2

assess risks

Overview

In Phase I, you identified, assembled, and organized the resources necessary for integrating historic properties and cultural resources into the hazard mitigation plan. In Phase 2, "Assess Risks," your team will use these resources to conduct a risk assessment of the historic properties and cultural resources located in your jurisdiction.

There are four primary steps associated with conducting risk assessments that this Phase of the guide will cover:

Step 1. Identify the hazards that can affect your community.

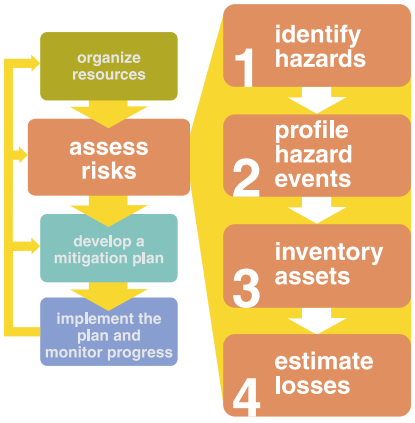
Step 2. Profile hazards to determine hazard-prone areas and magnitude of each hazard.

Step 3. Inventory the historic properties and cultural resources vulnerable to those hazards, assess vulnerability of these assets, and establish preservation priorities by determining which assets are most valuable to the community.

Step 4. Estimate the associated amount of potential losses.

To assist you through Steps 3 and 4, the primary focus of this section, the guide includes worksheets filled in with sample information.

At the end of Phase 2, your planning team should have a clear picture of the historic properties and cultural resources that are important to the community; how vulnerable these resources are to hazards; and the cost of their loss, replacement, or repair due to a hazard event. The end-product of this phase will be a prioritized list (or preservation hierarchy) of historic properties and cultural resources for protection in the community.



Risk Assessment

Measuring the potential for property damage, economic loss, injury, and death that may result from both natural and manmade hazards. Specifically, it involves identifying potential hazards and assessing a community's ability to survive them, diminish their impact, or avoid them completely. Risk assessment is central to the hazard mitigation planning process, and is described fully in FEMA 386-2, *Understanding Your Risks: Identifying Hazards and Estimating Losses.*

Geographic Effects of Hazards

Some hazards will affect the entire planning area (e.g., winter storms, tornadoes, and droughts), and others will only affect certain geographically determined areas (e.g., floodplains, seismic zones, and urban-wildland interface zones).

Steps 1 and 2. Identify and Profile Hazards

Since hazard identification is essential to the mitigation plan, it is likely that the planning team has already identified the hazards that are likely to affect the jurisdiction and has already developed a hazard profile. This information should be used as the starting point for accomplishing Steps 3 and 4 of the risk assessment process as it relates to historic properties and cultural resources. There is no need to repeat Steps 1 and 2, as the goal is to integrate cultural resource considerations into the existing hazard mitigation planning process. In addition, Steps 1 and 2 are described in FEMA 386-2, *Understanding Your Risks: Identifying Hazards and Estimating Losses.*

In preparation for Step 3, review the identified hazards that exist within the planning area and their profiles.

Step 3. Inventory Historic Property and Cultural Resource Assets

In this Step, the historic properties and cultural resources that are most likely to be affected by a hazard event will be determined. Specifically, your planning team will:

- Develop and map a general inventory of historic property and cultural resource assets located in the planning area.
- Overlay the map of identified hazards developed in Step 2 of the risk assessment process with the general inventory map of historic properties and cultural resources in the planning area. This will provide the needed data for identifying which properties and resources are located in hazard-prone areas.
- Review the map of historic properties and cultural resources located in hazard-prone areas and determine the number and value of these assets.
- Compile property data and characteristics for each resource that may be potentially impacted. This can be accomplished either by using a geographic information system (GIS) or by conducting a survey. Note: this information will be needed to accurately estimate potential losses in Step 4 of the risk assessment process.

- Review the property data and characteristics of each property and establish preservation priorities. This information will be incorporated into Phase 3 of the hazard mitigation planning process.

Before starting Step 3, there are a few considerations to keep in mind with regard to assessing the vulnerability of historic properties and cultural resources.

1. Characteristics of Historic Properties and Cultural Resources

In determining a community's preservation priorities, an assessment should be made of each resource's vulnerability potential. Unfortunately, there is no easy formula for predicting how a historic property or cultural resource will perform during a disaster. For example, determining which structural systems in buildings will be superior is dependent upon a wide variety of factors, most particularly, the type of hazard confronted.

In addition, the age of a structure cannot be considered a predominant factor in determining whether a resource will perform well in a disaster. It is often assumed that older structural systems and materials used in historic buildings will perform far worse than recent code-driven construction. This is not always the case, as some historic structural systems were designed with far greater structural support than necessary.

Rehabilitation and Alteration

As you read this guide, keep in mind the following clarifications. Rehabilitation has one meaning in the preservation planning context and another in the context of hazard mitigation planning. When design experts talk about rehabilitation, they usually mean taking actions that help preserve the distinctive character of a historic building while allowing for reasonable change to meet new needs. In the hazard mitigation context, when mitigation planners mention rehabilitation, they mean retrofitting a structure or taking steps to reduce its vulnerability to hazards (e.g., flood-proofing or seismic strengthening).

Another key word to keep in mind is alteration. Alteration usually has a negative connotation—when a historic structure or resource is said to be altered, it may be taken to mean that the structure has changed to the extent that it no longer is considered historic. In hazard mitigation planning, however, altering a structure to protect it from a hazard or hazards means doing something positive—that is, changing or strengthening a structure to better withstand future hazard events while at the same time minimizing the impact these changes have on the structure's historic integrity.

Vernacular Historic Construction Methods

Buildings designed without the aid of an architect or engineer can sometimes better withstand damage from certain types of disasters than modern construction techniques. These properties may actually be able to outperform recent construction in certain disaster events because their essential structural systems may be better able to sustain lateral vibrations and pressure than buildings constructed more recently. Examples of such traditional "over design" include the nineteenth-century stone or brick masonry bank barns commonly found throughout the Mid-Atlantic region. Reinforced with heavy timber framing, these barns typically possess a structural capacity far exceeding their actual use. On the other hand, the structure of some historic buildings may emphasize flexibility over strength. These buildings may be able to withstand the seismic force from an earthquake quite well by dissipating it throughout a larger area of the building. Examples of this type of construction are the small-scale wood-frame houses built in the San Francisco Bay Area during the late nineteenth century.

Accounting for Peculiar Design Advantages and Vulnerabilities

You should consult a qualified structural engineer or a design professional with experience in historic building rehabilitation to conduct a detailed evaluation of historic properties in your inventory. Since financial resources will likely not permit a detailed assessment to be carried out on each historic property, you should focus on conducting your inventory first in the most significant hazard-prone areas, and then refer to your preservation hierarchy (see Task B in the next section) for the order in which you can complete your inventory over time.

Cultural Museum Disaster Preparedness – No Lack of Information!

Over the past decade, concerted efforts by conservation professionals have resulted in a wealth of information to help cultural museums design effective plans to better protect their unique assets. The Heritage Emergency National Task Force is one of the oldest efforts of this type. This coalition was formed in 1995 to help libraries and archives, museums, historical societies, and historic sites better protect their collections from natural disasters. The Task Force is sponsored by the non-profit Heritage Preservation, Inc. and FEMA. The organization provides a wealth of technical information on disaster response and salvage on its Web site: http://www.heritagepreservation.org.

The Central New York Library Resources Council has prepared a publication entitled *In the Face of Disaster—Preparing for Emergencies in Central New York: A Self-Planning Manual for Disaster Prevention, Response, and Recovery in Libraries, Museums, and Cultural Institutions of Central New York State.* This document provides step-by-step instructions and worksheets to institutions on how to complete a customized disaster plan and includes three major components: prevention, response, and recovery. See the Central New York Library Resources Council Web site for more information: http://clrc.org.

One of the nation's premier art museums, the Getty Museum, located in Los Angeles, California, is also extraordinarily active in providing information about disaster preparedness and response. The Getty Conservation Institute serves the conservation community through its support of scientific research, education and training, model field projects, and the dissemination of information. In addition to many on-line educational articles, the Institute publishes useful guides such as *Building an Emergency Plan.* For more information on these resources, go to: http://www.getty.edu/conservation.

Other educational institutions provide high-quality information on the care and treatment of cultural resources damaged through disasters. For example, a Web site entitled "Conservation OnLine" (also known by its acronym CoOL), is sponsored by Stanford University. This site provides detailed information on the care and treatment of specific materials. It also provides hotlinks to other Web sites that contain useful case studies, information about disaster plans by type of museum or institution, and bibliographic references. See the CoOL Web site at http://palimpsest.stanford.edu.

Similarly, specific types of collections can better withstand the direct effects of different disaster types. For example, paper records are not affected by vibrations associated with earthquakes, and certain types of art collections, such as stone sculptures, are usually not damaged by significant flooding.

Lastly, just because a historic property or cultural resource has survived the test of time does not necessarily mean it is hazard-resistant. On the contrary, a number of factors may make historic resources uniquely vulnerable to disaster-related damage. For example, historic buildings may have been constructed in locations without any forethought of possible future hazard events. These include buildings sited in floodplains, or those built along early transportation corridors, such as canals. Furthermore, a disaster may compound damage already sustained from poor maintenance or inappropriate alteration.

2. Threat of Terrorism and Other Manmade Hazards

In recent years, another factor has markedly contributed to the unique vulnerability of historic properties and cultural resources—the threat of terrorism. The high visibility, significance, and public accessibility of many historic resources make them attractive targets for terrorists. Many resources are symbolic on a local, State, Tribal,

or national level, with some serving a governmental or other type of public function. In evaluating the threat from terrorism, it is important to identify why a resource is significant. Properties important to a certain social group may be targeted by enemies of that group. Moreover, many historic buildings lack the terror-resistant features included in many of today's new buildings—defensible spaces, flame-retardant materials, and blast-resistant windows (see FEMA 386-7, *Integrating Manmade Hazards into Mitigation Planning* for more details on manmade hazards).

Assess Building Vulnerability in a Multi-Hazard Context

The characteristics that enhance performance during one type of hazard event may be the very features that make it vulnerable to damage from another type of hazard event.

3. Learning From Historic Disasters in Local Communities

It is recommended that your planning team research the community's past experience with disasters. Beyond providing an indication of the community's resiliency and response, such a study may reveal how local building traditions were adapted over time as a result of disaster events. From the recent post-disaster experiences of other communities, your team may glean valuable information about how well historic properties and cultural resources withstand a disaster, and how they can be protected from future disasters.

Jefferson and Allen Avenues, St. Louis, Missouri, after the tornado, May 27, 1896.

Source: NOAA Photo Library, Historic NWS Collection

Above all, learning from the disaster experiences of local communities will help to identify and evaluate hazard mitigation alternatives for potential implementation. Historical information on local disasters may be found in a variety of sources, including:

- Disaster reports and qualitative financial statistics archived by FEMA or a State emergency management agency (SEMA);
- Published local and regional histories;
- Unpublished historical information, including collections of memoirs, diaries, oral histories, and historical photographs; and
- Newspaper and magazine accounts of the disaster.

See Appendix B

Additional information regarding historic building construction, performance, and treatment standards is provided in the Library Appendix of this guide.

Procedures and Techniques

Task A. Determine the proportion and value of historic property and cultural resource assets in your community located in hazard-prone areas.

You will use **Worksheet #2: Determine Extent and Value of Historic Properties** (see the example on page 2-7 and blank worksheet in Appendix C) for this task to determine the proportion and value of historic property and cultural resource assets located within those areas, or in the case of community-wide hazards, those that are most vulnerable to the identified hazards. Your inventory should not only identify properties and resources that merit protection, but also demonstrate other factors, including economic value. Worksheet #2, which was adapted from Worksheet #3a from FEMA 386-2, will help your team develop this determination.

Introduction to Worksheet # 2

To place the value of historic properties in perspective, show what percentage of the total structures in the identified hazard area are historic. The total number of structures in the hazard area should have already been tabulated by the mitigation planning team. The number and value of historic properties and cultural resources should also be computed as a percentage of the total assets in the community. You will be able to compute the percentage of historic properties and their value after completing **Worksheet #3: Inventory Historic Property and Cultural Resource Assets**. In the example included below, 15% of the historic residential structures represents 20% of the total value of the residential stock. See FEMA 386-2 for more information.

1. Determine the location of historic property and cultural resource assets within hazard-prone areas.

The simplest way to determine which historic and cultural resource assets are located in hazard-prone areas is to use GIS. If your team has access to GIS, it should overlay the community's base map onto a map of historic properties and cultural resources. This composite map should then be overlain onto a map identifying the location of hazard-prone areas in the community, such as floodplains. The resultant map will reveal which historic properties and cultural resources are located in hazard-prone areas, and precisely where they are situated, by street and parcel.

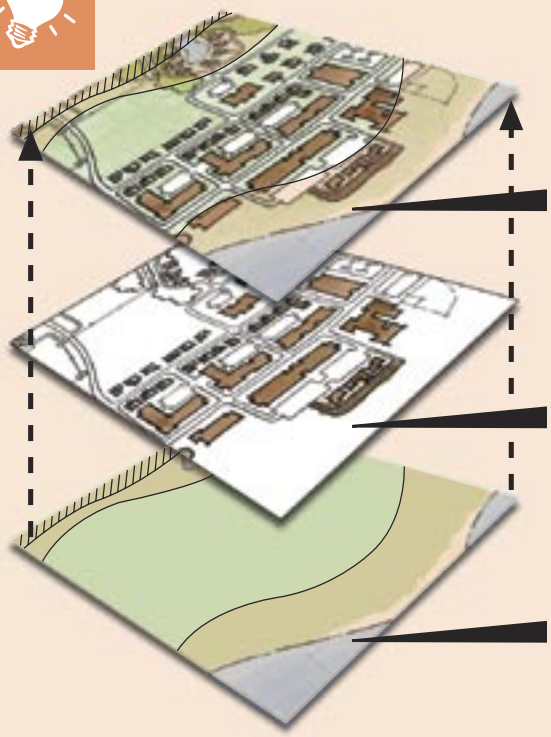
To determine the specific hazard threats posed to each historic and cultural resource, your team should repeat the last overlay

Date: *January 3, 2007*

Fill in Columns 1, 2, 5, 7, 8, and 11. Fill in Columns 4 and 10 after completing Worksheet #3. Divide Column 1 by Column 2 and multiply by 100 to calculate the percentage of properties in the hazard area (Column 3). This process can be used to determine the percent value of properties within the hazard area (Column 6), the percentage of historic properties in the community (Column 9) and their percent value (Column 12).

Type of Structure	Number of Properties			Value of Properties			Number of Properties			Value of Properties		
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12
	# of Historic Properties in Hazard Area	# of All Properties in Hazard Area	% of Properties that Are Historic	$ Value of Historic Properties in Hazard Area	$ Value of All Properties in Hazard Area	Property Value of Historic Properties as % of Total Property Value	# of Historic Properties in Community or State	# of All Properties in Community or State	% of Properties that Are Historic	$ Value of Historic Properties in Community or State	$ Value of All Properties in Community or State	Property Value of Historic Properties as % of Total Property Value
Residential	*150*	*1,000*	*15%*	*$3 M*	*$15 M*	*20%*	*400*	*2,000*	*20%*	*$60 M*	*$250 M*	*24%*
Commercial												
Industrial												
Religious/ Non-profit												
Gov't												
Education												
Total												

Creating a Composite Map



using hazard-specific maps, i.e., maps identifying seismic zones, flood hazard areas, etc. For some hazards, such as hurricanes and tornadoes, a GIS layer will not be available.

If your team does not have access to GIS, hazard boundaries can be hand-drawn on a map depicting the location of historic properties and cultural resources. Your planning team may want to take the locations of historic properties recorded on tax maps or U.S. Geological Survey (USGS) quadrangle maps, and map them directly onto paper copies of floodplain maps, USGS earthquake hazard maps, or other hazard-related maps.

Geographic Databases and Data Sharing

Obtaining or creating GIS-based information is important because it will help your team locate concentrations of historic properties and cultural resources, and also better define the level of risk faced by your historic properties and cultural resources. For example, GIS data will show if historic properties are located in floodplains, in active earthquake zones, etc. In addition, other planning initiatives can be placed in a GIS, which can help your team identify impacts to historic properties and cultural resources that have occurred over time.

Hurricane and storm surge damage in Galveston, Texas, September 1-10, 1900.

Source: NOAA Photo Library, Historic NWS Collection

2. Compile a detailed inventory of what historic properties and cultural resources can be damaged by a hazard event.

At this point, you will be able to compile a detailed inventory of all of the historic properties and cultural resources found within each of the identified hazard areas in your community. Run a query and sort your results by the characteristics—e.g., age and type of construction—listed in **Worksheet #3: Inventory Historic Property and Cultural Resource Assets**.

Introduction to Worksheet #3

Your planning team will be using Worksheet #3 throughout the remainder of Phase 2 (see the example worksheet on page 2-10 and blank worksheet in Appendix C). It is designed to help the team organize the information it collects on historic properties and cultural resources, and can be used to establish preservation priorities. Based on Worksheet 3b from FEMA 386-2, Worksheet #3 has been adapted specifically for use in assessing historic properties and cultural resources.

For each hazard identified in Step 1, your planning team should make a photocopy of Worksheet #3 and fill in the name of the specific hazard at the top of the sheet (e.g., flood, hurricane, or earthquake). As your team progresses through Phase 2, information will be supplied to complete the remainder of Worksheet #3.

For each hazard identified in Step 1, your team will use the information from its inventory to fill in Columns 1–8 of Worksheet #3. At a minimum, your team should consider collecting the following information on historic properties and cultural resources identified in the inventory:

1. Name and Address/Location of Asset Subject to Hazard;
2. Date of Construction/Creation;
3. Type of Property/Type of Resource;
4. Square Footage;
5. Structural System;
6. Primary Material(s) of Property/Primary Materials of Resource;
7. Current Function (for Properties);
8. Current Condition; and

Make a copy of a blank worksheet for each hazard of concern. Fill in the name of the hazard and the date. List the name and address of vulnerable historic properties and cultural resources in Column 1. For each property/cultural resource (row) fill out Columns 2 to 10 to complete the information about the asset. For Columns 11 to 15, use results from Worksheet #5 to fill in the applicable columns. For Column 16, use the ranking from Column 7 of Worksheet #4. See the Building Data Requirement table below to determine what additional columns to add to this worksheet, depending on the hazard.

Examples of the types of information to fill in for Columns 3, 5, and 6:

Column 3: Type of Property/Resource (include, but not limited to, buildings, structures, objects, sites, and districts)

Column 5: Structural System (e.g., concrete, wood frame, or steel)

Column 6: Primary Material(s) of Property/Resource (e.g., brick veneer, concrete, or plaster)

Building Data Requirements by Hazard

Building Characteristics	Flood	Earthquake	Tsunami	Tornado	Coastal Storm	Landslide	Wildfire
Building Type/Type of Foundation	■	■	■		■		
Building Code Design Level/Date of Construction	■	■	■	■	■		■
Roof Material				■	■		■
Roof Construction				■	■		■
Vegetation							■
Topography	■				■	■	■
Distance from the Hazard Zone	■		■		■	■	■

Inventory Historic Property and Cultural Resource Assets (page 2 of 3)

Hazard: *Flood*

Date: *January 8, 2007*

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Name and Address of Asset Subject to Hazard	Date of Construction/ Creation	Type of Property/ Type of Resource	Square Footage	Structural System	Primary Material(s) of Property/ Resource	Current Function/Use	Current Condition	Is Owner Interested in Mitigation? (Yes/No)
Hazardville Opera House 50 Main Street	*1905*	*Commercial Building*	*40,000*	*Concrete*	*Brick veneer, concrete, plaster ceiling*	*Community Center*	*Good*	*Yes (Town is owner)*
Lehman Gardens Corner of Main and North	*1840*	*Park*	*43,560*	*N/A*	*Marble statues, Granite gravestones, metal historic streetscape furniture, heirloom roses*	*Public Garden*	*Excellent*	*Yes (Town is owner)*

Column 1	Column 10	Column 11	Column 12	Column 13	Column 14	Column 15	Column 16
Name and Address of Asset Subject to Hazard (same as previous page)	Level of Property Vulnerability (High, Medium, Low)	Loss to Structure ($)	Loss to Contents ($)	Loss of Function or Use ($)	Displacement Cost	Total Loss for Hazard Event	Level of Community Value for Ranking Purposes (High, Medium, Low)
Hazardville Opera House 50 Main Street	*Medium*	*$300 K*	*$150 K*	*$30 K*	*$190 K*	*$670 K*	*Medium*
Lehman Gardens Corner of Main and North	*High*	*N/A*	*$20 K*	*N/A*	*N/A*	*$20 K*	*High*

9. Building Characteristics (for Properties) (Building Type/Type of Foundation, Roof Materials, Roof Construction, Vegetation, Topography, Distance from the Hazard Zone).

Additional information to collect for your inventory includes:

- Tax ID Number;
- Distinguishing Characteristics; and
- Party Responsible for Maintenance.

The first eight items in this list correspond to the first eight columns in Worksheet #3. The building characteristics needed for the ninth item will depend on the hazard type. See the Building Data Requirement table on page 1 of Worksheet #3 for applicable data and add the necessary number of columns to the worksheet.

This information should be entered into a computerized database in order to run queries and analyses. A spreadsheet modeled on Worksheet #3 can serve the purpose, as this data should eventually be imported into, or linked to, a GIS. If limited time is available to address all of the historic properties and cultural resources contained in your community, consider using representative properties for initial planning purposes.

Conducting a Survey of Historic Properties and Cultural Resources

If an existing inventory of historic properties and cultural resources is not available, or is inadequate, your team will have to conduct its own survey. (This inventory will prove to be an invaluable source of information for both the hazard mitigation planning process and other planning efforts.)

Although the prospect of conducting a survey of historic properties and cultural resources may seem daunting, several resources are available to assist you (e.g., you can enlist the aid of a variety of individuals, from volunteers and students to professionally qualified consultants). Moreover, several public sector professionals are available to provide guidance to your team on appropriate methodologies, funding sources, etc. Among the most important resources to tap into is the Survey Coordinator from the SHPO/THPO office, as they can assist in determining the focus for such a survey.

Additionally, your team should consult the Hazards Profile developed in Step 2 to ascertain the areas that have been identified as having a significant hazard threat. These areas should receive

Survey Guidelines

Many local and State planning and preservation offices have published guidelines on how to conduct a survey of historic properties. Readily available guidelines describe the qualifications and experience of individuals who should conduct the survey, what kind of photographic documentation is required, and what types of information are needed to complete the survey forms. One of your most useful sources of information for conducting your survey will be National Register Bulletin 24, *Guidelines for Local Surveys: A Basis for Preservation Planning,* accessible at http://www.cr.nps.gov/nr/publications/bulletins/nrb24.

Saving Time and Resources

If you cannot complete a comprehensive survey of historic properties and cultural resources located within the planning area, consider what you can do with the time available. For example, by simply examining old maps, you can identify areas where it is highly likely historic properties will be found. Additionally, taking digital photographs of representative historic properties and streetscapes may also be useful. While these activities won't yield a comprehensive inventory, they will help to make a good start.

Rapid Visual Screening for Seismic Zones

A tool available to help you quickly identify, inventory, and rank buildings most at risk from a seismic event is called rapid visual screening. This methodology uses a form for a "sidewalk survey" which the screener fills out based on visual observation of the building from the exterior, and if possible, the interior. The form includes space for documenting building identification information, including its use and size, a photograph of the building, sketches, and documentation of pertinent data related to seismic performance, including the development of a numeric seismic hazard score. To learn more about this methodology, see FEMA Publication 154, *Rapid Visual Screening of Buildings for Potential Seismic Hazards: A Handbook.*

Don't Develop Your Mitigation Options Without a Definitive Survey

Initial or windshield surveys can miss historic buildings or potentially historic buildings. A very important building may be located within an otherwise non-important block and lose out as a result. Disasters may also yield additional information/reveal previously hidden materials that were not readily visible before (buildings surveyed as non-historic could lose a later exterior cladding, revealing the original historic facade, as happened in the California Northridge earthquake in 1994.)

high priority for the initial survey effort, with less threatened areas to be surveyed in subsequent project phases.

Note that a historic property and cultural resource survey may be undertaken for one property or one set of resources, or for several thousand. Also note that the process for identifying below ground archeological properties will differ from an aboveground architectural survey. Surveys undertaken for archeological sites often include limited sampling and an examination of historic land use patterns. Surveys for cultural resources, such as museum collections, will also differ. While the effort and techniques are variable, the goal for such surveys is always to document important information about these resources.

Information received during the survey will be recorded on inventory forms. These forms often vary in design from State

Be Comprehensive

Your plan should also account for historic properties and cultural resources that are yet undiscovered. Certain types of historic properties—particularly those not yet identified or conserved—are also uniquely vulnerable to hazard events. During some hazard events, archeological resources previously buried or submerged in water may become exposed. For example, prehistoric sites along waterways may be unearthed by erosion due to flooding. Once-buried wells, privies, cellar holes, graves, building foundations, and artifacts may become flooded or exposed during a seismic event. A shipwreck might become dislodged or damaged by wave action. Archeological resources made of organic materials are especially vulnerable if they are located adjacent to waterways prone to flooding.

Eroded fields in Chilton County, Alabama, April 1937.

Source: Library of Congress, Prints & Photographs Division, FSA-OWI Collection, LC-USF34-025394-D DLC

to State. Regardless of whether your team is surveying a few properties/resources or is surveying districts containing large concentrations of resources, standard information should be collected and recorded on the inventory forms.

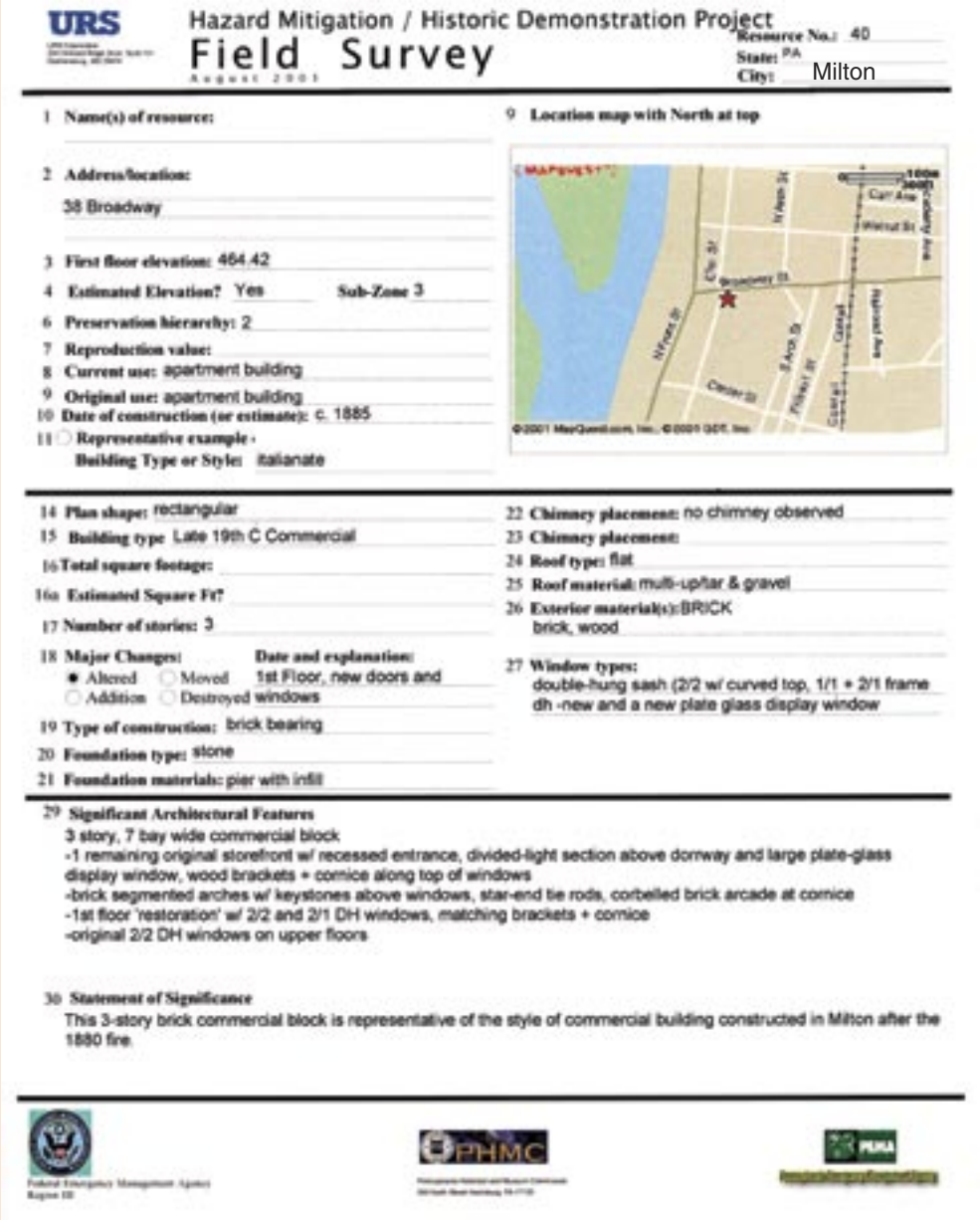
To make sure you have not missed any important piece of information in your survey, consult the various experts you identified in Phase 1, Worksheet #1.

Consider a Variety of Features

When surveying historic properties, include secondary buildings, landscape features and setting, archeological sites, and any art, artifact and antique collections, etc.

Field Surveys in Milton, Pennsylvania

The community worked with consultants to survey the historic properties vulnerable to floods. The community selected 100 properties to survey in its National Register-listed historic district, using a field survey form developed for this project. The consultants later input the results of the survey into a database that was linked to a GIS program for analysis.



URS

Hazard Mitigation / Historic Demonstration Project

Field Survey

August 2001

Resource No.: 40
State: PA
City: Milton

1 Name(s) of resource:

2 Address/location:
38 Broadway

3 First floor elevation: 464.42
4 Estimated Elevation? Yes Sub-Zone 3
6 Preservation hierarchy: 2
7 Reproduction value:
8 Current use: apartment building
9 Original use: apartment building
10 Date of construction (or estimate): c. 1885
11 ○ Representative example -
Building Type or Style: italianate

9 Location map with North at top

14 Plan shape: rectangular
15 Building type Late 19th C Commercial
16 Total square footage:
16a Estimated Square Ft?
17 Number of stories: 3
18 Major Changes: Date and explanation:
● Altered ○ Moved 1st Floor, new doors and
○ Addition ○ Destroyed windows
19 Type of construction: brick bearing
20 Foundation type: stone
21 Foundation materials: pier with infill

22 Chimney placement: no chimney observed
23 Chimney placement:
24 Roof type: flat
25 Roof material: multi-ply/tar & gravel
26 Exterior material(s): BRICK
brick, wood
27 Window types:
double-hung sash (2/2 w/ curved top, 1/1 + 2/1 frame
dh -new and a new plate glass display window

29 Significant Architectural Features
3 story, 7 bay wide commercial block
-1 remaining original storefront w/ recessed entrance, divided-light section above doorway and large plate-glass display window, wood brackets + cornice along top of windows
-brick segmented arches w/ keystones above windows, star-end tie rods, corbelled brick arcade at cornice
-1st floor 'restoration' w/ 2/2 and 2/1 DH windows, matching brackets + cornice
-original 2/2 DH windows on upper floors

30 Statement of Significance
This 3-story brick commercial block is representative of the style of commercial building constructed in Milton after the 1880 fire.

Source: *Looking to the Future: Alternatives for Reducing Flood-related Damages in Historic Communities,* Milton, Pennsylvania, June 2002

New Curatorial Facility at Timucuan Ecological & Historic Preserve

It is important to remember that some cultural resources—such as works of art, books, or historic documents—may be located in buildings that are not historic. For example, four national park units in Northeast Florida recently collaborated on construction of a new curatorial building to house their museum collections. Timucuan Ecological and Historic Preserve and Fort Caroline National Memorial, located in Jacksonville, are jointly managed, as are Castillo de San Marcos National Monument and Fort Matanzas National Monument, located an hour south in St. Augustine.

A unique sharing of resources between the parks made the facility possible. Although the Castillo had the money to fund its own building, all of its parkland is at or near sea level, between the Intercoastal Waterway and the Atlantic Ocean. After Hurricane Floyd threatened Northeast Florida in 1999, and park staff had to scramble to move the museum collection to higher ground, Castillo superintendent Gordie Wilson realized that "… we were putting people and collections at risk on a regular basis." He looked at other space in St. Augustine, but the low elevation of the whole city, as well as cost and lease agreements of rental space on a higher floor, ruled out that option. Wilson approached Timucuan Superintendent Barbara Goodman, knowing that Timucuan Preserve contains land above the 100-year floodplain.

The new curatorial facility was designed in 2001, and constructed in 2003. The result is a new 3,500-square-foot building, funded through the Castillo 80% Fee Demo program and located near Timucuan headquarters at approximately 40 feet above sea level.

The building contains two large rooms to store archives and three dimensional objects separately, as well as a much needed work area, a research room, and an office. The facility is climate- and humidity-controlled and has fire suppression and alarm systems.

Collections consist primarily of archeological objects systematically excavated from the parks as well as a large archival collection encompassing much of the history of Castillo de San Marcos. Historical objects, such as books, household goods, and architectural fragments from the Castillo are also contained in the collection.

Timucuan Ecological and Historic Preserve building, sited 40 feet above sea level, safely houses museum collections of four national parks in Jacksonville, Florida.

Photo courtesy of the National Park Service

The collections for Timucuan and Fort Caroline were previously stored in two cramped rooms with limited air conditioning, minimal humidity control, and a security system in only one area. The rooms had both exceeded their storage capacity and contained no work space. The Castillo and Fort Matanzas collections were stored in a stand-alone Bally Building at sea level.

Had the new building not been completed by spring 2004, park staff from both facilities would have been hurriedly moving collections prior to the rash of hurricanes that hit Florida later in the summer. Instead, the collections were already safe and staff could spend time securing other facilities and park resources. The four parks' museum collections are now stored according to NPS guidelines and these unique cultural resources will no longer be deteriorating in poor environmental conditions and subject to potential tidal surges.

Finally, remember that a survey without input from community members is a survey that lacks legitimacy. Therefore, it is extremely important to solicit the input of the public early in the survey process.

Once the survey is completed, the next task is to determine which of the identified properties/resources are most important to the community, and to set preservation priorities accordingly.

Sensitivity of Information

Some information on historic properties and cultural resources may be so highly sensitive or private that it should not be included in the publicly available hazard mitigation plan. Examples include **specific locations of culturally sensitive archeological sites and the value of significant archival collections, museum contents, or artifacts.** Moreover, you should treat any information you find on the vulnerability of critical infrastructure and on security plans and systems as highly sensitive. Sensitive information should not be included in the main body of the mitigation plan, but rather in an addendum to which access is controlled. For guidance on how to protect sensitive information contained within your inventory, see Phase 4, Consideration 1: Sensitivity of Information.

Task B. Establish preservation priorities.

Once the inventory of historic properties and cultural resources is complete, your team will be tasked with answering the following question: "Which property/resource would the community miss most if it were lost?"

In attempting to answer this question, your team will need to determine the value the community places on these historic properties and cultural resources. Whereas some communities define themselves by skyscrapers, others may identify themselves with a particular landscape, neighborhood, or even sculpture. These assets are considered to be "preservation priorities." Not only do these icons provide invaluable information about the past, but their loss would also provoke a public outcry. In addition to providing a "sense of place," they may also serve as potentially valuable economic centers, commercial cornerstones, or important pieces of infrastructure. Examples include the retention of historic buildings along a river's edge incorporated into a regional "riverwalk" system, or archeological sites in a flood-prone area protected and integrated into a neighborhood environmental education and discovery center. Thus, preservation of properties and resources like these would be conducive to strengthening and maintaining a sustainable community—a general goal of the hazard mitigation plan.

In Task B, the goal for your team is to establish a working hierarchy of preservation priorities for the community. Once established, these preservation priorities (also referred to in this guide as a preservation hierarchy) will provide a basis for important planning decisions that will be made by the planning team in Phase 3 of the hazard mitigation planning process—the part of the process when mitigation actions are evaluated. By viewing this hierarchy in conjunction with information on hazards, the community can

Artistic and Cultural Collections

Consider **artistic and cultural collections that are valuable assets to your community**. Many communities have created mitigation plans that focus on the uniqueness of artistic or cultural collections, and use these to achieve economic development and tourism goals. In some cases, this may represent the entire community, such as the Taos Pueblo in Taos, New Mexico. In other cases, museums that house such collections focus on particular types of cultural resources, such as the B&O Railroad Museum in Baltimore, Maryland. Other institutions may highlight significant events in a jurisdiction's history, such as the Johnstown Flood Museum in Johnstown, Pennsylvania, or may display a wide range of historic records and artifacts related to the formation and development of a town or region. An excellent example of this type of museum is the Filson Historical Society in Louisville, Kentucky, which is home to an extensive collection of original manuscripts, Daniel Boone's famous "Kill a Barr" carving, handmade quilts, Civil War artifacts, photographs and prints, and the most extensive collection of antebellum portraiture in Kentucky.

Storage Procedures

Developing appropriate storage procedures for moveable heritage (e.g., collections of artifacts, special collections of a local library, school, or college, and written histories) will likely be an important part of your plan. For example, you may wish to relocate significant items stored in hazard-prone areas or buildings to less hazard-prone areas.

Communicate Regularly With Your Planning Team

Throughout the priority-setting process, you must communicate regularly with members of your hazard mitigation planning team. If goals and objectives whose implementation could threaten historic properties or cultural resources are advanced, you will want to voice your concerns and resolve potential conflicts. An example of this would be the selection of a structural diversion mitigation alternative that would result in the demolition of a significant number of buildings in a designated historic district. Conversely, if you find that preservation potentially complements other mitigation goals, you will also want to make that known. An example of this might be the acquisition of land that achieves multiple community goals, such as preserving open space, maintaining natural features, and enhancing recreational opportunities.

consider ways to reduce disaster-related damage with a view to also preserving a community's character. Given the potential abundance of information on historic properties and cultural resources in a community, setting preservation priorities is essential. Although each resource in your inventory may have an interesting story to tell, it is unlikely the community has the immediate ability to provide each historic property and cultural resource an equal level of attention in the hazard mitigation plan. To establish your preservation hierarchy, you will first determine the community value of each historic property and cultural resource, then organize your results by order of priority.

If you are having trouble creating a preservation hierarchy, consider asking for advice for a creative solution from a local planner, professional mediator, or a college class studying community planning.

Introduction to Worksheet #4

You will use **Worksheet #4: Determine Community Value for Historic Property and Cultural Resource Assets** (see the example on page 2-19 and blank worksheet in Appendix C) to determine the level of community value. To arrive at this overall value, your team must first rank each asset in the categories listed in Columns 1–6 of Worksheet #4, which roughly correspond to the variables listed above. Then, qualitatively add the results of Columns 1–6 and fill in Column 7. Record this total in Column 16 of Worksheet #3. Although these two worksheets use rankings of high, medium, or low, any range of numbers, colors, symbols, or other signifiers can also be used to ascribe value.

1. Determine community value.

While all of a community's historic properties and cultural resources are important, some do a better job in visually reflecting the community's history, some are more important to the local economy, and some are better able to convey important information about the past. Moreover, the significance of some assets may not be immediately obvious to the outside "expert." What may strike an outsider as an unimpressive artifact or piece of property may in fact be highly meaningful to the community. Thus, a variety of variables (e.g., economic importance or public sentiment) contributes to the overall value each historic property and cultural resource in your inventory holds for the community.

List the name and address of vulnerable historic properties and cultural assets. For each asset (row), fill in Columns 1 to 6. Define High, Medium, and Low for Columns 3, 4, 5, 6, and 7 at the bottom of this worksheet (optional). Fill in Column 7 by qualitatively adding Columns 3 to 6. Enter the results of Column 7 in Column 16 of Worksheet #3.

Name and Address of Asset	Column 1 Historic Designation (National Register, Local Landmark, etc.)*	Column 2 Geographic Context of Significance (National, Tribal/ State, Local)	Column 3 Level of Significance (High, Medium, Low)	Column 4 Public Sentiment (High, Medium, Low)	Column 5 Economic Importance (High, Medium, Low)	Column 6 Degree of Integrity (High, Medium, Low)	Column 7 Total Level of Community Value (High, Medium, Low)
Hazardville Opera House 50 Main Street	*NR-Listed*	*State*	*High*	*Low*	*Medium*	*Low*	*Medium*
Carruth House Museum 22 Primrose Lane	*Local Landmark*	*Local*	*High*	*Medium*	*Low*	*High*	*Medium*
Carruth Archives 35 North Street	*Not Listed*	*State*	*Medium*	*Medium*	*Low*	*Medium*	*Low*
Lehman's Garden Corner of Main and North	*NR-Listed*	*National*	*Medium*	*High*	*High*	*Medium*	*High*
Downtown District (Main Street)	*NR-Listed*	*Local*	*Medium*	*High*	*High*	*Medium*	*Medium*

*The designation level does not automatically correlate to the level of community value for ranking purposes.

New Uses for Old Structures

The structure pictured here is not what immediately comes to mind when we think of a historic property, yet it has great community value. Constructed circa 1850, this acorn-shaped gazebo is located in downtown Silver Spring, Maryland, and is all that remains of the estate that gave this city its name.

Photo by Mark Edwards, URS Group, Inc., 2005

Another unusual structure valued by its community is the Transfer House in Decatur, Illinois, built in 1895 to serve streetcar riders from the center of a downtown intersection. After streetcar service ended in 1936, the Transfer House serviced the bus lines. When the square was reduced in 1962 in the name of highway building, the Transfer House was moved to nearby Central Park. It languished there, serving as a shopper's resting place and, in season, as Santa's headquarters, until 1970. It was then renovated for use of the Downtown Decatur Council as offices and public information center.

Top: Vintage postcard illustration of the Transfer House, Decatur, Illinois.
Bottom: Renovated Transfer House in Central Park, Decatur, Illinois.

Source: H. George Friedman, Jr.; postcard collection
http://www-faculty.cs.uiuc.edu/~friedman/decatur/Decatur.htm

A Great Source of Information – State Historic Preservation Plans

As a condition of the receipt of Federal matching funds from NPS, SHPO offices are required to develop what are known as State historic preservation plans. These plans help guide each State's approach to the identification, evaluation, and protection of historic properties. These plans integrate historic preservation into broader planning systems at local, regional, and State levels.

Each of these plans has a statewide focus, and usually describes key organizations that are active in historic preservation in each State. Each plan requires broad public involvement to ensure that the vision, issues, and goals of each plan are truly representative of a broad cross-section of the State. Preservation-relevant information on social, economic, political, legal, and environmental conditions, and trends, is an important component of each plan. Including information about these conditions is important, and helps shape how each State develops its program priorities, and carries out its historic preservation activities. Each plan also includes information on a wide range of historic properties, and often identifies specific property types that will be a special focus of preservation activities. Such plans may also contain information on cultural resources, if these resources are of concern to the public and professionals across the State.

State historic preservation plans represent broad statements of public policy regarding historic preservation. Your hazard mitigation planning team should employ these State historic preservation plans as general information guides, rather than technical encyclopedias that represent the sum of all knowledge regarding historic properties in a given State. Used in conjunction with data from State inventories, National Register listings, and historic context data, they represent invaluable information sources that should be actively used in shaping your hazard mitigation plan.

You should contact your SHPO office directly to obtain the most up-to-date version of this document, which is often available via the Internet. The NPS' Historic Preservation Program Planning unit also provides readily accessible and updated information on these plans, as well as contact information in each State. Information current as of October 2004 is included at: http://www.cr.nps.gov/hps/pad/stateplans/planlist.htm.

Due to the profusion of such variables, determining community value is not a science; however, it is still possible to approach the task in a structured way. Often local jurisdictions and States have already developed information that will help you determine community value of certain properties and resources. Local governments, private non-profit historic preservation organizations, and SHPO offices have often developed plans that specify some of this information. As part of this task, you should check with your local historic preservation planner or SHPO for this information.

As you work with your community in setting preservation priorities, you may identify additional variables that factor into what the community considers valuable. By understanding how historic properties and cultural resources are important in other areas of

Unique Preservation Priorities

The values you use to establish your preservation priorities are unique to the community. It is possible that your community's preservation values may conflict with those of the larger jurisdiction, such as the county or State. For example, while your community may focus its preservation efforts on the oldest historic properties, State preservation goals may highlight the need to better protect and enhance more modern examples of historic properties, such as early 20th century residential communities. In such cases, you do not have to accept the priorities of the larger jurisdiction. Rather, you should document in your plan the process you followed to determine your preservation priorities. In this way, it will be clear to the community, county, State, or anyone else who reads the plan why you are pursuing a given course of action.

Community Value of Cultural Resources

In developing your preservation priorities or hierarchy, it may not be easy to determine the community value of cultural resources, such as archival collections and other moveable objects. There are, however, some basic questions you can answer to help you understand how some cultural resources may hold a greater value than others. For example, does the resource contain information relating to the surrounding community? Is it highly usable?

Usability of a cultural resource is one key characteristic to consider. Is the resource organized or curated in such a way that its important information can be accessed by the public? If your cultural resource is an archival collection, does it have a finding guide?

In addition, you may wish to evaluate how unique your cultural resource is. For example, is the information contained in a collection unique or is it duplicated in another collection stored at another institution or site?

your community's life, you will be able to make a more informed choice about how to best protect those historic properties and cultural resources. The following list of variables acknowledges FEMA's desire to encourage communities not only to consider the historic significance and informational value of an asset, but also to take into account other factors when making decisions about historic properties and cultural resources, such as economic potential. These variables are:

- Public Sentiment;
- Economic Importance;
- Geographic Context of Significance;
- Level of Significance; and
- Integrity.

The next section will discuss each of these variables in depth. Careful consideration of these variables in relation to the resources contained in the inventory will help to determine the overall value of the community's historic property and cultural resource assets.

2. Determine overall community value.

By now, your planning team should have considered and evaluated a range of factors to determine the overall community value of the historic properties and cultural resources contained in its inventory. These would include public sentiment, potential economic importance, geographic context level, type of significance, and integrity. Taken together, all of these factors will be combined to generate an overall community value for each asset. Perhaps your community feels that it is appropriate to put more emphasis on one category than another; if so, you can consider the use of weighted multipliers.

Throughout your assessment of these factors, your planning team has been recording on Worksheet #4 the degree to which each factor contributes value to each asset within your inventory. To determine the overall community value of a specific asset, combine all the ranks assigned to that asset across all the factors noted in Columns 1–6 of Worksheet #4. This composite rank is your overall community value for that asset. You should record the value first in Column 7 of Worksheet #4 and then in Column 16 of Worksheet #3.

With the establishment of your preservation hierarchy, you are now ready to revisit the hazards you identified back in Step 1 and estimate the losses to the resources prioritized in your preservation hierarchy in Step 4.

Variables for Developing Community Value

Public Sentiment

Your assessment of public sentiment should be based on actual input from the public, rather than just your intuition. Public input will help you identify those resources held in high regard by the community (some of which may not strike an outsider as particularly impressive), as well as those which create less public sentiment, yet are still significant in their own right. You may have recorded the level of public sentiment towards your community's historic properties and cultural resource as you researched in Phase 1 what has been done to date to protect these assets, and later as you undertook your inventory in Step 3 of Phase 2. If your team has determined the level of public sentiment for an asset in your inventory, that level should be entered into Column 4 of Worksheet #4.

If your team does not know how the community feels about certain assets, there are a variety of methods that can be used to gather community input. Three effective methods are public meetings, questionnaires, and visual definition surveys. At public meetings, interested individuals have an opportunity to express their thoughts and reach consensus. In the questionnaire, respondents may be requested to list significant structures known to them. In the visual definition survey, community members are asked to place adhesive stickers on a large poster board of their community to highlight areas they believe to be of high significance. Once you obtain the public's input, enter your results in Column 4 of Worksheet #4.

Economic Importance

Historic properties and cultural resources do considerably more than provide a community with a unique sense of place. They can also provide an important attraction for potential residents and tourists. Examples include historic buildings used as museums and educational centers, as well as larger geographic areas such as Pike's Place Market Historic District, a healthy, bustling community of merchants and residents in Seattle, Washington. Furthermore, neglected historic properties may be eligible for tax credits and other incentives for proper rehabilitation. Most importantly, these

Disasters and Heritage Tourism

The rain from Tropical Storm Alberto fell for 11 days. In one day alone, the town of Americus, Georgia, was inundated by 21 inches of rainfall. The commercial district of the town of Montezuma, Georgia, comprising 60 historic buildings, found itself covered by 14 feet of water. By the time the 500-year flood event ended, President Clinton had declared 78 counties in the State eligible for Federal disaster assistance.

Federal officials estimated damage at over $1 billion. Agricultural losses alone exceeded $100 million. Approximately 50,000 people fled their homes. The floods damaged more than 18,000 buildings, and destroyed more than 250 historic buildings. Thirty-three people perished. These numbers alone, however, do not fully convey the devastating impact of Tropical Storm Alberto upon the State of Georgia and its economic infrastructure.

Although one local newspaper reported that some considered Montezuma a ghost town that couldn't come back…it did come back. A combination of Federal, State, and private non-profit funding was used to rebuild the town, which learned that historic preservation can be the foundation of economic and physical growth. The effort, in turn, brought a new industry—heritage tourism—to Montezuma, generated new life to the downtown area, and helped bring citizens together in a common cause. But if the communities wrecked by Tropical Storm Alberto had taken action well before the flood, they might have been able to reduce damages and losses from the flood.

historic properties and cultural resources are nonrenewable and cannot be replaced or replicated. While potential economic importance is not the only reason a historic property should be prioritized, it is an important consideration in the decision-making process. Often local decision-makes are unaware of the economic potential of these properties. Showing decision-makers how these properties can be economic assets will help in ensuring that they are considered for preservation and enhancement as part of the hazard mitigation planning process.

Examining local and regional planning data may give you an idea of the potential economic importance of the historic properties and cultural resources in your inventory. Are some of your properties located in a zone targeted for redevelopment and future investment? Are they already an important anchor of the local economy? Answers to these questions will help you understand how historic properties and cultural resources can contribute to a community's economic future.

Economic Importance of Historic Properties and Cultural Resources

Thought should be given to the role these resources play in creating a diversity of housing options (e.g., converting warehouses into apartment lofts) and generating additional benefits to the community (e.g., serving as a revitalization engine).

Once the economic importance of assets in the inventory has been determined, it should be entered into Column 5 of Worksheet #4.

Historic Designation

Historic properties and cultural resources in a community may already have been designated as such under local historic preservation ordinances, State landmarks, or the National Register. It is likely, though, that many historic properties have not yet been evaluated. These properties should not automatically be discounted. It is important, therefore, to recognize past efforts and indicate designation or lack thereof of each asset in the inventory in Column 1 of Worksheet #4.

Evaluating Significance

Geographic Context of Significance (National, Tribal/State, Local). One way of determining significance is to evaluate properties or resources using a prescribed set of criteria. One of the best available sets is the Criteria for Evaluation developed by NPS, which is used to determine a historic property's eligibility for listing in the National Register. The basis for a historic property's significance rests on one or more of the following four factors (additional information is provided in Appendix A – Glossary):

- Events important to broad patterns of our history;
- Lives of persons important in our past;
- Architectural and engineering design and construction; and
- Information important in prehistory or history.

Historic contexts can help your team evaluate the significance of properties contained in your inventory. Specifically, a historic context is used by historians to compare a specific property type with other similar historic properties. Historic contexts that have been developed over the past two decades are usually on file in SHPO and THPO offices, and in some cases in local historic preservation agencies.

Historic Contexts

Documents that specify certain themes, geographic areas, and chronological periods that provide perspective to evaluate a historic property's significance. Historic contexts have been developed on a variety of geographic levels or scales. The geographic scale selected may relate to a pattern of human development, a political subdivision, or a cultural area. For example, a local historic context represents an aspect of the history of a town, city, county, cultural area, or region. A State historic context allows evaluation of a historic property when it represents an aspect of the history of the State as a whole. A national context would be employed when a historic property represents the history of the United States and its territories as a whole. Regardless of the scale, the historic context establishes the framework through which decisions about the significance of related historic properties can be made.

NPS has made extensive information on historic contexts available to the public, including information on approximately one-third of the 77,000 historic places listed in the National Register. As components of Multiple Property Submissions (MPS), information on groups of properties is available via the Internet. For more information, go to http://www.cr.nps.gov/nr/research/contexts.htm.

As your team creates a list of preservation priorities, the process of establishing significance must be handled with care and diligence. Ultimately, there is no easy litmus test for defining significance; some of the challenges your team may face are described in the sidebar to the right. The careful use of a rigorous evaluation process and established criteria will help achieve community consensus in this important portion of the inventory process.

Once the geographic context of significance of historic properties and cultural resources has been determined, the significance level should be entered into Column 2 of Worksheet #4 - the geographic context level.

Defining Significance

Not all historic properties and cultural resources in your inventory will be equally significant or exceptional, however much they may appear to be. Properties with more significance than others might be those that are easily identifiable with historic trends, or that serve as exceptional examples of an architectural form or style. Among this subset of resources, you must still make comparisons. For example, although buildings associated with important historical figures may already have been identified and evaluated, their levels of significance may not have been compared.

Significant buildings might not always be large and impressive, but may actually be quite modest, such as a row of workers' houses with simple front porches, closely set to the street. Although humble-looking, they may contain design elements that evoke a bygone era. Indeed, certain features may define a building's character and link it with its historical past or architectural style—its ornate exterior construction materials, its interior room organization, or its placement within a working agricultural landscape. On the other hand, other features of the same building may contribute little to an understanding of the building's history or overall significance.

Likewise, cultural resources with little value on the open market may be priceless to your community—for example, diaries or artwork produced by early residents, or an original first edition of the local newspaper from its inception 150 years ago. Other cultural resources may be valuable for their sheer rarity—an irreplaceable sculpture collection, a set of rare books, or antiques that once belonged to some renowned person.

The process of defining significance will take time and careful analysis. For example, although an important labor leader was born and raised in a certain house in your community, it may be the small apartment where he formed his labor union that is the more significant site. In another example, although a community has many streets containing examples of post-World War II suburban housing, it may be the street with the largest intact collection of the same type of house, with the same type of landscape, built by the same developer, which has the greater level of significance. Thus, the street nicknamed "Ranch House Heaven" would merit greater recognition in the evaluation process due to its abundance of ranch houses. Because it so thoroughly typifies a postwar ranch-house streetscape, it serves as an important example of postwar housing. In summary, training a critical eye on the evaluation process will ensure success in your efforts.

Level of Significance (High, Medium, Low). Whereas the geographic context of significance helps you understand where a property or resource is important, the level of significance helps you understand just how important that property or resource is. In other words, is the resource simply a representative example of a particular property type or historic trend, or is it an important and exceptional example?

When determining community value, it is useful to look at the level of significance of a historic property or cultural resource. The level of significance will provide you with some important information about the character and nature of the resource, which may prove useful as your team proceeds to define overall community value. For the purposes of this guide, the level of significance is defined in the following manner: High = Exceptional property or resource important to maintaining the unique character of the community; Medium = Important representative example which contains some unique details; and Low = Important, but other representative examples exist in the community. Fill in the level of significance in Column 3 of Worksheet #4.

Once you have determined the designation (or lack thereof) and level of significance, you may wish to consider combining the two variables. For example, you might categorize historic properties as "National Register Listed-Local Significance" or "Unevaluated-Regional Significance."

Closely tied to level of significance is the integrity of a historic resource, discussed in the following section.

Integrity

After assessing the geographic context and level of significance of the historic properties and cultural resources in the inventory, the next step is to assess the integrity of those assets. Simply put, the integrity of a historic property is how well it conveys its significance. Remember that integrity focuses on the features of a historic property, and is not the same as condition, which pertains to appearance. The ability of a historic building to "tell its history"—to demonstrate historic themes and trends in a certain place and time period—heavily depends on its integrity.

The Seven Aspects of Integrity

The National Register uses seven aspects of integrity to assess the eligibility of a historic property. Even if you are not assessing National Register eligibility, an understanding of these seven aspects of integrity will help guide you through determining the overall integrity of a historic property. These seven aspects of integrity are location, association, setting, materials, design, feeling, and workmanship. More information on assessing integrity is available from NPS in Chapter Seven of its Bulletin #15: *How to Apply the Criteria for National Register Evaluation,* found online at http://www.cr.nps.gov/nr/publications/bulletins/nrb15/nrb15_7.htm.

Assessing Your Conservation Needs

Professional associations such as the American Institute for the Conservation of Artistic and Historic Works (AIC) maintain an extensive guide of qualified conservators experienced in a range of specialties, including books and paper, photographic materials, objects, paintings, architecture, wooden artifacts, and textiles. These conservators may be able to assist you in assessing the current conservation needs of your cultural resources, and may also be able to help you develop a site-specific disaster emergency plan for cultural resources. This free guide is available directly through AIC as well as on its Web site, located at http://aic.stanford.edu/public/select.html.

Renovation or Modification May Not Diminish a Building's Integrity

Someday, a recent remodeling or alteration might itself be considered historic. Therefore, significant architectural features may not always date from the time of original construction. For example, the relatively recent addition, in 1920, of wood clapboard siding on a remodeled log cabin dating back to 1840 does not necessarily diminish the building's physical integrity. The siding in itself may be a historic design element and may not diminish the integrity of the property as a whole. For more information on this topic, see NPS Technical Brief #35, *Understanding Old Buildings: The Process of Architectural Investigation* by Travis McDonald, at http://www.cr.nps.gov/hps/tps/briefs/brief35.htm.

Blythewood has three distinct sections: the 1820s main block (center), 1880s shed-roofed addition (left), and 1920s Colonial Revival addition (right). Prince Georges County, Maryland.

Photo by Craig Tuminaro, URS Group, Inc., 2005

Summarizing Survey Results

Communities summarize the results of historic property integrity evaluations in a variety of ways. For example, the City of Chicago recently completed an ambitious project—a citywide survey of historic properties. More than 17,000 buildings or structures were identified as having at least a minimal level of significance. In order to better understand the significance and integrity of all of these properties, the City developed a color-coding system in which red properties were significant on a City, State, or national level, and orange properties were significant on a community or neighborhood level. As it turned out, only 300 of the 17,000 properties were categorized as "red," with 9,600 categorized as "orange." The system also assigned categories of green, yellow-green, and yellow to represent different degrees to which buildings had undergone alterations. Finally, "blue" properties were those constructed too recently to be considered for evaluation for significance, but whose significance may be reevaluated as time passes.

When evaluating integrity, it is important to document and evaluate all contributing historic design features. The removal or replacement of important design elements, such as windows and siding, may prevent a historic property from depicting some of its historic and architectural themes.

This process may also afford your team with an opportunity to evaluate the current condition of cultural resources, especially in regard to their ability to withstand hazard-related damage. While some museums and other repositories may have already begun this process, there is a wealth of information available to assist in this effort.

Once you have evaluated the integrity of each historic resource in your inventory, you should indicate the degree of integrity in Column 6 of Worksheet #4.

Not All Historic Properties and Cultural Resources are Created Equal

You should resist the temptation to consider every historic property and cultural resource as equally important in your preservation hierarchy. Remember that you are creating a preservation hierarchy that will help planners prioritize mitigation actions in the hazard mitigation planning process. As difficult as it may be to consider, some properties and resources in the hierarchy will need to be less of a priority than others. In the case where the area is small, intact, original enough, or of high integrity, then every historic property and cultural resource may rate as equally important.

Mapping Historic Properties and Cultural Resources

If you have a number of historic properties and cultural resources, your team may wish to create a map to display these. This map can be created by color-coding the community value assigned to each asset on a base map or using a GIS (see GIS discussion on page 2-8). A glance at the completed map will reveal a bell-curve distribution of community value for resources: a few resources of either high or low value, and several of average (medium) value. Likewise, you will find this same bell-curve distribution among the individual factors that comprise community value (e.g., a few resources of very high or low integrity, and many of average integrity).

Ultimately, this mapped preservation hierarchy will serve as an invaluable aid to your planning team as it attempts to prioritize mitigation options during the mitigation planning process. For example, highly significant areas, where preservation is a top priority, may be the focus of intensive mitigation efforts, whereas less significant areas may not require such concentration of effort.

This is the end of Step 3 of Phase 2. Following are questions you should ask yourself to determine if you have adequately addressed preparing your inventory and preservation hierarchy. These are followed by a Review Test you should use as a learning aid to help you check your understanding of key terms and concepts in inventorying assets.

Evaluate Your Community

- Is GIS being used for the hazard mitigation plan? Does a GIS database already exist for historic properties and cultural resources?
- If a GIS inventory does not exist, do you have an inventory in another format? If so, is it complete and up to date? Who manages and updates the inventory?
- Have you been able to show on a map—using GIS or by hand—which resources lie in areas affected by more than one hazard?
- Were you able to evaluate the vulnerabilities to different hazards of the historic properties and cultural resources in your inventory? If not, where can you find assistance to assess vulnerabilities?
- Did your preservation priorities conflict with other community plans and policies? If so, have you worked out these conflicts?
- Have you clearly justified your preservation priorities and created a record of your evaluations?

Review Test (Select one answer for each question.)

1. Where can you check to make sure you have all the existing data you need on historic properties and cultural resources in your community?

   a. Your local planner.

   b. SHPO/THPO office.

   c. Local and State non-profit historical and cultural organizations.

   d. All of the above.

2. A GIS is useful for:

   a. Providing rules of order for contentious public meetings.

   b. Producing maps that display many types of data that are tied to a particular location.

   c. Telling you where you can find more information on historic properties and cultural resources.

   d. None of the above.

3. If a GIS is not available, you should:

   a. Give up.

   b. Compile your data on a computerized spreadsheet based on Worksheet #3.

   c. Plot the location of historic properties and cultural resources by hand on a USGS map or a flood map of your community.

   d. Undertake the actions described in b and c.

4. The level of community value for ranking purposes is based on:

   a. An exact mathematical formula.

   b. The geographic context of significance only.

   c. The best judgment that the team makes after evaluating an array of variables that contribute to community value.

   d. None of the above.

5. A property can be considered historic and worthy of consideration in the hazard mitigation plan only if it is listed in the National Register, a State landmarks list, or a local landmarks list.

   a. True.

   b. False.

6. Which of the following, in your opinion, should rank first in the preservation hierarchy? Second? Third? State your reasons.

   a. A block of bungalows, some of which have been greatly altered, that were designed by a prominent local architect and date back to the 1920s.

b. A privately owned house that is listed as a local landmark and that serves as an outstanding example of the Queen Anne style.

c. The library, which was constructed in 1890, is listed in the National Register, contains diaries and photographs of the community's founders, and is an excellent example of the Neoclassical architectural style.

d. None of the above.

(Answers in Appendix D – Answers to Review Tests.)

Hazards US (HAZUS)

FEMA's Mitigation Division recently released HAZUS-MH MR1 (HAZUS-Multi-Hazard Version 1.1), an updated and revised version of HAZUS-MH, a powerful risk assessment software program for analyzing potential losses from floods, hurricane, winds, and earthquakes. Included with the new release are an updated version of the Building Inventory Tool (BIT), the Inventory Collection Survey Tool (InCAST), and the Flood Information Tool (FIT). These three data input tools have been developed to support data collection. InCAST helps users collect and manage local building data for more refined analyses than are possible with the national level data sets that come with HAZUS. InCAST was released in 2002 with expanded capabilities for multi-hazard data collection. BIT allows users to import building data and is most useful when handling large datasets (over 100,000 records), such as tax assessor records. FIT helps users manipulate flood data into the format required by the HAZUS flood model.

Federal, Tribal, State, and local government agencies and the private sector can order HAZUS-MH free-of-charge from the FEMA Distribution Center.

Please visit the FEMA Web site for more information: http://www.fema.gov/hazus/.

Step 4. Estimate Losses

Step 4 will address the question "Which historic properties and cultural resources would result in the most financial damage to the community in the event they were damaged or destroyed?" In this step, your team will bring together the information gathered in Steps 1–3 to estimate the potential losses to the community's historic properties and cultural resources due to hazard events. To do this, your team will need to assess the level of damage as a percentage of structural and content replacement value, and functional and displacement value. See **Worksheet #5: Estimate Total Losses for Historic Properties and Cultural Resources** (see the example on page 2-31 and blank worksheet in Appendix C) for this step.

Before you begin to estimate losses, first check to see if these calculations have not already been made as part of the hazard mitigation planning effort. If so, you can simply use these estimates, making appropriate adjustments for historic values.

Additionally, you are strongly advised to review FEMA 386-2 before delving into Step 4 of Phase 2. The loss estimation tables provided in Step 4 of FEMA 386-2 should be used to complete Task A. These tables have been adapted from various sources, including Means Square Foot Cost publication, Hazards U.S. (HAZUS), and FEMA's Benefit-Cost Analysis module. For more a detailed analysis, refer to the source(s) listed for each table.

In using these tables, you will find that loss estimation tables have been developed for floods, earthquakes, and coastal storms, but not for tornadoes, landslides, tsunamis, and wildfires. In these cases, you can base your loss estimations either on the full value of historic properties and cultural resources located within a given hazard area or on past community experience with those types of

Hazard: *Flood* Date: *January 19, 2007*

Make a copy of this worksheet for each hazard of concern. Note the date and the hazard at the top of the worksheet. List each historic property or cultural resource asset. For each asset (row) calculate the structure, contents, function, and displacement losses. Enter each loss and total loss on Worksheet #3, as indicated.

Name/ Description of Structure	Structure Loss					Contents Loss				
	Structure Replacement Value ($)	X	Percent Damage (%)	=	Loss to Structure (Worksheet 3, Column 11)	Replacement Value of Contents (Professionally Appraised for Historic Contents)	X	Percent Damage (%)	=	Loss of Contents ($) (Worksheet 3, Column 12)
Hazardville Opera House	$1,000,000	X	30	=	$300,000	$500,000	X	30	=	$150,000
Carruth Archives	$200,000	X	20	=	$40,000	$250,000	X	20	=	$50,000
Downtown District	$3,000,000	X	30	=	$900,000	$750,000	X	30	=	$225,000
Lehman Gardens	N/A	X	N/A	=	N/A	$200,000	X	10	=	$20,000
		X		=			X		=	
		X		=			X		=	
				Total Loss to Structures	$1,240,000				**Total Loss of Contents**	$445,000

Name/ Description of Structure	Loss of Function Cost					Displacement Cost					Structure Loss + Content Loss + Function Loss + Displacement Cost (Worksheet 3, Column 15)
	Average Daily Operating Budget ($)	X	Functional Downtime (# of days)	=	Total Function Loss ($) (Worksheet 3, Column 13)	Displace-ment Cost per Day ($)	X	Displace-ment Time	=	Total Displacement Cost ($) (Worksheet 3, Column 14)	
Hazardville Opera House	$1,000	X	30	=	$30,000	$1,000	X	190	=	$190,000	$670,000
Carruth Archives	$300	X	22	=	$6,600	$100	X	126	=	$12,600	$109,200
Downtown District	$5,000	X	30	=	$150,000	$7,500	X	190	=	$1,425,000	$2,700,000
Lehman Gardens	N/A	X	N/A	=	N/A	N/A	X	N/A	=	N/A	$20,000
		X		=			X		=		
		X		=			X		=		
				Total Loss of Function	$186,600				**Total Displacement Cost**	$1,627,600	$3,499,200
											Total Loss for Hazard Event

Loss Estimation Tables

A loss estimation table projects the losses likely to be sustained due to a specific type of hazard event (e.g., floods) based on observed past damages. Estimated losses are provided for different magnitudes of the hazard and are expressed as a percentage of replacement cost.

Using Loss Estimation Tables

Currently, no standardized loss estimation table or damage curve exists for historic properties and cultural resources. Therefore, the loss estimation tables provided in FEMA 386-2 should only be used as a broad planning tool for estimating losses to historic properties and cultural resources. You may wish to develop alternative tools for loss estimation, or highlight historic properties slated for detailed loss analysis in the future. Moreover, loss estimation tables and standardized damage curves represent the cumulative data on average loss gathered from many thousands of hazard-prone buildings. Many of these buildings may not be representative of the historic buildings in your community. For example, they may be of more recent construction or of a different construction method. Although loss estimation tables and standardized damage curves are an imperfect tool, they may still be an important aid in the hazard mitigation decision-making process.

Estimating Seismic Rehab Costs

FEMA has two publications to aid your team in estimating seismic rehabilitation costs. FEMA 156, *Typical Costs for Seismic Rehabilitation of Existing Buildings Volume 1 – Summary,* and FEMA 157, *Typical Costs for Seismic Rehabilitation of Buildings Volume 2 – Supporting Documentation.* Both publications can be ordered through the FEMA Publications Warehouse by calling 1-800-480-2520.

hazards. For example, if your community is vulnerable to wildfires, your estimate of loss to a wildfire would be based on the number of assets, such as infrastructure, timber, and other community resources, that were destroyed in past wildfire events. For further explanation on how to use these tables, see FEMA 386-2 page 4-3.

Task A. Determine the extent of damages.

It is important to remember that potential losses to a historic property or cultural resource go beyond the immediate dollar value of materials and labor needed for repair. Your total estimate of the costs of expected losses will take into account several different types of losses, including the following:

- Losses to Historic Properties or Cultural Resources (Column 11 of Worksheet #3);
- Losses to the Contents of the Historic Properties (Column 12 of Worksheet #3);
- Losses to the Use and Function of Historic Properties or Cultural Resources (Columns 13 of Worksheet #3); and
- Losses due to Displacement Costs (Column 14 of Worksheet #3).

In Task A, you will calculate the expected losses to the structure and content, along with the functional loss and displacement cost. In Task B you will add these losses together to obtain total loss estimates for each asset and for the hazard as a whole.

Worksheet #5 will help guide you through the four types of calculations required to estimate losses to structures, contents, functional downtime, and displacement. You will make these calculations for each hazard identified in Step 1 of this risk assessment.

1. Estimate losses to structure.

Before you can calculate the estimated percent damage to a structure, you must first determine the replacement value of the resource. As discussed below, arriving at the replacement value of historic properties and cultural resources requires careful consideration of historic design features.

While several methods exist for determining a fair market value for historic properties, especially buildings, no established method is available for determining a replacement value for historic

properties. It is a difficult task to place a dollar value on the craftsmanship exhibited by many historic properties, particularly when the types of materials and skilled labor that went into such work are no longer readily available. It is nearly impossible to provide an accurate valuation when craftsmanship is truly unique. Assigning a replacement value to certain cultural resources, such as works of art, original photographs, or documents may be even more difficult.

Despite this challenge, defining a reasonable replacement cost allows historic properties and cultural resources to more effectively be integrated into the hazard mitigation planning process. Replacement values for historic properties and cultural resources can vary significantly. For example, methods for treating historic properties and cultural resources following a disaster can deviate significantly, ranging from standard repair and rehabilitation to a more careful (and often more expensive) level of museum-quality conservation or restoration. Moreover, the costs of materials required for rehabilitation often vary widely from region to region.

As you develop an idea of the replacement value of your historic properties and cultural resources, it is important to remember that these resources are non-renewable resources—they cannot truly be replaced by duplicates or facsimiles.

One way to determine replacement values for what are essentially irreplaceable resources is to combine standard cost estimating techniques used for new construction with approximate costs of post-disaster rehabilitation based on the *Secretary of the Interior's Standards for Rehabilitation of Historic Structures*. These guidelines, as well as other guidelines from NPS, will also help in determining replacement values for historic properties. Of great assistance will be the documentary photographs and field notes you took during your survey of the property in Step 3. For appraising cultural resources, it may be necessary to work with a professional appraiser or experienced conservator. Reviewing insurance policies may also help you to estimate their replacement value. More detailed methods for replacement valuation are described in the section that follows.

Replacement Value

A replacement value represents the approximate cost of the contemporary reconstruction of an existing building, structure, or cultural resource. The replacement value is used in determining the cost-effectiveness of various hazard mitigation alternatives.

Involvement of Property Owner in Determining Replacement Value

Owners may also be a valuable source of information on the replacement value of historic properties and their contents. Some institutions or landowners, however, may be hesitant to reveal the actual value of their properties. These owners should be assured that they can provide planners with the dollar values they require for planning purposes, but that the amount will be classified as sensitive and not included in the plan. Additionally, if it makes the owners more comfortable, they can cite a value range—between $100,000 and $120,000, for example—instead of a precise value, or state the value of the contents as a percentage of the structure's value.

Some institutions may not know the value of their artifacts or parts of their collections. In these cases, they can report the percentage of their holdings that are considered unique or irreplaceable. This figure can still be useful in prioritizing mitigation actions.

Recommended Methods for Replacement Valuation of Historic Properties

In estimating losses to a building, you must first determine the replacement value of a historic property. One recommended method for determining the replacement value of historic properties is to organize information in a standard valuation format using a common construction costing guide, such as the one published by RS Means. Such costing guides place buildings and structures into several different quality-based categories of per-square-foot construction costs, based on such factors as height and level of detail and craftsmanship.

How do I determine a replacement value of a historic property?

Using a common construction costing guide, you should:

- Determine the appropriate style category to which the property belongs by examining the pictures provided in the guide. Look for similar design features, as well as level of ornament and detail.
- Establish a basic square-foot cost based on the basic structural system, using extra costs for other structural features such as chimneys and porches. These extra costs classifications are listed in the guide.
- Use the local construction cost multipliers provided in the guide to find the construction cost multiplier appropriate for your community; use this figure to calculate your final cost.

For unique property features, consider using additional multipliers specific to your community or site-specific cost exceptions.

You may notice that some of the new buildings in your community resemble certain historic structures. This is not surprising, since certain popular architectural styles have often been revived throughout history. Because many contemporary buildings or structures listed in the RS Means guide and other similar construction costing guides are alike in basic external appearance to historic buildings and structures, it is relatively easy to place many historic properties into different categories of construction costs.

However, due to the high level of architectural detail that is often present in historic properties, many historic buildings and structures should be placed into a higher Means or construction guide category indicating a higher level of detail or construction quality. In addition, you should adjust your estimate to account for local construction costs and any unique or site-specific characteristics. For example, certain exceptions and allowances should be made for unique decorative features, such as curved glass windows, turrets, or detailed cornices. A qualified preservation architect, a contractor experienced in historic building rehabilitation, or other appropriate design or construction professionals will be able to assist you in the development of site-specific or unique cost exceptions and allowances.

Perhaps your community has some highly unusual, one-of-a-kind historic properties and cultural resources for which there is no easy comparison or cost category. These might include places and structures as diverse as a sod house, a traditional cultural landscape feature, or a unique example of commercial roadside sculpture. For these truly unique assets, you should make a list of their most unusual or unique aspects. For example, a property may serve as the venue for an annual community cultural gathering, or be an exceptional example of architecture that draws

tourists regionally or nationally. Once you have compiled your list of unusual features, examine it for those items which have a well-defined dollar value. This may include annual costs associated with the continual upkeep of unique design features. When standard cost estimating techniques are inadequate for determining a replacement value for a highly unusual historic property, you can explore alternative methods of replacement valuation. If you do decide to pursue other methods, remember to keep a written paper record justifying your decisions.

If your community is undertaking a large-scale hazard mitigation plan encompassing hundreds or even thousands of historic properties, it may lack the time, money, or other resources needed to develop detailed individualized replacement costs, especially those requiring multiple cost exceptions for historic design features. Although these more detailed estimates provide a greater degree of accuracy, your community can instead develop a specialized multiplier for each historic property that you add to the standard estimated replacement value for similar standard, modern construction to account for locally unique cost considerations. This multiplier should be based on the average costs of potential post-disaster rehabilitation of historic design features found in the *Secretary of the Interior's Standards for Rehabilitation*. Such a multiplier will be useful if many of your community's historic properties have similar or typical historic features.

To formulate this community-specific multiplier, you may want to investigate a variety of local or regional sources, such as the following:

- Insurance claims and post-disaster reports for historic properties and cultural resources in your community, or for similar properties facing similar hazards in other communities in your region.
- Local, State, or Federal financial incentive programs, that encourage appropriate rehabilitation of historic properties (e.g., tax credits for rehabilitation). Do the figures used by these programs accurately reflect the potential costs for post-disaster rehabilitation? Could these figures be used in support of a multiplier for your project?
- Your SHPO/THPO, as well as local professionals experienced with historic buildings, may be able to tell you the typical features and costs associated with rehabilitating local historic properties.

The needs of your community will determine whether you choose to establish a multiplier or pursue a more detailed analysis. Should you choose the multiplier, community needs will also determine the means by which you gather cost data to develop the multiplier.

Remember that you probably will not find a perfect match for every historic property in your preservation hierarchy. This means that replacement value data generated using either a costing guide or a multiplier will be approximate, and not exact. The replacement cost you assign to an essentially irreplaceable resource is, at best, imperfect. If you encounter concerns about replacement valuation, you can remind those concerned that many other factors about a historic property or cultural resource can influence the decision-making process.

Once you have determined the structural replacement value of each historic property and cultural resource (when applicable) in your preservation hierarchy, you should multiply it by the percent damage expected to occur from a particular hazard event using the loss estimates tables in Step 4 of FEMA 386-2. Record that value in Column 11 of Worksheet #3.

2. Estimate losses to contents of historic properties and cultural resources.

An additional consideration for estimating losses to historic properties is the replacement valuation of their contents. Many historic commercial and residential buildings contain items similar in value to those found in more contemporary buildings and structures. Certain historic properties, however (particularly museums, community centers, and historic sites), may contain valuable art, antiques, and furnishings, as well as other rare historic items. If your inventory does not list these cultural resources separately, you should include them in the contents valuation for the historic property. For these unique contents, it may be necessary to consult an antiques dealer or appraiser to determine their value or check existing insurance policies. In addition, important cultural resources such as archives or art may be located within a building that is not considered historic.

Once you have determined the replacement value of the contents of a historic property, you should multiply it by the percent damage expected to occur from a particular hazard event using the loss estimates tables in Step 4 of FEMA 386-2. The product of this calculation will be the costs expected to be incurred by a community due to losses to the contents from that hazard event. For example, if the library's content replacement value equals $225,000 and it is expected that 10 percent of its contents would be damaged by a 100-year flood, then estimated losses to these contents from such a flood would be $22,500.

Once you have estimated the content loss to the historic property or cultural resource, you should record that value in Column 12 of Worksheet #3.

3. Estimate losses due to functional downtime and displacement time.

To estimate losses due to functional downtime and displacement, you are referred to pages 4-4 and 4-5 of FEMA 386-2. Losses due to functional downtime are the costs associated with the amount of time a historic property is out of business, or the amount of revenue from visitors that would be lost if a site were destroyed. To determine tourism losses, the loss of revenue is calculated

Collections and Objects Damaged by a Disaster

To determine eligibility for FEMA funding for stabilization and treatment of collections and objects of exceptionally significant value after a disaster, see FEMA's Collections and Individual Objects Policy at http://www.fema.gov/rrr/pa/9524_6.shtm.

from the time the business is closed through the day the business resumes operations. As stated before, you can count either loss of revenue per day or loss of operating budget per day (based on the annual operating budget). To calculate functional downtime losses, multiply the average daily operating budget by the number of days that the business is closed.

Displacement costs are associated with the amount of time a business or service is displaced from its original location. A standard of $1/square foot for rent, $500/month of additional costs, and a $500 one-time cost for the initial move can be applied. While these are the default values for a residential structure, higher costs can be applied as long as the applicant can support higher values through receipts or estimates. To derive displacement costs, calculate the daily displacement cost and multiply by the number of days the business or service would operate in its temporary location.

Once you have calculated losses due to functional downtime and displacement costs, you should record those values in Columns 13 and 14, respectively, of Worksheet #3.

Task B. Calculate the total loss for each hazard.

Now that you have completed all the calculations in Worksheet #5 for each historic property and cultural resource in your preservation hierarchy, sum the dollar value of the calculated losses to arrive at the total estimated damage for each hazard event. Transfer this information to Column 15 of Worksheet #3.

Summary

With the completion of your calculations in Worksheet #5, you should have a good idea of which historic properties and cultural resources are subject to the greatest potential damage and which hazard event would produce the greatest potential losses. This information will aid you in prioritizing your mitigation actions in Phase 3.

This is the end of Step 4 of Phase 2. Following are questions you should ask yourself to determine if you collected sufficient data to carry out your calculations to estimate losses. These are followed by a Review Test to help you distinguish among the different types of costs involved in estimating losses.

Functional Downtime

The functional downtime is the number of days that a business would be closed due to damage from a hazard event before it could resume in another location.

Displacement Time

Displacement time is the number of days a business or service would operate away from its original location due to a hazard event.

Displacement Cost

Displacement cost is the expense for a business or service to be relocated to another structure because of a hazard event. This cost can include the rent for temporary building space per month and a one-time cost to set up operations in the new place.

Evaluate Your Community

- Were you able to assess the costs of each potential hazard event for each resource on your inventory? Where will you look for missing information?
- Did you determine the replacement value for unique historic properties?
- Did you remember to estimate the replacement value for contents in museums, community centers, or historic sites?
- Does your loss estimate include functional downtime and displacement costs?

Review Test (Select one answer for each question.)

1. Before you can calculate the estimated percent damage to a structure you must first determine the _____ value.

   a. expected.

   b. replacement.

   c. market.

   d. historic.

2. To calculate losses due to displacement, multiply the displacement cost per day by _____.

   a. the number of customers who stop by.

   b. the cost of all the utilities for one month.

   c. the number of days out of business.

   d. one month's rent.

3. If you do not have loss estimation tables available it is acceptable to use historic data for your loss estimation.

   a. True.

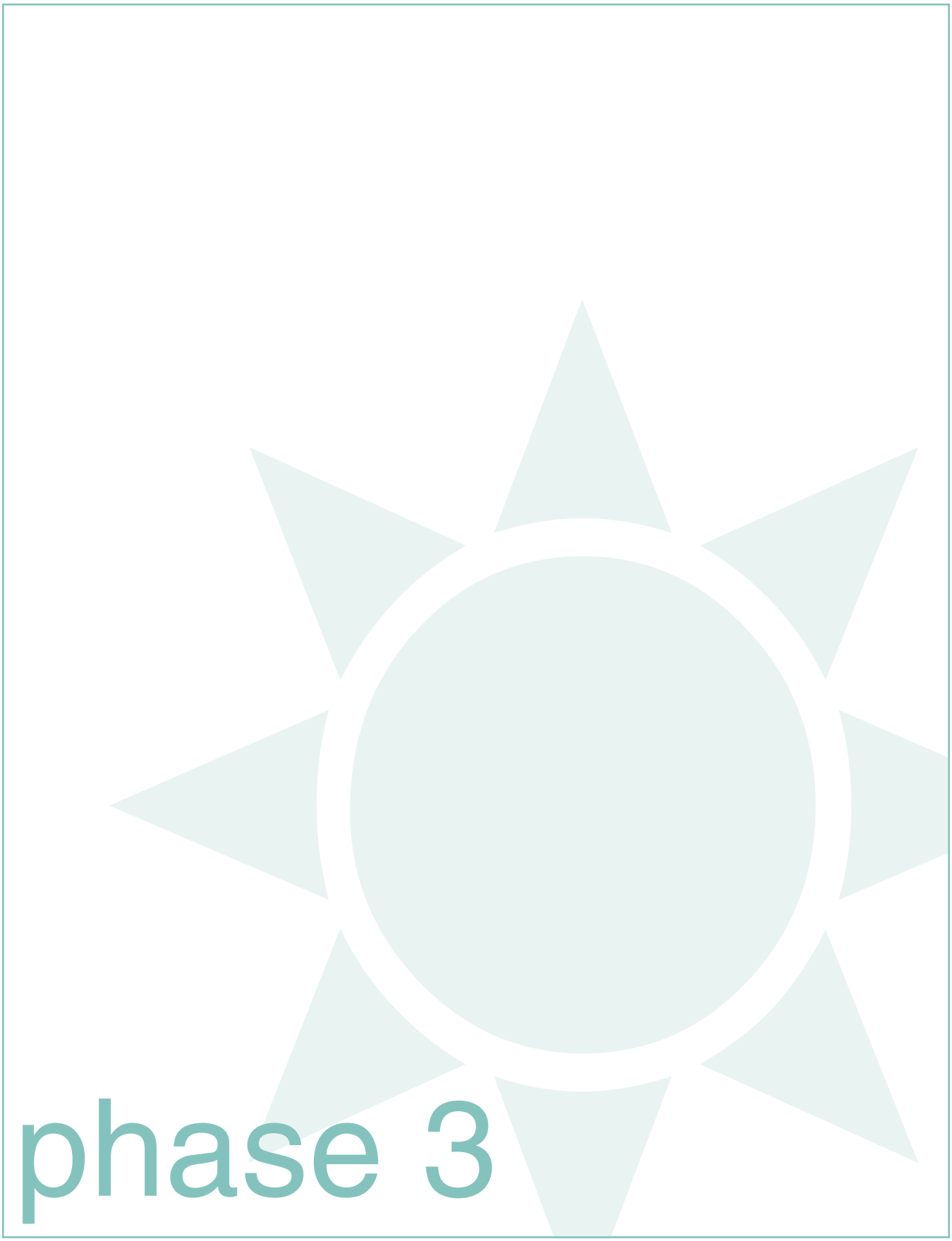
   b. False.

   c. Only if you project the historic data into present value.

   d. If FEMA gives you approval to do so.

4. To determine the value of unique resources such as historic artifacts, antiques, or valuable art to calculate the content loss, you can:
   a. Consult an antiques appraiser.
   b. Check existing insurance policies.
   c. Both a and b.
   d. None of the above.
5. Functional loss is:
   a. The cost of not being able to operate your business following a disaster.
   b. The measure by which a historic property fails to meet the standards of a modern building code.
   c. Damage to a structure caused by a natural or manmade disaster.
   d. Both b and c.
6. Displacement cost is:
   a. The cost of moving your house out of a floodplain.
   b. The cost of putting a structure back on its foundation after it has been displaced by a flood.
   c. The cost for a business or service to be relocated to a temporary location after its normal location is damaged by a natural or manmade disaster.
   d. None of the above.

(Answers in Appendix D – Answers to Review Tests.)


phase 3