In-situ concrete footer repair poured in place to achieve correct concrete form at in-ground plaque.
- Removal of failed coatings on plaques via hot pressure wash.
- Refinishing and sealing of all plaques to achieve uniform dark brown background with brass-toned raised lettering profile. A variety of methods can be utilized to achieve this result. (dry ice blasting, soda blasting, laser cleaning, or other gentle mechanical means). Surfaces to be coated with conservation-grade exterior non-yellowing lacquer clear coat system
- Oxidation / verdigris corrosion removal of bronze figures to establish surfaces ready for re-patination in historically accurate dark brown patina. Methods for preparation may require soda-blasting, dry ice blasting, or other safe method to not damage or etch bronze surfaces.
- Traditional chemical patina application
- Hot wax sealing of bronze figures and base
- Polyurethane sealant application at intersection of bronze base and stone and surrounding each plaque.

Access Equipment: Ladder (optional)

Subsequent Maintenance Recommendations:

Upon successful completion of comprehensive restoration of the monument, a yearly maintenance plan is highly advised to consist of the following: Washing of statues and plaques using pH neutral detergent and distilled water via natural fiber brushes. Wax application for figures should be performed by gently heating bronze surfaces and applying a conservation-grade clear paste wax (microcrystalline/carnauba). Surfaces should be buffed to a sheen upon full cure of wax coating. All mortar seams should be inspected for stability and repaired if needed. Stone base should be washed with a pH neutral detergent using natural bristle scrub brushes to remove stains and rinsed with hose water. Consider landscaping overhaul to prevent lawn mowers/etc from contacting stone

Fig. 1 - Ground plaque showing oxidation and concrete loss

Fig. 2 - Plaque on sculpture base showing graffiti ghosting, failed lacquer.

Fig. 3 - Verdigris corrosion staining and oxidation. Staining from pooled water around feet

Fig. 4 - North vantage. Bio-staining on base, mortar losses, and verdigris corrosion on statues

Fig. 5 - Extent of large loss on base

Fig. 6 - Mortar seam losses, staining, and ghost image of graffiti: "YOU THIEF"

Fig. 7 - Typical losses and gaps in all seams between marble slabs

Fig. 8 - East face out of plane (lower tier). Bio staining on base, gouges from lawn mower, mortar losses

Founding of Nashville measurements

Artwork: Gold Star Monument
Artist: George Julian Zolnay
Date: 1922
Materials: Bronze, Granite
Location: West End Ave at 25th Ave. Centennial Park area

Description: The monument is a memorial to those from Davidson County who fought in WWI and depicts heroic-scaled versions of two figures, a female wearing a large cape kneeling over and partially supporting a dead soldier who has been killed in combat. Her cape envelops the back side of both figures while the front-facing side (South east vantage) displays her proper left arm over his proper left hand, her proper right arm supporting his back. The soldier clutches a rifle in his right hand which is laid on the ground next to his reclined body. The soldier is wearing period military uniform and facing downward while the female in a sleeveless dress gazes outward. The bronze figures are mounted upon a stepped grey granite base which features incised lettering and two large bronze plaques. Figures are crafted with life-like detail and texture, while the granite surfaces are smooth and unpolished. The monument is fully exposed and rests upon a concrete footer within a gently sloping lawn area

Condition: **Poor**
The Gold Star Monument while structurally sound and stable, currently appears as a forgotten memorial with obvious neglect visible most notably in the appearance of the bronze and plaques. The monument underwent restoration and refurbishment in 1967 and given its current appearance is unlikely to have received any substantial maintenance since that time. The following factors have led to deterioration and an overall compromised integrity:

- *Bronze figures* - the bronze surfaces are heavily oxidized with bright green verdigris corrosion staining (the corrosion is not powdery and stable on surfaces). The bright green is further emphasized visually through the contrast of black carbon staining embedded within failed coatings in all unexposed areas, crevices, and folds. Crazing is evident on blackened areas which indicates a coating system in an advanced state of deterioration. Dirt dauber and wasp nests are present in protected crevices and folds within the sculpture in addition to dust and debris lodged and embedded on surfaces. A small hole is found on the bronze beneath the soldier's proper right hand where the bronze is thin. Lead seams at intersection of bronze and granite are 10% intact.
- *Plaques* - Both plaques have received restoration in the past, however the current clear coat system is no longer effective, has begun blistering and appears blanched. Streaky horizontal white discoloration may be evidence of pressure washing, or simply failed clear coat application via spray which has thinned out. Gold lettering and outline border are tarnished and require restoration.
- *Granite base* - Generally, the granite base is in fair condition with moderate staining. Black and yellow colored runoff streaks are the result of carbon and biological growth staining while the light green runoff stains are from the oxidized bronze. Gouges, small losses, shallow abrasions, and nicks run horizontally along the lower step adjacent to the grass which is consistent with lawn mowers and landscaping equipment bluntly impacting the stone. Corners of the base also show small losses and nicks.

Treatment Priority: **High**

Treatment Recommendations:

The degree of verdigris development on the bronze is consistent with other works by the artist, and is somewhat subjective in determining a final aesthetic course of action. A uniform, consistent verdigris patina can be considered a desirable and intentional choice in treatment - however, unifying all surfaces to achieve a consistent result will ultimately dictate a final appearance choice. This may require a process of dark patina application to evenly restore surfaces. A choice in final appearance of the bronze should be performed in consultation with the owner and Metro Arts Nashville.

- Pressure wash (3000psi max) bronze surfaces to remove any current flaking coatings, embedded soiling, carbon, and atmospheric pollutants.
- Prepare surfaces for patina application. A gentle blasting technique should be performed to expose bronze (soda blasting, dry-ice blasting, or fine walnut shell)
- Small hole in bronze repaired via patch welding. Weld should be performed using in-kind copper alloy (bronze) and mechanically shaped to match surface texture of adjacent surfaces
- Bronze surfaces washed using pH neutral detergent and water via natural bristle brush followed by rinsing
- Traditional chemical patina applied using heat source - Patina application should be performed in a way to unify surfaces in a consistent coloration
- Hot wax sealing of bronze figures and base
- Refinishing and sealing of all plaques to achieve uniform dark brown background with brass-toned raised lettering profile. A variety of methods can be utilized to achieve this result. (dry ice blasting, soda blasting, laser cleaning, or other gentle mechanical means). Surfaces to be coated with conservation-grade exterior non-yellowing lacquer clear coat system
- Biological growth removal and cleaning of all stone surfaces using D/2 Biological Solution according to manufacturers directions.
- Graffiti ghosting removal on base via conservation-grade non-etching poultice formula.
- Polyurethane sealant application at intersection of bronze base and stone and surrounding each plaque.

Access Equipment: Scaffolding

Subsequent Maintenance Recommendations:
Upon successful completion of comprehensive restoration of the monument, a yearly maintenance plan is highly advised to consist of the following: Washing of statues and plaques using pH neutral detergent and distilled water via natural fiber brushes. Wax application for figures should be performed by gently heating bronze surfaces and applying a conservation-grade clear paste wax (microcrystalline/carnauba). Surfaces should be buffed to a sheen upon full cure of wax coating. All mortar seams should be inspected for stability and repaired if needed. Stone base should be washed with a pH neutral detergent using natural bristle scrub brushes to remove stains and rinsed with hose water.

Consider the installation of perimeter flower beds or alternate landscaping in order to prevent future collisions of lawn maintenance equipment with the granite base.

Fig. 1 - Overall vantage / left side

Fig. 2 - Overall vantage / right side

Fig. 3 - Overall vantage / back. Concrete footer exposed, abrasions visible on lower stone

Fig. 4 - Detail of cape folds. Carbon staining and unidentified circular "scars"

Fig. 5 - Plaque / right side showing white

Fig. 6 - Plaque / left side showing failed lacquer.

Fig. 7 - Plaque detail.

Fig. 8 - Bronze figures / verdigris corrosion

Fig. 9 - Heavy carbon staining

Fig. 10 - Verdigris corrosion and unidentified rust staining on satchel

Fig. 11 - Small hole in the thin bronze / embedded dirt in crevices

Fig. 12 - Crazing visible on what appears to be evidence of previous surface coating currently appearing as black - also seen in Fig. 11

Gold Star Monument Dimensions:

Artwork: Robertson Monument
Artist: Venable Brothers
Date: 1903
Materials: Granite, bronze plaques
Location: Centennial Park, southeast side of Lake Wautauga

Description: The monument is honors James Robertson, founder of Nashville and is located approximately 25 yards from the edge of Lake Wautauga in Centennial Park. The primary feature of the monument is a 55' H obelisk carved from a single granite block extending vertically from a two-tiered granite block base. Bronze plaques are inset within each face of the upper tier. The monument is fully exposed and is surrounded by nearby shrubs.

Condition: **Fair / Poor**
The Robertson monument is structurally sound and stable - no movement, losses or displacement found within the granite blocks or obelisk. The two primary factors effecting the overall integrity and visual health of this monument are the condition of the plaques which exhibit no evidence of protective coating or previous maintenance, and mortar pointing failure seen in losses throughout the seams. Less severe are the oxidation runoff staining and organic staining on the base. The obelisk was viewed from ground level with binoculars - natural losses and spalls were found however are viewed as benign and require no further treatment.

Treatment Priority: **High**

Treatment Recommendations:

Because the Robertson monument is prominently located with scores of people walking near it on a daily basis and because the plaques are so obviously in need of care/restoration the monument should be rated as a "high" treatment priority, however, none of the conditions present are a threat to the health of the monument. The following is an outline of treatment procedures to address the mentioned issues.

- Wash all surfaces with EK Restoration Cleaner (Prosoco) according to manufacturer's directions.
- All unstable mortar mortar seams should be manually extracted followed by flushing cavities out with pressurized water.
- All seams between granite blocks and surrounding plaques require repointing using historic mortar recipe of Portland, lime, aggregate, and water. Aggregate (varrying grit of sand) should be matched to existing mortar seams in order to create cohesive appearance to original . Portland may require pigmentation.
- Plaques require soda, walnut shell, or dry ice blasting to remove/reduce heavy verdigris oxidation staining.
- All plaques require patina application to achieve dark brown consistent coloration.
- All plaques require UV-stable non-yellowing clear coat lacquer application

Access Equipment: Ladders for plaques and base - if washing obelisk, access via boom lift

Subsequent Maintenance Recommendations:
Upon successful completion of comprehensive conservation and cleaning, a yearly maintenance plan should be implemented to consist of the following: Washing of all stone surfaces using a pH neutral stone detergent. IF biological staining and growth is present, apply D2 Biological Solution. Surfaces rinsed, mortar seams inspected. Plaques require washing using natural bristle brushes and pH neutral metal detergent to remove embedded soiling within lettering crevices

Fig. 1 - Overall vantage

Fig. 2 - Overall vantage / opposite side

Fig. 3 - Plaque one with verdigris staining

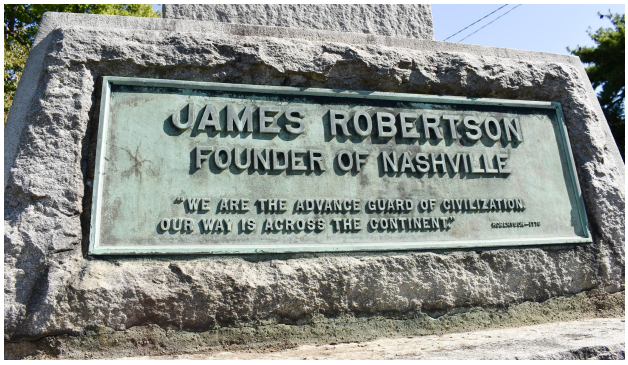


Fig. 4 - Plaque two showing verdigris staining on mortar

Fig. 5 - Plaque three showing verdigris and carbon crust. Bio staining on base

Fig. 6 - Plaque four showing verdigris runoff staining on mortar seams and fills

Fig. 7 - Mortar loss and staining

Fig. 8 - Mortar pointing loss (2' L section)

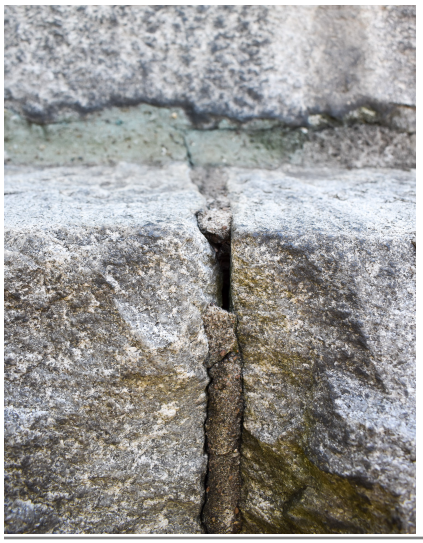
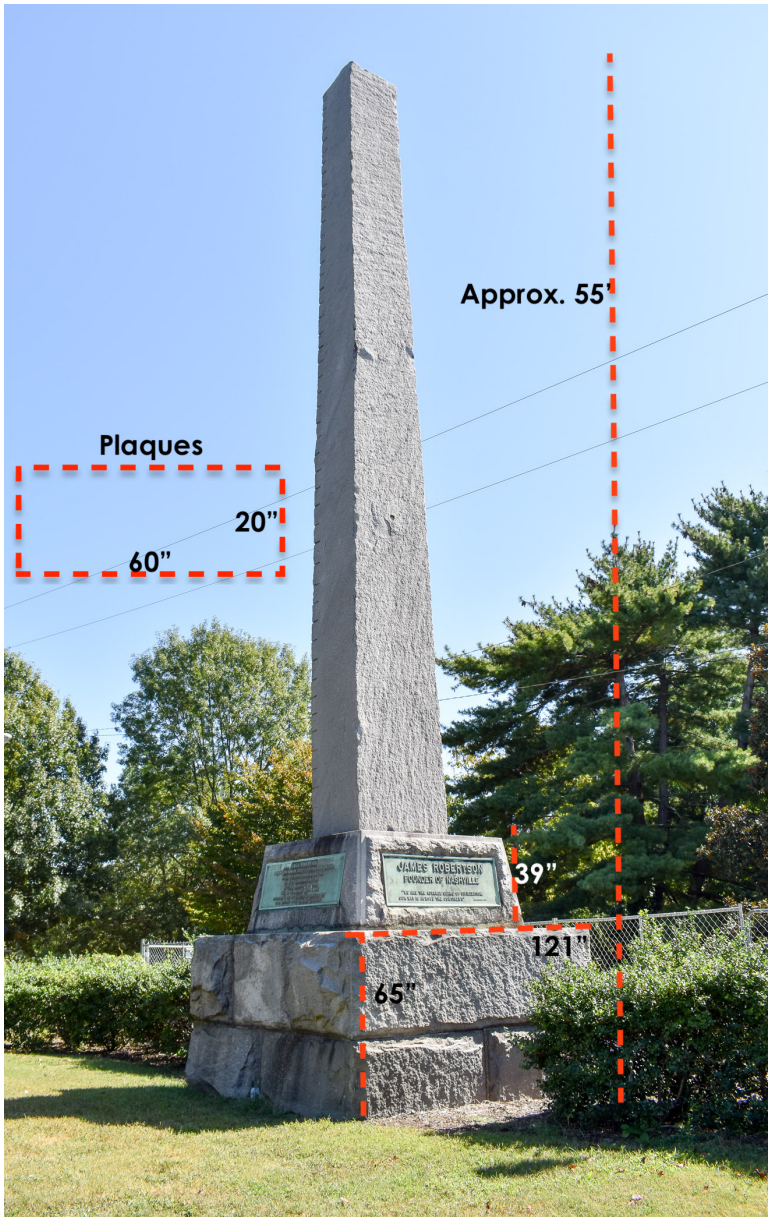


Fig. 9 - Mortar loss section example

James Robertson Monument Dimensions



Artwork: John Thomas Monument
Artist: Enid Yandell
Date: 1907
Materials: Bronze, Granite, Concrete
Location: Centennial Park, near Parthenon

Description: The monument honors John W. Thomas - President of the 1897 Centennial Exposition of Tennessee and is located adjacent to 27th Ave. N in Centennial Park near the West entrance of the Parthenon. The monument is comprised of a raised square concrete platform (40' sq.) with five stairs leading into the monument "plaza" area at each side of the monument, eight decorative stone benches at the corners, four columns supporting lighting at the corners, and a central tiered granite base supporting a heroic-scaled cast bronze statue of John Thomas.
The primary square platform base plaza is flanked on all four corners by flattop granite benches positioned to frame the four doric columns supporting opaque white glass globes which are lit at night time - each globe is held within a bronze stand. At the base of each column, a circular bronze medallion is set within the stone flooring to reveal the cardinal direction (North, South, East, West)
Each bench features identical design: a rectangular granite block base incised on both sides, each side featuring a different word ("Transportation", "Traffic", "Charity", "Patriotism", "Mechanical", "Wisdom", "Executive", "Administration", "Integrity", "Justice", "Devotion", "Courage", "Promptness", "Law", "Roadway", "Accounting") with carved scrolls at each end lengthwise, decorative carving along the corniced edges surrounding the bench slab top.
The central granite vertical base which supports the statue features an inset bronze plaque at each facade - three of which are bas-relief sculptures, and one displaying raised lettering of historical account of Thomas' accomplishments.
Thomas himself stands atop the granite base with his left foot forward and his right hand outstretched. His proper left arm clutches a cape, his palm appearing to rest on a pedestal on which the cape is draped and flowing downward. The artist's name and roman numerals MCMVII are incised at the lower portion of this pedestal. Thomas is wearing period clothing - a three-piece suit with knee-length jacket, and is crafted in lifelike detail.

Condition: **Poor**
The John Thomas Monument is structurally sound and stable with no major areas of stone loss or grotesque staining, however it is the bronze elements which so plainly distract the viewer calling attention to the neglect and poor visual quality of these most important features in such a highly visible area. Other issues contributing to the "poor" quality are listed below however are not as prominent as the issues with the bronze. The monument has undergone maintenance, basic cleaning and various patina/wax campaigns (the latest of which was 2010), however is again need of comprehensive restoration. The following factors have led to deterioration and an overall compromised integrity:

- *Bronze statue* - Thomas shows a high degree of verdigris staining and patina development- surfaces exhibit a light green coloration with uneven dark, splotchy areas throughout. These areas in addition to recessed and protected areas (within folds, under the jacket and cape, eyes, etc.) are a brown/ charcoal tone- evidence of the most recently applied protective coatings no longer adequately viable. Grime and dust are embedded within crevices and ares of texture including black atmospheric staining.
- Plaques - Similar to John Thomas, the plaques have developed a verdigris patina, unevenly so, to the point that detail of the bas relief carving has become muted due to the distracting splotchy

coloration. The splotchy coloration /dark areas are the remaining saturation of wax coatings currently embedded with carbon staining and atmospheric grime. The gap surrounding the plaques within the inset cavity of the granite range from 3/8" at widest points down to flush against the stone in the tighter areas. There is not evidence of a sealant bed or mortar between this gap however this gap itself is not considered a visual distraction or harmful to the integrity of the monument. The raised lettering of the plaque on the back side is legible and more consistent in its verdigris against a splotchy discolored background.

- Granite Slab Flooring - Once the viewer is standing within the monument after walking up the steps it is hard not to notice the weeds growing within the cavities between stone slabs. A lack of flexible polyurethane sealant has allowed organic debris, dirt, moss, and various weeds to grow and encroach upon the flooring. The total combined length of all gaps within the flooring and stairs is 150' at an average width of 1/4". Small drainage ports are located in the corners to allow standing water to evacuate. At each corner of the flooring the concrete substrate (beneath the granite blocks supporting the benches) is damaged and fragmented with varying degrees of loss including a partially intact mortar seam running along the perimeter of the interior flooring- visually obtrusive, yet not structurally compromising.
- Exterior perimeter stone - Biological runoff staining in the form of dark brown, black, and green vertical striations are present on each side of the platform, each riser of the steps, and heavily embedded on the horizontal mortar seam running under the bullnose platform overhang. Blue spray painted graffiti in the letters "BRE" is found beneath a bench to the left of the stairs opposite the Parthenon.

The columns and lighting elements are in overall good condition. At the time of assessment, a major landscaping renovation is underway which has blocked off public interaction with the monument. Trenching and sidewalk work immediately adjacent to the monument may alter current conditions at the time of writing.

Treatment Priority: **High**

Treatment Recommendations:

The degree of verdigris development on the bronze is somewhat subjective in determining a final aesthetic course of action. A uniform, consistent verdigris patina can be considered a desirable and intentional choice in treatment - however if the goal is to create consistency with the statue and bas-relief plaques it is recommended that all bronze elements undergo a patina and coating process rendering all bronze surfaces in a rich, dark charcoal brown tone with a lustrous finish. A choice in final appearance of the bronze should be performed in consultation with the owner and Metro Arts Nashville.

- Pressure wash (2500psi max - fan tip) bronze surfaces to remove any current flaking coatings, embedded soiling, carbon, and atmospheric pollutants.
- Prepare surfaces for patina application. A gentle abrasive blasting technique should be performed to expose bronze (soda blasting, dry-ice blasting, or fine walnut shell). Aggressive means of mechanical abrasion or aggregate blasting is to be avoided as this will damage the bronze surface structure and create pitting.
- Bronze surfaces washed using pH neutral detergent and water via natural bristle brush followed by rinsing
- Traditional chemical patina applied using heat source - Patina application should be performed in a way to unify surfaces in a consistent coloration. A variety of patina types/methods may yield the same result which are to be void of splotchiness or varying opacity.
- Hot wax sealing of bronze statue and plaques. Addition of pigmentation to the wax may aid in consistent surface coloration.

- All seams between granite slabs on the interior flooring and stairs requires manual raking (using wood dowels or chisels) of the cavities to disrupt and remove all weeds, moss, gravel, debris, etc. Using pressurized hose water, these cavities should be flushed out until all debris is gone.
- Biological growth removal and cleaning of all stone surfaces using D/2 Biological Solution according to manufacturers directions.
- Graffiti removal
- Depending on depth of cavities between slabs sand may be poured into cavities to allow a depth of 1/2" from the surface to be filled with polyurethane
- Polyurethane sealant injected to all seams. Material should be a flexible structural polyurethane in light gray appropriate for exterior flooring applications.
- Concrete substrate patching where losses are found
- Mortar repointing to match existing seams on interior and exterior surfaces
- Drainage cap replacement as needed on flooring corners

Access Equipment: Scaffolding

Subsequent Maintenance Recommendations:
Upon successful completion of comprehensive restoration of the monument, a yearly maintenance plan is highly advised to consist of the following: Washing of statues and plaques using pH neutral detergent and distilled water via natural fiber brushes. Wax application for figures should be performed by gently heating bronze surfaces and applying a conservation-grade clear paste wax (microcrystalline/carnauba). Surfaces should be buffed to a sheen upon full cure of wax coating. All mortar seams and polyurethane should be inspected for stability and repaired if needed. Stone base should be washed with a pH neutral detergent using natural bristle scrub brushes to remove stains and rinsed with hose water.

Fig. 1 - Vantage facing front


Fig. 2 - Vantage side - granite loss on base corner

Fig. 3 - Vantage showing two of three bas-relief

Fig. 4 - Back of figure. Heavy verdigris patina with uneven blotchy dark areas and carbon staining

Fig. 5 - Bas-relief plaque

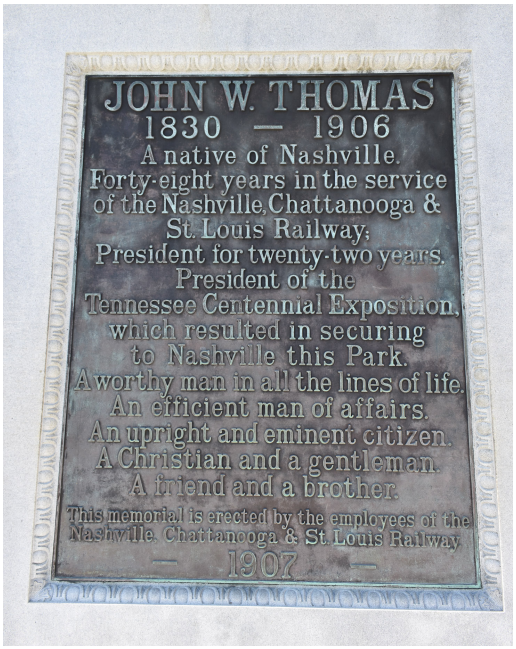


Fig. 6 - Lettering plaque on back side

Fig. 7 - Bas-relief plaque as pictured (L to R) in 2013, 2015, and 2020 Deterioration of wax coating

Fig. 8 - Bas-relief plaque patina detail

Fig. 9 - John Thomas verdigris staining

Fig. 10 - Concrete losses at corner

Fig. 11 - Bio staining and graffiti on ledge

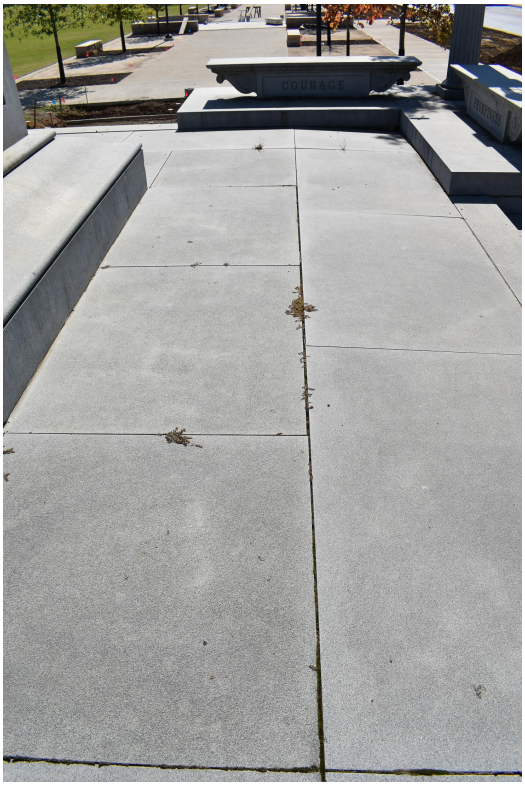


Fig. 12 + 13 Seam losses/plant growth in cavities throughout flooring

John Thomas Monument Dimensions

Artwork: Woman's Building Monument
Artist: Southern Marble
Date: 1904
Materials: Marble, bronze
Location: Centennial Park adjacent to playground at 27th St.

Description: The Woman's Building Monument is located within an open lawn area across from the John Thomas monument and 27th st. in Centennial Park. Unassuming in it's placement and design, the monument marks the site of the Woman's building at the Tennessee Centennial exposition in 1897. The monument consists of three primary forms: a rectangular marble block base, a vertical square marble column, and marble globe finial atop the column. The monument rests upon a plinth of rough-cut granite. Affixed to the center of the column is a bronze dedication plaque. All surfaces are uniform in color, texture, and aggregate composition. Edges and corners of the base and column are slightly rounded including a shallow tier routing along the upper edge of the base perimeter.
Shrubbery encroaches on the sides of the base lengthwise.

Condition: **Fair/Poor**
The Woman's building monument is structurally sound and stable, and without any major damages aside from an overall aesthetic quality revealing neglect, the sculpture can be considered ion the lower end of fair condition. The primary factors leading to its condition are: Biological growth and staining, and deterioration of plaque surfaces including oxidation staining.
The marble surfaces originally were a crisp white, however years of embedded soiling, dust and grime, biological growth (black staining) and runoff streaks have caused a once vivid landmark to blend into its surroundings. The white marble is primarily a dull gray/white with a charcoal-toned globe atop the column. Blue/green oxidation runoff staining from the plaque is visible as a light green wash below the plaque and a yellow/green runoff area on the rectangular base stone. Small losses to the marble - at the corners below the globe and a small loss of aggregate on the underside of the globe
The plaque has developed a somewhat even oxidation with darker areas surrounding the interior framing detail. No current wax coating or lacquer is present on the plaque surfaces.
Erosion does not pose an immediate threat to the overall surface structure or stability of the marble, however the exposure to the elements for 116 years has led to the current texture feel as caused by erosion and age resulting in slightly rough surfaces with exposed aggregate

Treatment Priority: **High**

Treatment Recommendations:

Because the Woman's Building monument is prominently located and receiving a relatively high degree of public interaction - the plaque and staining require obvious care/restoration. For this reason, the monument should be rated as a "high" treatment priority, however because none of the conditions present are a threat to the health of the monument it requires more basic treatment. The following is an outline of treatment procedures to address the mentioned issues.

- Apply D/2 Biological Solution to all surfaces following manufacturer's suggested application methods, allowing all staining to be relieved from the surfaces
- Following repeated applications of D/2 gently agitated on the surface via natural fiber scrub brushes, surfaces are to be flushed with water.
- Oxidation runoff staining, if not removed via D/2 process, will require a conservation-grade poultice solution to enable the staining embedded within the stone to be gently pulled from the surface. Poultice should be applied according to manufacturer's suggested dwell times based on temperature and conditions.
- Plaque will require corrosion removal and surface preparation for re-patination - a gentle blasting technique (dry ice or soda) is best recommended to remove powdery corrosion while retaining profile of lettering.
- Upon preparation, sculpture requires application of an aqueous patina or appropriate patina stain solution applied in uniform method to ensure consistency of color and saturation. Plaque will then require application of a non-yellowing UV and corrosion inhibiting clear coat lacquer system.
- Stone surfaces will best be protected with application of Siloxane PD (Prosoco) according to manufacturer's suggestions. Siloxane is a breathable impregnating water repellant for natural stone surfaces - preventing water absorption while allowing natural evaporation.

Access Equipment: Scaffolding

Subsequent Maintenance Recommendations:
Upon successful completion of comprehensive restoration of the monument, a yearly or every-other year maintenance plan is recommended to consist of the following: Washing of stone surfaces with pH neutral detergent followed by spray application of D/2 Biological Solution will prevent development of biological growth and staining. Plaque will require minimal maintenance - washing of all surfaces using pH neutral detergent and soft bristle brushes. Because plaque will have been coated with a protective lacquer, wax application is not required unless surfaces are dull. If surfaces are dull, a light coat of microcrystalline wax may be applied and buffed with horse hair buffing brush. Siloxane coating should be reapplied after 5 years.

Fig. 1 - Dark biological staining on globe, and small losses at corners

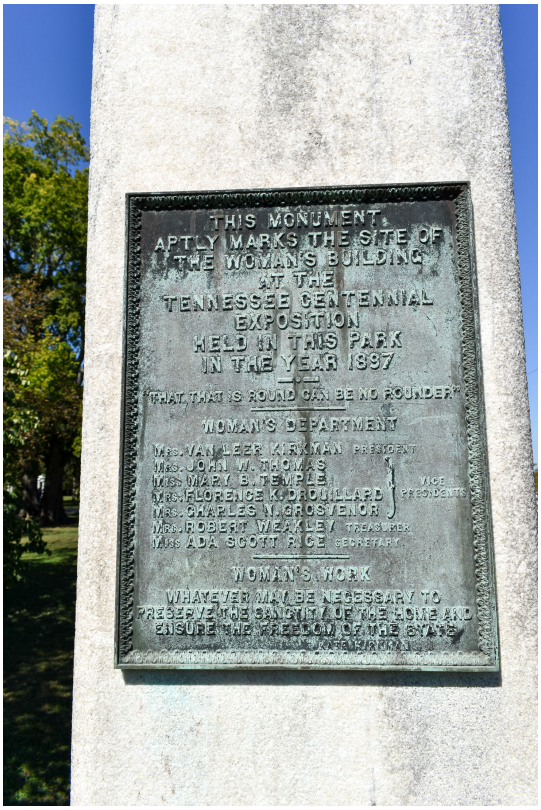
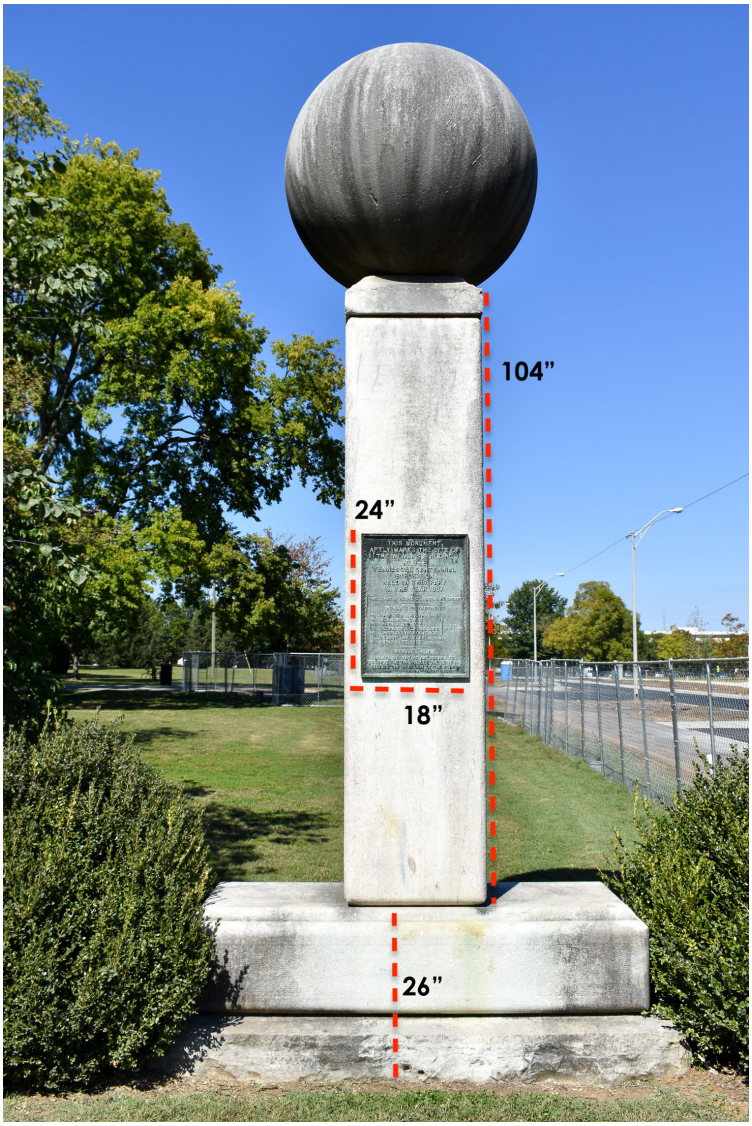


Fig. 2 - Corrosion and oxide staining from plaque deterioration

Fig. 3 - Biological staining, oxide runoff on lower portion of base

Fig. 4 - Biological staining on all surfaces

Woman's Building Monument Dimensions



Artwork: Gunboat Tennessee
Artist: E.C. Lewis
Date: 1910
Materials: Bronze, iron, concrete
Location: Centennial Park adjacent to 25th ave.

Description: The large cast concrete ship's prow was designed by Major E.C. Lewis to support and display a bronze replica of the ornate figurehead of the gunboat USS Tennessee that had been on display at the 1909 World's Fair in Seattle. The bronze figurehead is comprised of eighteen (18) sections of bronze, each section mounted to the concrete structure via iron rods anchored within the concrete and protruding through mounting holes on the cast bronze. The sections (ranging from 2" - 5" in thickness, the scrolls and seal protrude further) fit together to form the overall figurehead design - each section showing a gap at the segment intersections. Of the iron anchoring rods, forty seven (47) are exposed and forty four (44) are capped with a concrete fill flush against the joining bronze.
Originally featuring a traditional dark brown patina, natural oxidation and weathering has allowed verdigris patina to develop on the majority of surfaces. Previous restoration campaigns are visible in the filling of exposed joints, and a light golden brown toned paint or lacquer system evident in brush and drip markings.
The gunboat sits in an open lawn area within Centennial park beneath a canopy of trees. The structure is climbed upon through access stairs at the rear of the boat section, and on the bronze itself as areas of patina have become exposed due to likely usage as footholds for climbing.

Condition: **Poor**
Gunboat Tennessee is in obvious disrepair: significant deterioration, cracking, and losses of the concrete are prominent including heavy blue/green oxidation runoff staining. While both the concrete and bronze portions of the structure require restoration, this condition assessment will only focus on the bronze elements.
All bronze sections are structurally secure in their mountings. Utilizing hand pressure only, each section was inspected for movement in which none was found. The iron rod anchoring system, while effective, has led to red/brown typical rust corrosion staining and runoff surrounding each hole in the bronze on the 47 exposed iron rods. The concrete capping of the 44 rods has prevented staining or corrosion growth at these points and remains stable. Two holes were observed to show either uninstalled iron rods, or iron rods which have gone missing.
All surfaces of the bronze exhibit a poor overall appearance, yet the integrity of the bronze does not show deterioration beyond the high degree of staining and verdigris. Dust, dirt, organic debris, spider webs, hornet nests, and dirt dauber nests are found throughout the many crevices and pockets within the intricate relief work. All surfaces are visibly dirty with no evidence of a wax or viable coating still effective. Evidence of a paint or lacquer coating is found throughout local protected areas in the form of a light brown wash of color including drip marks / excess coating material running down the surfaces. Surfaces show no sheen with the exception of rubbed areas at the crest (notably the lower scroll) where patina has worn off to reveal raw bronze.

Treatment Priority: **High**

Treatment Recommendations:

Treatment on the bronze should not be performed until a viable plan can be made to perform necessary restoration on the concrete. Any work on the concrete performed after a restoration of the bronze would certainly cause damage. Because this scope is limited to the bronze only, it is unknown the extent or course of action in restoring the concrete and the extent to which it effects the mounting systems and surfaces behind the bronze. A decision in this order of operations will dictate specifics of restoration of the bronze (i.e if the bronze needs to be removed for concrete restoration) either onsite or removed. For the sake of this assessment and recommendations, a course of action to restore and conserve bronze elements in situ will be listed here as potential issues relating to damage from deinstallation of bronze is a potential hazard. Offsite restoration would likely require additional measures to address the anchoring rods.

- Pressure wash (3000psi max) bronze surfaces to remove any current flaking coatings, embedded soiling, carbon, and atmospheric pollutants.
- Prepare surfaces for patina application. A gentle abrasive blasting technique should be performed to expose bronze (soda blasting, dry-ice blasting, or fine walnut shell). Aggressive means of mechanical abrasion or aggregate blasting is to be avoided as this will damage the bronze surface structure and create pitting. Isolated blasting should be performed on the exposed iron pins to remove powdery rust growth.
- Bronze surfaces washed using pH neutral detergent and water via natural bristle brush followed by rinsing
- Corrosion passivating solution or corrosion inhibitor injected within recesses surrounding iron rods.
- Traditional chemical patina applied using heat source - Patina application should be performed in a way to unify surfaces in a consistent coloration. A variety of patina types/methods may yield the desired result - The selected patina coloration should be performed in consultation with the owner and Metro Arts Nashville.
- Hot wax sealing of bronze. Addition of pigmentation to the wax may aid in consistent surface coloration. Buff surfaces once cool. A UV inhibiting clear coat (such as Clear Guard) may be used in lieu of waxing.
- Exposed ends of iron rod should be "capped" with an appropriate color-matched polyurethane sealant. This will prevent future corrosion runoff or staining

Access Equipment: Scaffolding / ladders

Subsequent Maintenance Recommendations:
Upon successful completion of comprehensive restoration of the monument, a yearly maintenance plan is highly advised to consist of the following: Washing of all bronze surfaces using pH neutral detergent and water via natural fiber brushes. Hose pressure should be used if possible to evacuate inevitable build-up of grime within the crevices. Wax application should be performed by gently heating bronze surfaces and applying a conservation-grade clear paste wax (microcrystalline/ carnauba) with UV and Rust inhibiting properties. Iron rods should be monitored for movement upon each maintenance (checking concrete and polyurethane "caps" for cracking or losses).

Fig. 1 - Vantage from left side

Fig. 2 - Vantage from right side

Fig. 3 - Iron rods - both varieties: exposed and capped with concrete. Residual paint staining

Fig. 4 - Detail showing corrosion staining from iron, light brown paint drips. Wasp nest

Fig. 5 - Detail showing corrosion staining from iron, light brown paint drips, debris and verdigris

Fig. 6 - Detail showing corrosion staining from iron, light brown paint drips, and joining of sections

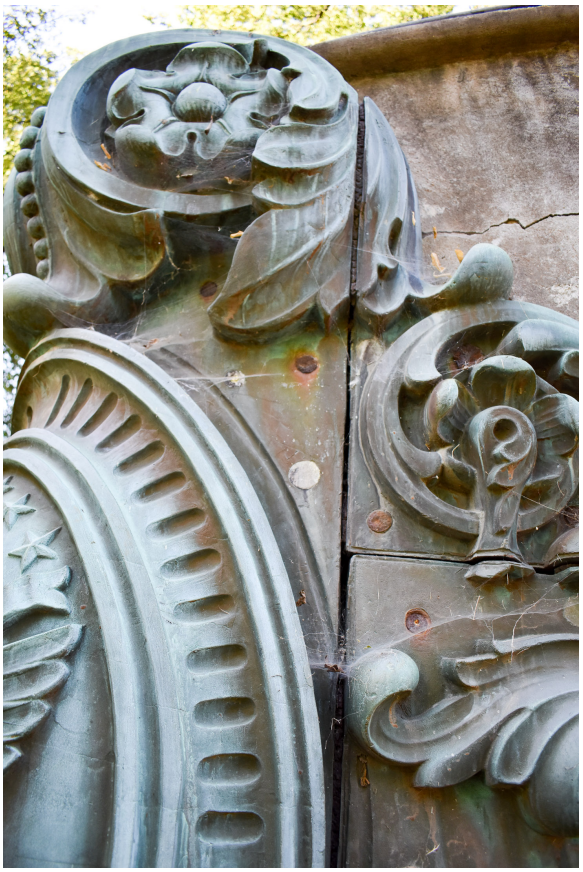


Fig. 7 - Detail showing corrosion staining from iron, light brown paint drips, and joining of sections

Fig. 8 - Detail from crest. Small deposits of light brown coating evident in several areas

Fig. 8 - Detail from crest - worn patina from climbing

Gunboat Tennessee Dimensions

Artwork: Water Fountain Shelter
Artist: E.C. Lewis
Date: 1912
Materials: Concrete, steel
Location: Shelby Park . Lillian at 19th st.

Description: For the opening of Shelby Park in 1912, E.C Lewis (an important figure in Nashville history who helped develop Centennial park and Shelby park) designed a series of "Follies" to be placed in the park. These whimsical structures included a windmill, boathouse, and water fountain shelter - the last of which is the only remaining structure.
Located immediately adjacent to Shelby Park Dr within the park near a grove of trees and shrubbery, five concrete steps lead down from the road to an octagonal concrete pad which acts as the flooring for the structure. At each of the eight (8) corner edges within the flooring, a concrete pillar extends upward and diagonally - all pillars meeting above the center point to create a cone or teepee shaped structure with a pinnacle concrete cone "cap" joining and mounted atop the pillars. A concrete dome acts as a ceiling structure and is mounted at approximately 2/3 of the total height of the structure (the bottom edge of the dome measures 85" from the floor). Each pillar protrudes through the dome, the angles and mounting method allowing the dome to rest securely without movement. A 'pinched' cone-shaped decorative element is mounted at the top center point of the dome and connects with the underside of the top cap.
Each cast concrete pillar is five-sided and tapers upward - the width of each column decreases by several inches moving upwards. All portions of the concrete are reinforced with a steel armature system - twisted 1" steel rebar - standard for concrete construction during this period. The structure has stood in in situ without disruption since 1912 however has recently been modified to include adjustable temporary steel shoring posts to provide additional support to the concrete dome. Orange barricade fencing has been placed around the structure to prevent public interaction due to safety concerns as listed below.

Condition: **Deteriorated**

Water Fountain Shelter still stands and is generally secure in its placement however both the structural and aesthetic integrities of the artwork are severely compromised and require proper action.
*Structural concerns - four of the eight pillars beneath the dome portion show moderate to extensive concrete loss which exposes the corroded concrete rebar system. It is likely that the active corrosion growth expansion on the rebar has caused the concrete to "pop" off the surface. All pillars protruding above the dome show more extensive rebar exposure. Losses on the interior ceiling of the dome likewise show cavities within the concrete and corresponding exposed rebar. Corrosion runoff staining is found in several spots suggesting corroded rebar within the dome structure. White runoff staining is also found on the interior column sections implying water saturation through the dome exterior. Moderate biological growth staining (green) is found in several areas.
As a precaution, at the midpoint of the bottom dome edge between each pillar extending vertically from the floor to create tension against the bottom flat edge of the dome, eight adjustable steel shoring posts have been installed. These steel poles provide additional support until an overhaul or structural modification is implemented.

*Aesthetic concerns - The entire structure exterior has become blanketed with moss and lichen growth. Upon walking up or down the path it is easy to miss the structure (aside from the orange barricade) as the moss growth causes it to blend in with its surroundings. The entire exterior surface of the dome is carpeted with a heavy and thick moss growth while the pillars and top cap show varying degree of growth - areas which are protected from moisture show no active growth. While not easily visible from the main path, as one approaches the structure it becomes clearly evident that there is graffiti adorning each column and interior dome surfaces. What is interesting about this graffiti is its age - signatures, initials, and their corresponding dates going back to 1913 - all marked on the surface using pencil graphite. More recent markings show marker or pen - all markings are primarily found on the interior flat surfaces of the pillars and dome interior. Etched markings are also found however are less prevalent.
The heavy growth of moss and lichens on the surfaces also may be hiding flaws or damages of the concrete such as cracking or additional losses not detected at the time of this assessment. Entire removal of all biological growth will be required to achieve a more substantial condition understanding primarily of the dome exterior.

Treatment Priority: High

Treatment Recommendations:

Treatment plan will require consultation and approval from a structural engineer to ensure that all methods concerning reinforcement and repair are sound, complying with best practices of architectural preservation. The following recommendations are of the opinion of the Conservator based upon experience in treatment of similar conditions and materials and should be used as a guidepost, not a mandate. It is of the opinion of the Conservator that the 'graffiti' adorning the interior surfaces can be considered a historical artifact and therefore should be preserved. The physical markings whether from 1918 or 2020 lend to the history and unique characteristic of the structure. While this preservation may set precedent for ongoing 'markings', procedures can also be implemented to ensure more destructive forms of graffiti (spray paint, solvent-based materials) are guarded against.

- Historical graffiti should be documented and protected prior to treatment. This can be done in a variety of ways - the simplest of which involves wrapping surfaces or protecting markings with tyvek and archival tape. While preservation of the markings is ideal, it may not be possible or practical in areas that require more extensive concrete modification or rebar exposure.
- All biological growth (moss, etc) should be gently removed using medium pressure hose water in conjunction with natural bristle brushes gently agitating active growth from the surface. Residual staining can be applied with D/2 Biological Solution according to manufacturers suggested methods.
- Upon removal of all biological growth, surfaces will require further inspection for structural stability, cracks, and exposed rebar cavities.
- Concrete in contact with areas of exposed rebar must be removed in order to expose extent of rebar corrosion - this must be performed methodically and in localized areas in order to not remove excessive material but removing enough material for new installation of concrete surrounding rebar repairs.
- Once corroded rebar has been exposed, corrosion growth must be removed. A variety of methods may yield the same result (chemical, or localized abrasive blasting) however all corrosion must be stabilized and/or evacuated.
- All exposed rebar will require encapsulation with a corrosion-inhibiting structural treatment - A cementitious, epoxy or zinc based coating material with integral corrosion inhibitor, is to be used as bonding primer and reinforcement corrosion protection

- If it is determined that existing rebar is too fragile or compromised, segments may then require additional measures to re-establish strength with new steel bar connected to existing rebar.
- Forms to be put in place flush against pillars to allow correct surface structure and planing during injection of new concrete.
- Cavities, removed concrete, and voids surrounding bar are to be filled with a polymer-modified non-shrink mortar system and allowed to cure. Forms removed
- Protective wrappings removed, and after sufficient cure time of newly installed mortar, all surfaces are recommended to be applied with a breathable water-repellent system such as Siloxane PD applied according to manufacturer's suggested methods.
- Consultation with structural engineer to determine viability of removing temporary shoring posts upon completion of treatment

Access Equipment: Scaffolding / boom lift for high reach exterior areas (optional)

Subsequent Maintenance Recommendations:
Upon successful completion of comprehensive restoration of the structure, surfaces should be monitored and inspected for any cracking in the pillars, specifically in areas where new material joins the historical concrete. This should be performed monthly for the initial year after restoration, followed by a twice-yearly check up there on out. Structure should be monitored for biological growth development and treated as needed via application of D/2 biological solution.

Fig. 1 - Overall vantage showing heavy moss and lichen growth on dome. Shoring posts aiding in structural support

Fig. 2 - Heavy biological growth development and rebar segment loss (rebar intended to fit in channel slot)

Fig. 3 - View of dome underside showing losses, exposed rebar and graffiti

Fig. 4 - Dome underside opposite vantage. Rebar protruding through upper pillar. Losses, staining, and biological growth

Fig. 5 - Detail of exposed rebar damage, historic graffiti on pillar, and fracture. Numerous air pockets from fabrication within concrete

Fig. 6 - Detail of historic graffiti dating to 1913

Fig. 7 - Detail to show scale of an exposed rebar section of pillar mid-point

Fig. 8 - Heavy moss and lichen growth on outer dome. Exposed rebar sections on upper pillars.

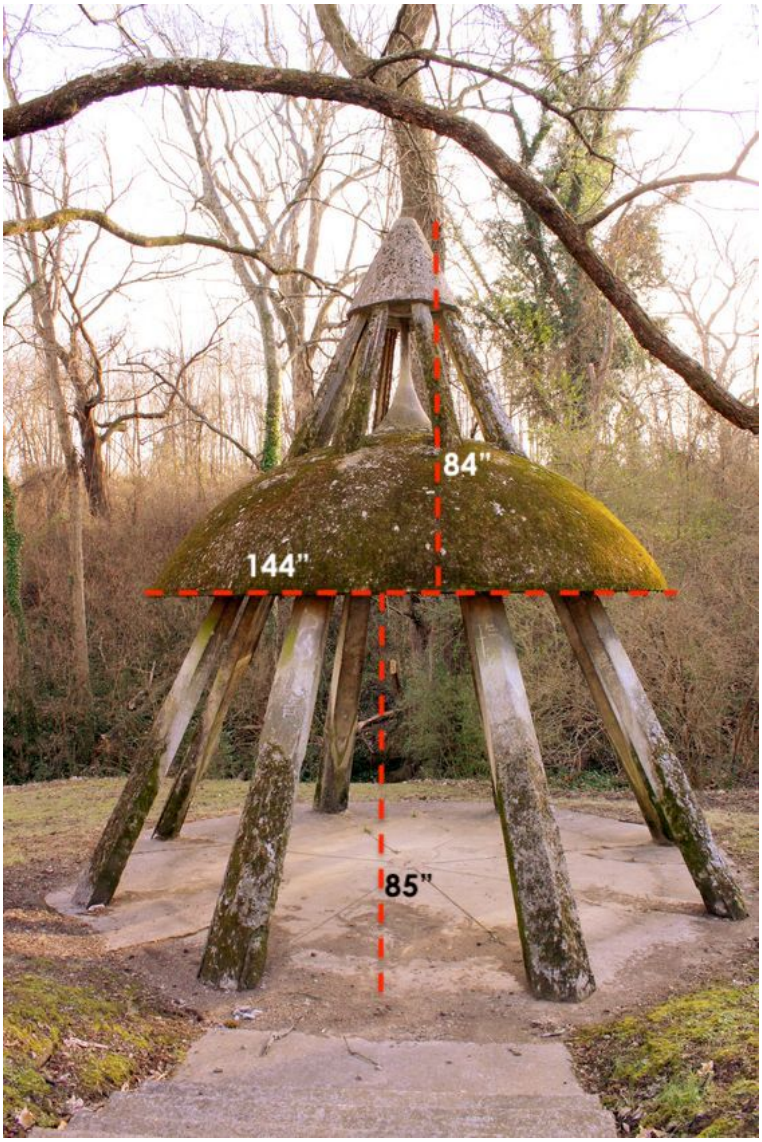
Fig. 9 - Uper cone section. Multiple areas of exposed rebar and partially intact pillar structures, fractures possibly hidden due to moss growth.

Fig. 10 - Lower pillar section. Exposed rebar, heavy biological growth.

Fig. 11 - Large sections of loss on pillar exposing rebar sections. Shoring posts aiding in support

*Flooring and concrete steps leading down from path are in fair condition. In addition to cleaning and sealing, the extent of repairs will involve crack injections

Water Shelter Dimensions
(*photo pre-dates assessment depicting structure sans shoring posts and plastic baricade - current conditions not reflected*)



Artwork: Moses, King John, Justinian, Justice
Artist: David Harriton
Date: 1937
Materials: Glass, gold leaf, copper alloy
Location: Historic Courthouse. 1 Public Sq.

Description: Dedicated December 8, 1937 - The Davidson County Courthouse and Public building is a quintessential example of Art Deco architecture. Period detailing abounds throughout the building's exterior- the Indiana limestone façade contrasts with the bronze doors, etched glass, and gold leaf amongst carved design work and layered recesses. One prominent decor feature of the building are the four carved glass windows by artist David Harriton. Harriton, widely recognized for his important contributions throughout the country creating architectural glassworks, is particularly known for his style of carved glass utilizing sandblasting as the means of etching and creating bas-relief imagery within solid glass surfaces. Three glass panels are located at the south elevation above the main entrance doors at the third story level. These windows display the visages of three Lawgivers to the U.S. legal system: King John of England (left), Moses (center), and Justinian (right). On the north elevation, Blind Justice sits with her scales and an owl perched on her shoulder. The bas relief carving textural dimension faces on the exterior side of the building, each figure surrounded by gold leafing directly adhered to glass. The carved detailing in the faces, clothes, hair, and objects are only minimally distinguishable from ground due to their subtlety. Interior vantages showcase the detailing up close however are hidden from public view within the office spaces due to metal blinds blocking the windows. A copper alloy (brass) framing on the inside covers the mounting and sealant system on all sides. From the exterior vantage, windows are shallowly recessed into the facade and framed with metal casing and sealed with flexible caulking. While unconfirmed, it is possible that the glass panels were intended to be backlit from the building's interior lighting system which would enhance the otherwise muddled carving detail as viewed from the outside. Currently, the blinds on the interior may be preventing illumination.

Condition: Fair/Poor

There are numerous issues effecting the overall integrity and aesthetic of the glass, some of which have been addressed and treated during previous campaigns. An outline of previous work is critical in determining overall health of the panels as listed here:

Treatment and Assessment History:
A detailed assessment was performed by Shelley Reisman in 1993. Her findings document repairs that were done prior to 1993, however documentation of these efforts is unavailable. According to Reisman's assessment in 1993: "*The structure of the panels on the South facade is unstable at this time. Each has a minimum of four major breaks, and each fragment has shifted out of plane. Movement of the building materials from blasting, trapped moisture expanding during a freeze, and inadequate cushioning in the panel frames, has caused breaks in the panels, and has caused the panel frames to project out of their openings. … Several of the fragments, in each panel have moved out of plane approximately 1/16". There are numerous minor concoidal shaped areas of loss along the breaks and several major areas of loss where the breaks converge.*" She also notes that previous repairs had been performed. "*Each break on both the interior and exterior surface has been covered by a variety of caulk-like materials to prevent air from entering the interior work place… these materials were originally*

transparent and now discolored to a white or gray color. … a translucent resin reinforced with fiberglass has been applied to the interior surface of the panels…and has been removed to accommodate the caulking…the removal of the resin has caused spalling. … the gilded surface appears to have been removed and a copper restoration paint applied." A preservation survey performed by John Mesick (Mesick, Cohen, Wilson, Baker Architects, LLP) in 2003 confirms the findings of 1993 which implies no work had been performed.

A major restoration and preservation of the Courthouse was undertaken beginning in 2003 and completed in 2006. During this period of treatment the panels were removed and restored offsite. Documentation was unavailable at time of writing of this assessment, however upon examination in 2020 it can be confirmed that at minimal, the following work was performed:

- Adhesives/sealant (caulking) removed from both interior and exterior surfaces
- Glass sections re-aligned to correct areas out of plane. It is unknown what type of adhesive is used in the breakage edges where sections are fused.
- Background on exterior applied with new gold leaf gilding.
- Resin/fiberglass backing on the interior surfaces removed
- Exterior frames replaced.
- New sealant bed (clear, flexible, - elastomeric polymer / silicone) installed to cushion glass surrounding casements interior and exterior surfaces.
- Copper alloy window trim framing either restored or installed on interiors.

Conditions in 2020:

The four glass panels exhibit structural stability despite the permanent damages (repaired cracking) that will require indefinite monitoring. From the exterior vantage no new cracking networks or areas out of plane are visible within each panel. Gold leafing applied over repaired cracks remains stable indicating sound repairs. Joined areas of breakage appear stable and all sealant beds are firm. Losses of glass and spalls are found at breakage intersections - the cavities formerly filled with caulking have been filled with a translucent epoxy. It is unknown which restoration campaign this is associated with however the filled cavities reveal a yellowing of material (likely epoxy) as visible from the interior. A loss of limestone at the intersection of the metal frame in the lower right corner is found on the Moses panel. Close inspection via scaffolding or lift must be performed to confirm precise conditions of the sealant in addition to stability of adjacent repairs and fills on the limestone - any new damages or losses on all sections previously repaired will imply ongoing environmental vibrations are continuing to put stress on the glass. "Justice" (north facade) is in much better overall condition showing minimal cracking. Metal frames are securely bonded to the limestone and are stable. Gold leafing, applied on all recessed background portions of the windows during the most recent conservation, is approximately 90% intact. All three windows on the south facade show erosion of the gold leaf beneath the upper drip edge in a consistent horizontal line. The gold leaf losses are not visually distracting per se, however read as black mold development or grime staining from ground level. Losses of gold leaf are found sporadically at each window in various intersection points of the background and carved detailing. Extent of leafing losses is best viewed from interior where they are much more pronounced. All four window exteriors are embedded with grime (atmospheric pollutants, street pollutants such as tar, and dust) giving them a dull appearance. Recessed areas within each panel exterior are prone to more buildup of dirt. Viewed from the ground, the windows generally appear muted - the silhouette of the figures are identifiable, however the detail and elegance of design are more difficult to recognize from below.

Interiors of the south facade windows are located on the third floor. Cubicles compose the interior makeup of this space. Windows are each situated behind three different work stations/cubicles. A large white mini blind hangs from the ceiling and blocks viewing of each window. Windows are set in at a depth of twenty-eight (28") inches from the wall and are framed with a hollow square tube copper alloy that surrounds the panel. Clear silicone caulking is installed around the perimeters and where metal meets drywall. Window interior surfaces as mentioned above reveal a more accurate account of the cracking, gold leafing losses, and previous repairs. Crack edges repaired and bonded during the

2006 conservation campaign are minimally out of plane as detected in a few local areas (typically 3mm or less) this condition is typical of bonded sections and does not imply new movement. Epoxy fills appear yellowed and a thin layer of dust is found on the glass. Copper alloy surrounding each window is stable yet oxidized in areas most notably where hand and finger contact have caused tarnish. Located on the north elevator lobby, the interior side of "Justice" presents a different set of circumstances. Apparently the interior space was used as a film location where the window was incorporated - All surfaces have been coated with an adhesive residue applied in a way to emphasize or enhance the design work of the figure, owl, and scales. This gray, sticky residue remains on the surface in a pattern similar to duct tape when it has been removed leaving behind a pattern. The adhesive - a tight network of vertical lines when viewed up close is found on most surfaces, other blank areas being left vacant intentionally. The adhesive is quite distracting and mars the surface altering intended illumination and visibility of the design. The copper alloy framing is also much more oxidized than the south facade interiors due to the fact that this window is the only one publicly accessible (without entering office spaces). While the silicone sealant is firmly intact, a white chalky area of evaporated liquid is found on the lower left and right corners of the sill. This may be as simple as a spilled substance left to dry however further investigation of water intrusion should be conducted if the liquid is source is from the exterior.

**2021 Condition Update* : Extensive observation revealed no additional damage or change in condition as a result of the December 25, 2020 bomb explosion*

Treatment Priority: High

Treatment Recommendations:

Treatment plan and access will require consultation and approval from the courthouse to ensure that all methods comply with best practices of architectural preservation. The following recommendations are of the opinion of the Conservator. Further consultation with a glass conservator specialist is recommended before implementing treatment

- Inspection should be performed on all exterior surfaces to identify stability of sealant, framing, repaired cracks, fills, and repairs to adjacent limestone.
- Cleaning of all surfaces using a pH neutral detergent and distilled water with microfiber cloths and soft, natural fiber brushes.
- Identify any areas of spalling and/or losses which allow moisture intrusion.
- Prepare any areas requiring fill stabilization with isopropyl alcohol injection. Following evaporation of alcohol, any open microcracks and fissures should be injected with a conservation grade UV stable glass adhesive such as HXTAL NYL-1
- Removal of any loose or unstable areas of gold leaf
- Application of new 24k gold leaf in areas of loss, erosion, or deterioration in order to establish a consistent, opaque saturation.
- Cleaning of all interior surfaces using a pH neutral detergent and distilled water with microfiber cloths and soft, natural fiber brushes. Containment must be performed to minimize water saturation.
- Identify any areas of spalling and/or losses which allow moisture intrusion.
- Prepare any areas requiring fill stabilization with isopropyl alcohol injection. Following evaporation of alcohol, any open microcracks and fissures should be injected with a conservation grade UV stable glass adhesive such as HXTAL NYL-1
- Framing will require cleaning, localized oxidation mitigation, and sealing all metal with a clear wax buffed to a sheen.
- "Justice" will require adhesive removal prior to any conservation work on the interior using denatured alcohol or isopropyl via microfiber wiping and removal.

Access Equipment: Scaffolding or boom lift (will require permitting)

Subsequent Maintenance Recommendations:
Upon successful conservation of the panels, vibration data loggers should be installed on window frame interiors. Data should then be logged and recorded to measure vibration and movement (a variety of equipment options include uploading data via wifi and do not necessarily require onsite visitation). This may be helpful to determine effect and possible impact of sound vibration from concerts in the nearby park or other external events. Yearly check-up of interior surfaces, cleaning, and observation of cracks should be performed and recorded along with checking vibration data. Sealant beds and framing will also require checkups.

Fig. 1 - South facade vantage: King John, Moses and Justinian (L to R)

Fig. 2 - South facade vantage: Justice

Fig. 3 - King John. Gold leaf deterioration along top edge.

Fig. 4 - Moses. Large, curved crack from right shoulder to sternum - repaired. Gold leaf deterioration. Limestone loss on lower right corner

Fig. 5 - Justinian. Gold leaf deterioration along top edge.

Fig. 6 - Justice. Gold leaf deterioration, severe marring from internal adhesive residue.

Fig. 7 - Justinian. Interior. Gold leaf deterioration (squiggles suggest pressure washing on exterior)

Fig. 8 - Justinian. Detail showing fractures, spalling at the fracture edges, and yellowed fill material on lower left jaw line.

Fig. 8 - Moses interior showing larger fracture (see fig. 4 for exterior) Oxidation and staining on copper alloy framing

Fig. 9 - Moses interior detail showing network of cracks, corresponding spalling, and loss of "frosted" appearance in larger spalls

Fig. 10 - Overall interior vantage of King John

Fig. 11 - King John detail showing crack network, spalling in the crown area, gold leaf deterioration, oxidation on copper alloy, and water staining in drywall upper right corner. Further investigation is needed to find source of water ingress.

Fig. 12 - Overall interior vantage of "Justice" showing adhesive residue

Fig. 13 - Detail of adhesive residue patterning

Fig. 14 - Detail of white liquid staining on copper alloy framing.

Fig. 15 - Detail of gold leafing losses

Harriton Glass Dimensions:

Estimated Budgets:

Budget estimate ranges include treatment of all observable conditions at time of assessment. Costs may exceed those listed if conditions require alternate or additional treatments outside of the recommended scope. This may particularly be true with "Water Fountain Shelter" and "Gunboat Tennessee" if the structures require extensive rebuilding.

Subsequent maintenance estimates are based on implementation without major lapse in time following initial conservation.

TITLE	INITIAL CONSERVATION	CYCLICAL MAINTENANCE
Founding of Nashville	$70,000 - $100,000	$3,500
Gold Star Monument	$55,000 - $90,000	$3,800
Robertson Monument	$30,000 - $50,000	$2,500
Thomas Monument	$155,000 - $180,000	$5,500
Woman's Building Monument	$26,000 - $30,000	$1,500
Gunboat Tennessee	$100,000 - $120,000	$4,000
Water Fountain Shelter	$215,000 - $250,000	$1,500
King John, Moses, Justinian, Justice	$180,000 - $220,000	$2,000