



PRESERVATION MATTERS: DISASTER

POST-DISASTER CARE OF CEMETERIES

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National Center for Preservation
Technology and Training
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Cemeteries are an important historic resource in any community. Additionally, they serve as community parks, sculpture gardens, and tourist attractions. Many people visit cemeteries on a regular basis and value cemeteries as resources for a variety of reasons. Because of the value to our communities and the respect that we should pay to our ancestors, disaster recovery of cemeteries is important.

Cemeteries can receive damage following a natural disaster such as a tornado, hurricane, or flood. A fallen marker or a downed tree is stable and no longer a safety threat, no matter how unsightly. Hanging debris, unstable monuments, sunken graves, and possible loose remains, however, pose an ongoing safety threat to visitors and should be prioritized for repair. This document summarizes how to assess, stabilize, and repair common damage to cemeteries following natural disasters.

Published May 2021



SAFETY

Assess the site for identifiable hazards before beginning preservation work.

- Ensure the threat of the natural disaster has passed or has been contained, including allowing flood water to recede.
- Establish ownership of the property and obtain permission to perform work.
- Identify potential dangers such as:
 - Electrical wires and gas lines.
 - Physical dangers, such as debris, fallen or uprooted trees, sink holes, unstable monuments, etc.
 - Presence of chemicals, contaminants, and other hazardous materials.
 - Wildlife, snakes, ants, frightened animals, etc.

Maintain the safety of workers by taking precautions against all identified hazards.

- Take proper precautions in areas affected by chemicals, contaminants, and other hazardous materials.
- Be sure all necessary shots are current: tetanus, hepatitis, etc.
- Have a first-aid kit on site and an emergency plan should someone get injured.
- Wear personal protective equipment.
 - Gloves appropriate for the jobs to be performed: leather for general work and chemical/solvent-resistant gloves if sensitive to cleaners.
 - Eye protection.
 - Face masks, such as respirators when dealing with mold spores.
 - Protective clothing, such as long sleeves, pants, steel-toed boots, Tyvek suits, etc.



STABILIZATION

Remove or stabilize hazards that may pose a danger to workers.

- Check for unstable or shifted monuments, coffins, or burial vaults caused by flood waters and/or wind.
- Stabilize monuments using methods such as bracing problem areas with wood, packing dirt where it has been washed away, or using shims.
- DO NOT attempt to stabilize large monuments without the proper tools (winches, hoists, etc.), safety precautions, and knowledge.
- All stabilization should be performed by a crew of two or more depending on the job.
- Remember the first priority is to stabilize the monument and eliminate its danger of falling. This may include laying the headstone or elements on the monument down to be reset properly at a later time.



This burial monument was temporarily stabilized using a wooden support.



ASSESSMENT

Assess and document damage to monuments and structures.

- Before, during, and after work begins, photograph and create written documentation on the condition of the cemetery.
- Document any repair work done to the monuments as well as the cemetery as a whole.
- Photograph an overall view of the lot and the areas that were damaged.
- For each damaged monument or structure, identify the monument/structure, its location, material of construction, damage sustained, and repairs or treatments utilized.
- Inventory fragments and where they were found. If possible do not move broken stones away from their locations. Flagging fragments will help keep them visible. Make sure that clean up crews know how important the fragments are to prevent inadvertent removal of historic fragments.
- If fragments must be moved to complete restoration work, mark a map showing the location of the fragments. Make sure to label the fragments in some way such as a wire tag or padded box.
- Make multiple copies of all documents and photographs and house them in different locations (possibly a local or state historical society, a courthouse, library, or associated religious house).



DEBRIS REMOVAL

Remove organic debris from damaged trees and then assess stone damage.

Trees make up the beauty of many cemeteries and are an integral part of the historic landscape. They are usually the hardest hit and cause the most damage after a disaster. Organic debris from damaged trees should be carefully removed from the site under the supervision of cemetery staff.

Prior to damaged tree and branch removal, protect any stones under or around the damaged trees by making plywood “A” frames or boxes to go around the stones. Erect scaffolding around larger monuments or mausoleums.

Once the monuments are protected, remove hanging limbs and broken tree tops, followed by downed debris and loose limbs. Finally, remove all limbs from the fallen trunks. This will expose the stones and provide room to safely move around.

Next, remove larger trunks and stumps. Ensure none of the root balls contain cultural materials such as stones, stone fragments, or human remains. Larger roots balls might require the dirt be removed from the roots before removal.

Label and photograph any stone bits or broken sections, no matter how small, and collect them until all debris is removed.

Once the organic debris is removed, stone preservation can begin. Any exposed graves should be filled with dirt immediately. Next, reset any leaning or toppled stones.

The last priority and the most taxing in time, money, and expertise is to finally address the stones that were broken.



CASE STUDY



(From top to bottom) A large tree is toppled in the middle of a cemetery. Temporary shoring is used to stabilize a damaged mausoleum after a storm. A stone is damaged from a toppled tree.



REFERENCES

- *Preservation Brief 48: Preserving Grave Markers in Historic Cemeteries.* Mary F. Striegel, Frances Gale, Jason Church, & Debbie Dietrich-Smith. National Park Service, Technical Preservation Services Division, 2016.
- *Rapid Cemetery Assessment forms.* <https://www.ncptt.nps.gov/blog/what-to-do-when-disaster-strikes-historic-cemeteries/>.



ABOUT NCPTT

The **National Center for Preservation Technology and Training (NCPTT)** is the leading research, technology and training center within the National Park Service. NCPTT publishes its Preservation Matters Series to provide easily accessible guidelines for preserving cultural materials. To download more in the series, visit www.nps.gov/subjects/ncptt/preservation-matters.htm.

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