1.1 Introduction

Pre-disaster planning identifies tasks, allocates resources to accomplish those tasks, and establishes accountability. The following contains guidelines for creating a pre-disaster plan for a historic cemetery. Sections 1.2.1 - 1.2.9 provide a basic outline of what should be included in the pre-disaster plan; 1.2.4 is considered optional for inclusion but is required to develop the plan.

The information contained herein is guidance and examples are not prescriptive and will not be applicable to all cemeteries. These guidelines have been developed from the recommendations and publications of various institutions including the National Park Service and FEMA (Federal Emergency Management Agency).

Remember that all survey data, cemetery records, and plans should be accessible and stored in multiple locations with multiple copies both digital and physical. It is also recommended that digital records be saved on a cloud-based storage system, such as Google Drive or iCloud so that they remain accessible to all.

1.2 Pre-Disaster Planning

The following sections discuss the recommended elements of a pre-disaster plan.

1.2.1 Cemetery Layout

Brief description of the cemetery's layout or plan if one exists. This should only be a couple paragraphs with images such as plot maps or legal boundary maps, if available. Include the location and brief description of all structures and utilities. Include a location description of service cutoffs (water, electricity, and gas if available).

If known, include information about possible protected land (such as wetlands) and protected species (both plant and animal) which may be present on the site. These possible site conditions will need to be addressed in the plan and volunteers and responders should be aware of them.

1.2.2 Cemetery Survey Efforts

Briefly describe previous survey work and indicate where the records can be accessed. These will provide baseline data for post-disaster recovery and may include mapping. Having a comprehensive survey provides baseline data for pre-disaster conditions. This is vital to applying for recovery funding after a disaster event and will assist with developing the pre-disaster plan. This survey summary should not exceed two paragraphs.

1.2.3 Regular Maintenance

Briefly describe the regular maintenance efforts that are carried out on the cemetery grounds. This will assist with determining how often the cemetery is observed by the caretakers and volunteers and what tasks are already addressed cyclically.

1.2.4 Risk Assessment

The risk assessment may be a separate document form the pre-disaster plan or may be incorporated into the disaster plan. Separating the two documents will make the disaster plan shorter and easier to use in a timely manner; however, it may result in misplacement or loss of a document or failure to use both documents together.

The risk assessment should consider the existing conditions of the cemetery including the trees, other vegetation, drains or drainage systems, dangerous or hazardous monuments, other built landscape features, and any other notable conditions.

Conduct a risk assessment for the cemetery by researching possible natural disasters, developing a list of possible human-caused disasters, and the possible effects of these events. Things to consider during the risk assessment include the flood zone; possibility of events including tornadoes, earthquakes, and winter storms; topography and elevation of the cemetery; existing vegetation including trees; the types of grave markers and their material. The risk assessment should also consider all hazards and threats which may arise as the results of many disasters are the same.

1.2.5 Threats

If the risk assessment is not included in the plan, include a synopsis of the risk assessment enumerating identifying threats to the cemetery. Possible hazards which should be considered, included, or left out include those in the table below. Understand that some natural disasters are known, unknown, or may vary in their known approach due to other circumstances. For example, you may be aware of a wildfire which is slowly approaching, or the fire may break out on an adjacent property with no forewarning.

Natural No/minimal warning	Natural Moderate/adequate warning	Human Caused
Hurricane	Tornado	Car Crash
Severed Thunderstorm	Earthquake	Vandalism (broken resources)
Winter Storm	Flash Flooding	Vandalism (graffiti)
Windstorm	Wildfire	Vandalism (theft)
Wildfire	Storm Surge	Train Derailment
Flooding	Mudslide	Toxic Waste Spill

Threats are generally also categorized as having little or no warning or having minimal or adequate forewarning. A pre-disaster plan will only be able to address threats which have forewarning; however, it may inform cemetery staff and volunteers of possible threats within the cemetery that may be mitigated through preventative maintenance.

For threats with adequate notice and some with moderate notice measures can be taken to prevent or reduce damage to cemetery property. For example, before a hurricane event, placing sandbags at the entrance to mausolea, boarding up windows on an office/caretaker building, or removing mowers and similar vehicles from site will all reduce loss and damage.

It is recommended the threats identified in the risk assessment be organized in a table like the example seen below. This should be unique to your cemetery addressing its landscape and resources.

Brief Example:

Threat	Possible Impact
Trees	Falling limbs may break or topple headstones
Trees	High winds or ground saturation may result in the tree toppling over and displacing gravestones, burial chambers, or remains
Flooding	Rushing waters possible as indicated by flood zone
Headstones	Several headstones are leaning and may topple if high winds, rushing flood water, or projectile debris contacts the resources
Drainage	Stormwater drains along the street are partially blocked by trash and debris

1.2.6 Preventative Maintenance Actions

This section will contain information regarding possible efforts beyond regular maintenance which will reduce known threats. You can use the table created in the threats section to organize preventative maintenance measures which will reduce the impact the threat may have. Possible preventative maintenance efforts should be identified during the risk assessment. For example, if a dead tree is noted during the assessment, preventative maintenance would be removing the tree before a disaster event occurs.

Consider reaching out to your local municipality to establish a relationship prior to an event. Having contacts and a relationship with the local municipality will extend your resources but you must understand that in the event of an approaching known disaster their focus may be on the wider community and their own property.

Brief Example:

Threat	Possible Impact	Preventive Maintenance Action
Trees	Falling limbs may break or topple headstones	Remove dead or diseased tree limbs and trees to reduce risk
Trees	High winds or ground saturation may result in the tree toppling over and displacing gravestones, burial chambers, or remains	None
Flooding	Rushing waters possible as indicated by flood zone	None
Headstones	Several headstones are leaning and may topple if high winds, rushing flood water, or projectile debris contacts the resources	Reset headstones as possible beginning with those that are most severely leaning
Drainage	Stormwater drains along the street are partially blocked by trash and debris	At least bi-annually inspect drains and clear debris from the openings

1.2.7 Build Contacts and Establish Roles

Prior to the event and during the pre-disaster planning identify contacts who will be valuable in pre-disaster planning and preparing. Establish relationships with the professionals and volunteers prior to a disaster event and make them aware of how they will be contacted and what services they should provide before or after the event. Consider having a signed agreement to assure you have expedited care as necessary. Contacts should include: a stone conservator or mason experienced with historic materials; certified arborist; equipment rental companies; additional labor; trash haulers; any other disaster recovery specialists such as document/paper conservators; architects; landscape architects; the local coroner; funeral professionals; and volunteers.

Consider contacting local telephone company, utility company, and cellular providers to learn about their disaster plans, possibilities for quick recovery, and other factors that may impact cemetery disaster planning. If you cannot obtain this information directly from the companies, contact your local community Emergency Services Director.

1.2.8 Protective Actions Before A Known Event

Using the known threats, possible known threats, and maintenance routines, develop a series of actions which may be taken before a known incoming event occurs. These protections should have clear instructions provided for the actions which need to be taken and a clear understanding of who

is responsible for the actions. Each action should be described and a clear assignment to an individual or volunteer role type. It is recommended that tasks be prioritized based on the significance of features or resources to assure the most important or character defining features are protected during the disaster event.

To support execution of protective actions, create a check list or a series of check lists which serve as guidelines for preparing the cemetery. If more than one check list is created each one should be tailored for specific types of volunteers. For example, one check list may be for a volunteer civil engineer who will check drainage systems while another is for a general volunteer who will assist in placing sandbags at the doors of mausolea.

Include a list of necessary supplies for pre-disaster actions. Some of the items may be stored at the cemetery if a building is available while others should remain with the volunteers and responders. Possible disaster supplies include:

- Digital cameras with several memory cards (with extra batteries)
- Flashlights (with extra batteries)
- First aid kits (recommended OSHA compliant)
- Potable water (1 gal/person per day)
- Gloves
- Raincoat or similar
- Rain boots/waders
- Fire extinguishers (check these to be sure they're not expired and are fully charged)
- Weather radio (with extra batteries)
- Communication radios (walkie talkies)
- Duct tape
- Plastic sheets and tarps
- Disinfectant
- Extension cords
- Wheelbarrows
- Cemetery plans
- Administrative paperwork
- Phone lists of emergency contacts/services and volunteers/responders

- Hand tools (shovels, brooms, etc.)
- Nylon straps or paracord

If you have buildings on your site including offices other items may be necessary including a wet/dry vacuum (shop vac), tools to disconnect and reconnect utilities, buckets and mops, hoses and water pumps, fans, etc.

1.2.9 Safety

Part of the pre-disaster plan should be used to address safety. The section on safety should address general safety concerns such as site concerns, environmental conditions, and visitor safety. Specialty equipment and materials should be addressed as should any additional safety concerns including poisonous vegetation present on the site. Effective planning considers all hazards and threats, and these should be clearly stated and mitigated in the plan.

1.3 Additional Guidance and Advice

Keep the plan as simple as possible. Lengthy and overly detailed plans are difficult to execute and may result in lack of reading or understanding. Successful and useful plans are simple and flexible.

When writing the pre-disaster plan consult other existing documentation and plans. This may include previous projects, a master plan, or governing ordinances. Many cemeteries will not have these resources, however, building a useful and effective pre-disaster plan is still possible.

Remember that planning should be a community effort. If you are part of a volunteer effort, draw on other volunteers and your network of responders to assist with the pre-disaster plan development. Seek the input of the community to assure the valued characteristics and resources are provided for and to extend your network of volunteers and responders.

Update the pre-disaster plan cyclically and as needed. After using the pre-disaster plan to prepare for a known disaster event, update the plan based on how well it did or did not work and how easy it was to execute. Each time the plan is used, there is an opportunity to learn from it and improve the plan and response. Many government entities create an after-action report (AAR) which identifies what items of the plan were effective and defective. This is a formal assessment which may not be required for all cemeteries and their governing agencies; however, the same assessment should be carried out with areas of improvement identified and the plan should be updated.

Make sure the pre-disaster plan is accessible to those who will need to use it. Provide digital and hard copies as it is possible and necessary. Make sure a digital copy is stored in more than one digital location this may mean on multiple computers, on a cloud-based program such as a Google Drive, or on thumb drives or external hard drives.

Although some of the pre-disaster planning can be done by volunteers and cemetery staff, it is recommended a historic preservation consultant be contacted to assist with the planning process if funding allows. However, any plan is better than no plan.

1.3.1 Example Plan Outline

1. Cemetery Layout
2. Previous Survey Efforts
3. Regular Maintenance
4. Risk Assessment
    a. Threats
    b. Preventative Maintenance

1.4 Additional Reading and References

Chicora Foundation, Inc.; *Cemetery Disaster Planning*; Columbia, SC: 2013; https://www.chicora.org/pdfs/Cemetery%20Disaster%20Planning.pdf.

Lovekamp, William, Gary Foster, and Steven Di Naso; Natural Hazards Center, University of Colorado, Boulder; "Preserving the Dead: Cemetery Preservation and Disaster Planning"; August 31, 2016; https://hazards.colorado.edu/article/preserving-the-dead-cemetery-preservation-and-disaster-planning.

dPlan; The Online Disaster-Planning Tool for Cultural & Civic Institutions; www.dplan.org.

FEMA; "Developing and Maintaining Emergency Operations Plans: Comprehensive Preparedness Guide (CPG) 101" Version 2.0; November 2010; https://www.fema.gov/sites/default/files/2020-05/CPG_101_V2_30NOV2010_FINAL_508.pdf