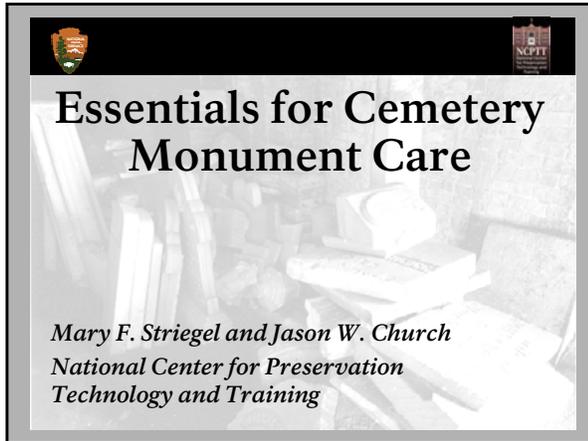
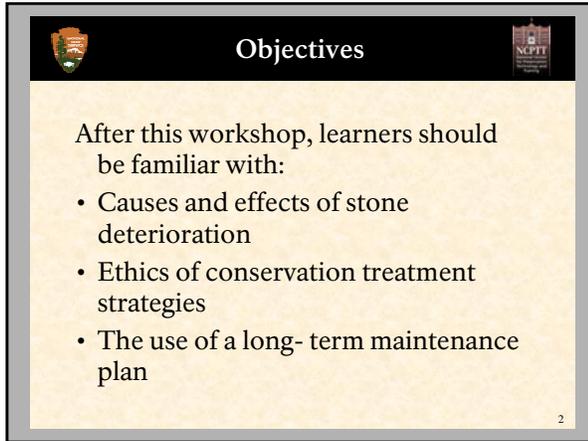
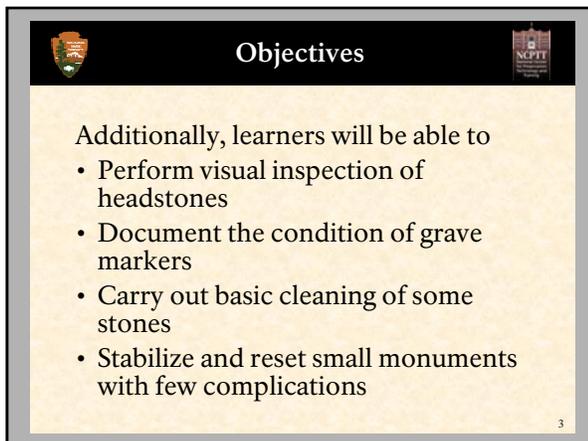


Essentials for Cemetery Care







Essentials for Cemetery Care

 **National Park Service** 



**National Center for Preservation
Technology and Training
(NCPTT)**

4

Threats to Cemeteries

5

 **Inappropriate Maintenance
and Management Practices** 



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Essentials for Cemetery Care

Vandalism and Theft



"Police say two 11-year-old boys are responsible for a rash of vandalism at an East Bridgewater cemetery, but they will not be placed under arrest."
"Three young Nebraska girls are accused of vandalizing 40 tombstones at a cemetery in Beatrice."

7

Effects of Air Pollution



Cave Hill Cemetery, Louisville, KY

8

Biodeterioration



Elmwood Cemetery, Memphis, TN

9

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 **Water-related Deterioration** 

La Recoleta,
Buenos Aires, Argentina



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 **Inherent Vice** 



11

 **Iron Corrosion** 



Old Anacoco Baptist Cemetery, Leesville, LA

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Essentials for Cemetery Care

 **Invasive Flora or Fauna** 



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 **Disasters** 



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 **Range of Materials** 



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Essentials for Cemetery Care

Materials Issues

- Important to identify materials when doing condition assessments and surveys.
- If possible, identify the material or materials before any cleaning or conservation.
- Evaluate the condition of the surface prior to cleaning. Is it powdery or sugaring?
- Will cleaning remove original material?



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Marble



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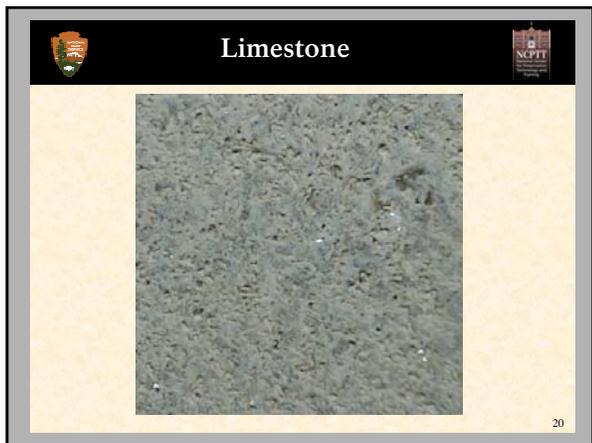
Marble



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Essentials for Cemetery Care

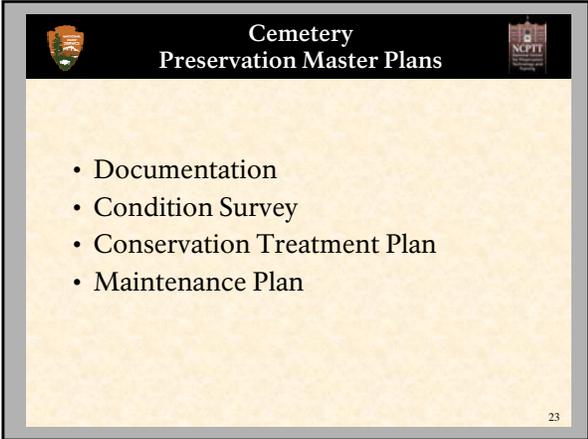


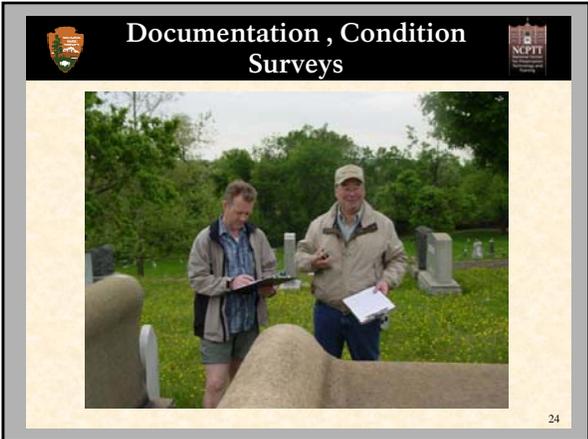




Essentials for Cemetery Care







Essentials for Cemetery Care

Types of Surveys

- Historical Documentation (primary resources)
- Evaluation of Safety Issues
- Record of Cemetery Conditions
- Source of information for developing work specifications
- Source of information for developing cost estimates

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Survey Forms

- Several forms available
- Not all forms serve all needs
- Develop need specific and site specific forms



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Locate or Create a Site Map



American Cemetery, Natchitoches, LA

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Create a Plan of Attack!

Laurel Hill Cemetery, Philadelphia, PA

28

Create a Plan of Attack!

Congressional Cemetery, Washington, DC

29

Accurately Record Descriptions

IDENTIFICATION

Plot identification: _____

Neighborhood Cemetery #: _____ Washington plot designation: _____

Name(s) of interment: _____

First burial date: _____ Last burial date: _____

Interment: _____

Name carrier (if known): _____ Location of mark: _____

DESCRIPTION

Type of interment (circle one): tomb marker family name marker

Type of tomb (circle one): monument

Type of marker (circle all that apply): headstone fontaine ground tablet head pedestal column funeral home plaque headstone

Dimensions (primary stone): Height: _____ Width: _____ Depth (or 1/2): _____

Dimensions (base): Height: _____ Width: _____ Depth (or 1/2): _____

Dimensions (other): Height: _____ Width: _____ Depth (or 1/2): _____

Construction (circle one): North South East West unknown

Interment status (circle one): Active Interred abandoned

State of interment (circle all that apply): standing ruin fragment relocated absent applies other applies

Type of interment (circle one): individual family undeterminable

Material (circle one): iron stone bronze marble granite soapstone

Ornament (circle all that apply): urn sarcophagus cross plaque relief decoration

Religious (circle one): secular denomination other none

Furniture (circle all that apply): sculpture container/urn pipe memorials base

Landmarks (circle all that apply): bench archway entrance well grave vegetation other

Condition (circle all that apply): rock well fence stone

Grade slope (circle one): positive negative cross-slope none

Shape of grade (circle one): 0/100 1/100 2/100 3/100

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Essentials for Cemetery Care

 **Involve the community.** 



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 **Conservation Plan** 

- Involve professionals
- Identify conservation needs
 - Emergency stabilization
 - Safety
 - Landscape stabilization
- Establish priorities
- Undertake field work



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 **Seek Additional Professional Assistance** 



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Essentials for Cemetery Care

 **Identify Conservation Needs** 



37

 **Establish Priorities** 



38

 **Undertake Field Work** 



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Essentials for Cemetery Care

Maintenance Plan

- Day- to- Day
 - Mowing
 - Weed removal
- Periodic
 - Fertilizers and Biocides
 - Irrigation
- Long- term
- Regular inspection
- Education /Training



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Summary

- Recognize that a cemetery has many **values** to be respected
- Understand the **threats** to a cemetery and grave markers before undertaking action
- Remember, a **Master Plan** is a road map that shows us where the cemetery is and where it is going.
- Help create a Master Plan **tailored to the individual cemetery and considering many issues.**

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Ethics – Principles and Criteria for Conservation

1. First and foremost: Do No Harm.
2. Respect and retain the historic fabric and original material.
3. Minimize impact.
4. Understand chemicals used.
5. Be authentic.
6. Identify repairs.
7. Document activities.
8. Maintain and protect the resource.



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Essentials for Cemetery Care

Who's Taking Care of Grandpa's Grave?



43

Should he be worried?



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Cleaning Issues



- What is the reason for cleaning the monument?
 - Soiling
 - Staining
 - Particulate Matter/Gypsum crusts
 - Biological growth
 - Vandalism/graffiti

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Why Should We Clean?

- Readability



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Soiling



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Staining



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Deterioration/Gypsum Crusts



Gypsum Crust

Sugaring

49

Biological Growth



50

Vandalism



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Essentials for Cemetery Care

Cleaning Issues



- What are some considerations regarding cleaning methods?
 - Acceleration of deterioration
 - Loss of original materials
 - Long- term stability of monument
 - Long- term affects of cleaners

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Types of Cleaning

- Chemical
- Mechanical
- Combination

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Chemical Cleaning

- Products including
 - **Acceptable**
 - Detergents
 - Surfactants
 - Solvents
 - Biocides
 - Intermittent water misting
 - **Unacceptable**
 - Salt- based cleaners

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Mechanical Cleaning

- **Acceptable**
 - Low pressure, power- washing (less than 300 psi)
 - Mechanical agitation using soft bristle brushes
- **Unacceptable**
 - Sand blasting
 - High- pressure power- washing (greater than 300 psi)
 - Grinders
 - Wire brushes

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Do's and Don'ts of Cleaning

- Don't remove original surfaces
- Don't use bleach or other salt laden cleaners
- Don't power- wash with high pressures
- Don't sand blast or use harsh mechanical methods such as power tools
- Don't use strong acids or bases

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Do's and Don'ts of Cleaning

- Never Use A Wire Brush or Power Tool



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Essentials for Cemetery Care

Do's and Don'ts of Cleaning

- High Pressure Washing



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Do's and Don'ts of Cleaning

- Don't Harsh Cleaners Such As Acids and Strong Bleaches



=



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Do's and Don'ts of Cleaning

- Do No Harm
- Do select the gentlest cleaning method to accomplish the task
- Do perform small tests before cleaning the entire stone
- Do follow manufacturers' recommendations
- Do follow manufacturers' safety guidance
- Do exercise patience.

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Essentials for Cemetery Care

 **Handling and Safety** 



61

 **Equipment** 



62

 **Choice of Cleaners** 

- Consider gentlest method available
- For basic cleaning, consider –
 - A non-ionic detergent
 - A neutral pH or
 - A pH similar to the stone
 - A product containing a biocide

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Essentials for Cemetery Care

Make Small Tests



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Application of Cleaners

- **ALWAYS** Soak the Stone Before Cleaning
- Start Cleaning From the Bottom and Work Up
- Use a Small Circular Motion
- Use Lots of Water



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Video Presentation

66

Essentials for Cemetery Care







Essentials for Cemetery Care

Resetting

Ground Supported

- Level and plumb
- Proper drainage
- Ground compaction



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Resetting

Slotted Base



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Resetting

Slotted Base

- Stabilize and level base
- Remove any old mortar or adhesive
- Clean out inside of slot



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Essentials for Cemetery Care

Resetting

Slotted Base



- Once Leveled,
- Remove any existing adhesive or mortar from the bottom of headstone
- Clean headstone
- Dry- fit headstone into base

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Resetting

Slotted Base

- Fill slot with a lime based grout or mortar
- Never use Portland Cement
- Lead wedges may be used to help space stone in slot and stabilize it



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Resetting

Slotted Base



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Essentials for Cemetery Care

Resetting

Slotted Base

- Clean off any pushed out mortar
- If voids, they must be pointed or back filled
- Stone must be kept stable until set



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Resetting

Stacked Base

- Usually has multiple smaller sections stacked together
- May or may not have any reinforcements
- Can range widely in size



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Resetting

Stacked Base

- May have to involve lifting equipment
- Each base is equally important
- Same procedure multiple times
- Foundation is critical!



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Essentials for Cemetery Care

Resetting

Stacked Base

- Removal any old mortar or adhesive
- Clean all surfaces that connect
- Check each part for level and plumb as you go



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Resetting

Stacked Base

- Lead spacers should be used between larger bases
- This helps keep bases apart so that mortar will stay
- Lead is self-leveling under pressure



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Resetting

Stacked Base

- Lime mortar or setting compound can be used
- Each seam must be pointed or filled to prevent water intrusion



Essentials for Cemetery Care

Resetting

Stacked Base
Reinforced With Pins



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Resetting

Stacked Base
Reinforced With Pins

Original pins may be

- Iron
- Galvanized Steel
- Bronze
- Copper pipe
- Aluminum



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Resetting

Original pins may be
Damaged or corroded

Set with

- Lead
- Sulfur
- Adhesive
- Concrete
- Mortar



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Essentials for Cemetery Care

Resetting

- Original pins may be damaged or corroded
- Corroded Pins must be removed !
- Replacement pins should be Stainless Steel All- Thread



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Resetting

New pins can be set in

- A soft lime mortar
- Lead
- Setting compound
- Epoxy
- Let free



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Video Presentation

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Essentials for Cemetery Care

