

## 6.0 Mitigation Strategies Overview

***Requirement §201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.***

The purpose of the City of Biloxi's mitigation strategy is to avoid, minimize and mitigate the impacts of natural and manmade disasters on both people and property within the City. Activities to achieve this goal are currently reached through established building and zoning codes plus other regulations and activities. As the City continues to grow and develop or update plans, ordinances and regulations, a careful review of the City's mitigation strategy should be conducted and incorporated into any future changes/additions to policies. This ensures the goals of providing a safe and livable community will continue to be met in the face of hazards.

To facilitate future incorporation of the mitigation strategies outlined in this plan update, a copy will be distributed to each City department. The approved plan will also be available to any consultants contracted to assist the City with future studies and plans being developed or updated.

### 6.1 Priorities and Progress Made Since 2007 Plan

***Requirement 201.6(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within five years in order to continue to be eligible for mitigation project grant funding.***

#### **Priorities**

Even before Hurricane Katrina in 2005, the City of Biloxi was aware of their need to set realistic priorities for protecting the lives and properties located within its jurisdiction. Through the leadership of the Mayor, City Council and Department Directors, proactive measures were implemented to communicate preparedness, response and recovery efforts to residents and business owners.

Through the rebuilding process following Katrina, Biloxi integrated mitigation strategies in their Comprehensive Plan, Land Use and other regulations/ordinances to promote sustainability. The City is also actively communicating with the public through their web page and *Bmail* service about opportunities to participate in preparedness initiatives and learn about state and federal programs for further protection of their properties and families. The commitment of the City remains a high priority in reducing vulnerabilities which are articulated throughout this plan update. The hazard identification and risk assessment, mitigation strategies and plan

maintenance chapters provide specific information identifying areas of concern and procedures implementing continued commitment in reducing or eliminating those vulnerabilities.

### ***Progress Made on Mitigation Strategies***

Since Hurricane Katrina in 2005, Biloxi continues to progress in completing recovery and mitigation projects to lessen their vulnerabilities from natural disasters. Even though seven years have passed, there is still much to do. Biloxi is proactive in establishing priorities, securing funding, and implementing actions that were a part of the 2007 plan. A representative list of completed and/or ongoing accomplishments of actions since the 2007 plan was approved and is provided in Table 6.1. Examples and specific details regarding some of these actions, a map of the City's infrastructure replacement projects, public outreach information posted on the City's web page, and a list of HMGP grant applications since 2007 is provided in Appendix 8-6.A.

**Table 6.1**  
**Completed and/or Accomplishments Achieved on Mitigation Actions**  
**2007 Plan Natural Hazards**

2007 Plan Number	Description	Accomplishments	Date
Action 1.1.1	Continue Public Outreach	New Flood Elevations, Storm and Flood Preparedness, Flood Safety, hurricane/tropical storm, etc.	Ongoing
Action 1.1.2	Develop and promote wildfire awareness program	Fire safety information on web site, Biloxi Fire Explorers program, annual community programs	Ongoing
Action 1.1.3	Promote Mosquito Control and West Nile Virus Prevention Program	Vector control provided as needed throughout the City and information is provided on web site	Ongoing
Action 1.1.4	Provide hazard education and outreach to vulnerable populations	Educational information is disseminated through City departments at various community events/centers. The city's web page contains a translation link for Vietnamese and Spanish-speaking residents/visitors	Ongoing
Action 1.1.5	Public outreach on Evacuation routes and transportation alternatives	Information is provided through various media outlets and signage as needed	Ongoing
Action 1.1.6	Work with agencies on residents developing personal evacuation plans	Chamber of Commerce developed Hurricane Preparation plan for Business Security and Recovery	Ongoing
Action 1.2.1	Continue NIMS training	The City conducts NIMS training for new employees on an as needed basis	Ongoing
Action 1.2.2	Continue to maintain and train on the city's hurricane action plan	The City conducts briefings for impending tropical storm activity as they occur	Ongoing

Action 2.1.1	Storm proof/retrofit public facilities and utilities	HMGP funding obtained to retrofit: Donald Snyder Center, EOC, West Library, Fire Stations	Ongoing
Action 2.1.2	Replace traffic signals with mast arm poles	Out of 60 signals inventoried in the City limits, 3 signals were removed and 35 signals have mast arms.	Ongoing
Action 2.2.1	Enforce building codes	Adopted 2006 building codes	2009
Action 2.2.2	Prevent development in floodways	Managed daily through building permits	Ongoing
Action 2.2.3	Recognize flood hazard potential for land use patterns	Adopted Comprehensive Plan and Land Development Ordinance, established Agriculture Restricted (AR) Ordinance, adopted +1ft Ordinance in floodplain	2010
Action 2.3.2	Reduce RFC/SRL properties	Approximately 32 properties were mitigated through demolition or elevation activities	Ongoing
Action 2.3.3	Adopt FIRM maps	Adopted DFIRM	2009
Action 2.3.4	Improve drainage to reduce flooding	Adopted Storm Water Plan, rebuilding 3-ft tidal surge barrier. Infrastructure Replacement project ongoing since 2006.	Ongoing
Action 2.3.5	Improve CRS rating	Lowered from 7 to 5 since 2007	2012
Action 3.1.1	Acquired an outdoor siren system	10 sirens were placed around the city	2010
Action 3.2.1	Evacuation route signage	Signage in place on main evacuation routes	Ongoing
Action 3.1.3	Acquire the Reverse 911 notification system	The City has access to this system and has activated it for various emergency situations.	Ongoing
Action 3.2.1	Purchase alternative communication devices	Harrison County implemented redundant communication portals that the city can access. The City also utilizes push-to-talk.	Ongoing
Action 3.3.1	Relocate EOC	Built a fortified facility at 170 Porter Ave	2012
Action 3.5.1	Support Harrison County to build FEMA 361 Shelters	10 shelters/community safe rooms have been or are in the process of being completed throughout Harrison County.	2013
Action 4.1.1	Establish continuity training workshops and educational materials for business to develop disaster response plans	Chamber of Commerce developed Hurricane Preparation plan for Business Security and Recovery	Ongoing
Action 4.1.2	Secure generators for critical facilities and infrastructure	Purchased five portable signs (3 at public works and 2 at police department). Generator at City Hall relocated from the lower level.	Ongoing

The City of Biloxi's plan includes man-made hazards that could impact the area. A representative list of completed and/or ongoing accomplishments of actions since the 2007 plan was approved is provided in Table 6.2.

**Table 6.2**  
**2007 Plan Man-Made Hazards**  
**Completed and/or Accomplishments Achieved on Mitigation Actions**

2007 Plan Number	Description	Accomplishments	Date
Action 1.1.1	Identify high risk areas and distribute educational information	The City utilizes their web page and <i>Bmail</i> newsletter notifications to disseminate various educational materials	Ongoing
Action 2.1.1	Annual training exercises for technological incidents	Training exercises are frequently conducted for various events with local industries, state, federal and city agencies	Ongoing
Action 2.1.2	Continue training with KAFB for Airplane and hazardous chemical/flammable incidents	The City conducts annual training with KAFB in December	Ongoing
Action 2.1.3	Improve preparedness with city departments, CSX, school district	The City conducts various training programs with other city departments and the school district.	Ongoing
Action 2.1.4	Enhance/improve hazard material training/equipment	The City purchased the First Defender RMX Chemical Identification System and received training in 2012. Homeland Security and the FBI conducted the Improvise Explosive Awareness training in 2012. Local industries were also invited to participate. Bomb Making Awareness Program is an annual program delivered to hardware/technology supply chains and other potential businesses that sell materials that could be used to construct an explosive device.	Ongoing
Action 3.1.1	Enforce building/fire codes and other codes/ordinances	Monitor daily through building permits	Ongoing

## 6.2 National Flood Insurance Program Compliance

*Requirement §201.6(c)(3)(ii): [The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.*

The City of Biloxi has participated in the National Flood Insurance Program (NFIP) since 1970 and is proactive in mitigating properties classified as Repetitive Flood Claim (RFC) or Severe Repetitive Loss (SRL). A list of properties mitigated through elevation, acquisition and/or demolition and those properties remaining on the RFC/SRL list are maintained by the City's CRS Coordinator. Table 6.3 provides a summary of the progress made by the City on mitigating RFC/SRL properties (by structure type) for the NFIP reports of 2009 and 2011. An additional 32 properties were mitigated since the May 31, 2011 report and are presented in Table 6.4.

**Table 6.3  
2009 and 211 NFIP Property Listing Status**

Status	Single Family		2-4 Family		Assmd Condo		Other Resident		Non Resident		Total Properties
	RFC	SRL	RFC	SRL	RFC	SRL	RFC	SRL	RFC	SRL	
2009 Mitigated	51	0	0	0	1	0	0	0	17	0	69
2011 Mitigated	61	0	2	0	1	0	0	0	16	0	80
2009 Non-Mitigated	84	12	4	1	1	2	2	0	4	2	112
2011 Non-Mitigated	86	9	5	1	2	1	2	0	2	1	109

**Table 6.4  
Properties Mitigated Since May 31, 2011 Report**

Status	Single Family		2-4 Family		Assmd Condo		Other Resident		Non Resident		Total Properties
	RFC	SRL	RFC	SRL	RFC	SRL	RFC	SRL	RFC	SRL	
Mitigated	20	4	0	0	0	1	0	0	5	2	32

Remaining properties will continue to be mitigated as opportunities and funding becomes available. Chapter Six - Capabilities Assessment contains information on the City's Flood Damage Prevention Ordinances to prevent future RFC/SRL properties from occurring. The City also participates in the Coast Hazard Outreach Strategy (C-HOST) regional outreach program. The C-HOST partners work together to obtain and improve each community's current CRS classifications. Public outreach messaging is included at <http://chost.stormsmart.org>.

The City continues to educate homeowners of grant programs available to mitigate their homes from future losses through elevation, acquisition or demolition activities. Flood safety information is available on the City's web page, the Community Development Department, and C-HOST web page. The City will also publish information in the 2013 Yellow Pages for the Mississippi Gulf Coast and will launch an advertising campaign for flood insurance airing on local radio and television stations.

Biloxi has a full time Floodplain Manager who enforces existing and future development within the floodplain, complies with floodplain regulations/ordinances adopted by the City, serves on the C-HOST Committee and provides frequent flood safety educational awareness campaigns to the public.

### Community Rating System

The Community Rating System (CRS) is a voluntary program for National Flood Insurance Program (NFIP) participating communities. The goals of the CRS are to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management.

The CRS was developed to provide incentives in the form of premium discounts for communities, to go beyond the minimum floodplain management requirements, and to develop extra measures for protection from flooding. Biloxi is proactive in improving their CRS rating by continually providing public information and conducting floodplain management activities as described in the CRS Coordinator's Manual. As a result of their dedication, the CRS rating has dropped from 7 to 5 since the 2007 plan.

Community Number:	285252	Current Class:	5
CRS Entry Date:	10/1/96	% Discount for SFHA:	25
Current Effective Date:	05/01/09	% Discount for Non-SFHA:	10
<i>Effective May 2013</i>			

Documentation of the public outreach strategies for C-HOST, information for the Yellow Pages, public information presented on the City's web page, and copies of the 2010 and 2012 CRS verification reports are included in Appendix 8.6-B.

### 6.3 Mitigation Goals and Objectives for Natural and Man-made/Health-Related Hazards

*Requirement 201.6(c)(3(i): The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*

The Biloxi Hazard Mitigation Planning Committee reviewed the mitigation strategies outlined in the 2007 plan to ensure the City's blueprint for reducing potential losses is still effective. In general, the Committee determined the goals and objectives were still relevant and enforceable for the 2012 update. Only minor grammatical changes were made to a few goals and objectives to clearly define their strategies. The goals for man-made hazards were enhanced to include health-related risks and were changed to an alphabetical sequence distinguishing them from the natural hazard goals.

The Committee analyzed loss estimates in the risk assessment, from information gathered during the community capability assessment (relevant plans, studies and ordinances), and public input determining additional goals, objectives and actions to be added. This ensures the City is addressing all potential hazard impacts appropriately to further their strategies in reducing potential loss. No new goals were identified, but additional objectives and actions were added to further the City's commitment to address all hazards.

The mitigation goals for natural and manmade/health-related hazards are designed to serve as general guidelines explaining what the City hopes to achieve. The goals are long-term, broad policy-type statements representing the overall vision of the mitigation plan. Objectives define the strategies and implementation steps used in attaining the identified goals. Objectives are specific and measurable. Finally, actions are those specific tasks aimed to help the City achieve its mitigation goals and objectives. Action items were prioritized and assigned to an appropriate department/agency to assure implementation.

Tables 6.5 and 6.6 provide a listing of the revised goals and objectives due to natural and manmade/health-related disasters for the 2012 plan. A summary of the changes made to the goals, objectives and actions from the 2007 and 2003 plan (combined with similar objectives/actions or deemed no longer feasible) are provided in Appendix 8-6.C.

<b>Table 6.5</b> <b>2012 Revise Goals and Objectives - Natural Hazards</b>
<b>Goal 1: Maintain Public Education and Awareness Activities for Natural Hazards</b>
Objective 1.1: Expand the City's current Public Information Outreach Campaign
<b>Goal 2: Reduce Future Hazard-Related Loss or Damage</b>
Objective 2.1: Provide protection for existing and new critical facilities and infrastructure
Objective 2.2: Provide protection for future development to the extent possible
Objective 2.3: Minimize flood loss to existing and new facilities (building/infrastructure)
Objective 2.4: Explore potential impacts for all hazards prone to Biloxi
<b>Goal 3: Maintain and Enhance the City's Emergency Management Capabilities</b>
Objective 3.1: Enhance early warning and advisory procedures to inform the public of threatening weather systems and evacuation orders
Objective 3.2: Enhance communication systems for emergency service providers to insure communications are not interrupted during a disaster
Objective 3.3: Increase disaster preparedness of city staff, elected officials and appropriate private and public entities
Objective 3.4: Improve and enhance access for first responders, essential personnel and supplies for rescue/recovery operations.
<b>Goal 4: Reduce Economic Loss and Minimize Social Disruption Caused by Impacts</b>
Objective 4.1: Encourage local businesses to develop and implement a contingency plan to ensure the return to normal operations following a disaster
Objective 4.2: Provide back-up power for existing and new critical facilities and infrastructure

<b>Table 6.6</b> <b>2012 Revise Goals and Objectives - Manmade/Health-Related Hazards</b>
<b>Goal A: Increase Public Education and Awareness of Manmade and Health-Related Hazards</b>
Objective A.1: Expand the City's current Public Outreach Campaign to include information about potential health, technological, civil and terrorism hazards for residents, business owners and vulnerable populations
<b>Goal B: Enhance the City's Emergency Management Capabilities for Manmade and Health-Related Hazards.</b>
Objective B.1: Continue to conduct training exercises and improve preparedness with agencies during the response to a manmade disaster
Objective B.2: Develop Plans and Procedures for Health and Manmade Incidents
<b>Goal C: Enhance and Improve the City's Ability to Mitigate Manmade Hazards</b>
Objective C.1: Enhance the City's regulatory framework to reduce the risk of manmade hazards

## 6.4 Identification and Analysis of Mitigation Actions

**Requirement §201.6(c)(3)(ii):** *[The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.*

With the revised goals and objectives in place, the Biloxi Hazard Mitigation Council conducted an exhaustive review of the 2007 mitigation actions to determine changes needed for accomplishing the City's overall mitigation strategies. By reviewing the risk analysis of identified hazards, existing plans and studies, the actions in Table 6.7 were added to this plan update:

**Table 6.7**  
**New Mitigation Actions**

2.4.1	2.5.1	3.1.4	B.2.1
2.4.2	3.1.1	3.3.3	B.2.2
2.4.3	3.1.2	3.4.1	B.2.3

Particular attention will be paid to the identified actions designed to reduce the effects of hazards on new buildings and infrastructure. The City will refer to the data presented in Chapter Four of this plan and utilize current technology and/or products for future changes/additions throughout its jurisdiction.

Furthermore, the City will seek to reduce the effects of natural hazards on existing buildings and infrastructure. For example, retrofitting a safe room within an existing building can provide increased protection to those seeking shelter. City leaders will utilize the best approach for improving existing conditions of buildings and infrastructure where practical.

The projects identified for this plan update are provided in Tables 6.8 and 6.9 and include projects that may require substantial funding and may be difficult for the City's commitment due to tight budget constraints caused by the current economy. All of the mitigation actions identified in this plan may not be implemented. They merely represent actions the City of Biloxi has deemed as potentially viable.

### Classification of Mitigation Actions

**Responsible and Support Agency/Department:** To be successful in implementing mitigation actions, ownership must be given to the appropriate agency/department responsible for the activity. The identifications made in the actions outlined in this plan were determined based on current conditions and may require modification upon implementation. A designation of "to be determined" was applied when the actions may have varying degrees of activation and the responsible and/or support group will be dependent upon the phase being implemented.

**Background:** Each action includes background information identifying the need and potential implementation measures desired.

**Priorities:** The Biloxi Hazard Mitigation Planning Committee developed a priority ranking process for the 2012 plan because no clear methodology was outlined in the previous plan. The Committee assessed the goals of this plan, the requirements of the NFIP, other relevant plans and studies, and capabilities outlined in Chapter 5 and determined the following factors were consistent in each of these initiatives. A scale of 1 to 10 was used to rank the actions as either a high, medium or low priority. (The completed ranking worksheet is provided in Appendix 8-6.D)

- Risk to people
- Risk to facilities/infrastructure (loss of function)
- Level of need and severity of the problem
- Benefit(s) from completion of the project
- Ease of implementation
- Availability of resources to complete the project.

The factors above were combined with an overall priority ranking for the action with the highest possible score of 30 as defined below:

Low – score of 6-14

Moderate – score of 15-22

High – score of 23-30

**Date of Origin:** As a means of improving the tracking of mitigation actions for implementation, a date of origin field was added. Projects brought forward from previous years will have a date of 2007 and new projects identified during the development of this plan will receive a date of 2012.

**Timeline and Potential Funding:** In addition to the prioritization criteria listed above, project timelines and potential funding sources were discussed and annotated.

**Hazard Type and Mitigation Groups:** The hazard type for each mitigation action was identified for the natural hazard it addresses and sorted into a mitigation group as defined below:

Prevention: Government, administrative, and regulatory actions or processes influencing the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations.

Property Protection: Actions involving the modification of existing buildings or infrastructure to protect them from a hazard or remove from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, flood proofing, storm shutters, and shatter-resistant glass.

Public Education and Awareness: Actions that inform and educate citizens, elected officials, and property owners about potential risks from hazards and potential ways to mitigate said risks. These actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.

**Natural Resource Protection:** Actions that not only minimize hazard losses but also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.

**Emergency Services:** Actions protecting people before, during, and after a hazard event. Administrative and emergency operations offices that provide critical and vital services, coordinate warnings, responses, and recovery from a disaster are identified. Actions include protection of warning system capabilities, protection or hardening of critical facilities, protection of infrastructure needed for emergency response and training.

**Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. These structures include storm water controls (*i.e.* culverts), floodwalls, seawalls, retaining walls, and safe rooms.

**Technical Assistant Projects:** Actions that involve support/education from federal, state and local agencies as required, data collection for GIS mapping, utilization of technology, and upgrades as products are developed.

**Table 6.8**  
**2012 Natural Hazard Mitigation Actions**

**Goal 1: Maintain Public Education and Awareness Activities for Natural Hazards**

***Objective 1.1: Expand the City's current Public Information Outreach Campaign***

**Action 1.1.1:** Continue ongoing outreach efforts to educate the public about the dangers of all hazards.

Background: This action was modified from the 2007 plan to an "all hazards" approach. The City will continue to expand its year-round multi-media outreach campaign designed to inform citizens and minimize risk to life and property for all hazards prone to the area.

Responsible Agency:	City of Biloxi, Public Affairs
Support Agency:	To be determined
Priority:	High
Potential Funding:	Current Budget
Mitigation Group:	Public Education and Awareness
Hazard Type:	Multi-Hazard
Date of Origin:	2007
Estimated Timeframe:	Ongoing

**Action 1.1.2:** Promote the Firewise awareness program

Background: Since the 2007 plan, the City of Biloxi has adopted the Firewise Program. As part of the City's existing Public Information Outreach Campaign managed by the Public Affairs Manager, educational materials should be provided to all residents and business owners, particularly those located within the identified wild-fire prone area. A link to Firewise.org could be included on the Fire Department's web page.

Responsible Agency:	City of Biloxi, Public Affairs
Supporting Agency:	Biloxi Fire Department
Priority:	High
Potential Funding:	Current Budget
Mitigation Group:	Public Education and Awareness
Hazard Type:	Wildfire
Date of Origin:	2007
Estimated Timeframe:	Ongoing

**Action 1.1.3:** Provide all-hazard education and outreach to vulnerable populations.

Background: While the City makes a great effort to educate and notify non-English speaking residents of the threat of hazards, outreach efforts must be expanded to include children, the elderly, the mentally and physically challenged, tourists, part-time residents, volunteers and transitional housing populations. Messaging should include all phases of emergency management - preparedness, mitigation, response and recovery. This includes, but is not limited to, procedures for transportation/evacuation, family/home preparation, and reentry. Appropriate printed and media materials should be developed and disseminated through media outlets in coordination with various support agencies.

Responsible Agency:	City of Biloxi, Public Affairs
Supporting Agency:	To be determined
Priority:	High
Potential Funding:	Existing Budget
Mitigation Group:	Public Education and Awareness
Hazard Type:	Multi-Hazard
Date of Origin:	2007
Estimated Timeframe:	Ongoing

**Goal 2: Reduce Future Hazard-Related Loss or Damage*****Objective 2.1: Provide protection for existing and new critical facilities and infrastructure*****Action 2.1.1:** Storm proof and/or retrofit existing and new critical facilities and infrastructure.

Background: The City will continue to implement mitigation strategies to strengthen their existing and future critical facilities and infrastructure to all hazards prone to the area.

Responsible Agency:	City of Biloxi
Supporting Agency:	FEMA
Priority:	High
Potential Funding:	HMGP, Existing Budget
Mitigation Group:	Public Education and Awareness

Hazard Type:	Multi-Hazard
Date of Origin:	2007
Estimated Timeframe:	Ongoing

**Action 2.1.2:** Replace existing traffic signals at major intersections with more durable weather resistant mast arm poles. Install mast arm poles for future traffic improvement projects.

Background: Working traffic signals are vital to maintain efficient traffic flow, yet the City's existing traffic signals are frequently damaged or destroyed by inclement weather. Mast arm poles are more weather resistant and will reduce the potential for loss during disasters.

Responsible Agency:	City of Biloxi Public Works
Supporting Agency:	Biloxi Public Safety
Priority:	High
Potential Funding:	HMGP
Mitigation Group:	Emergency Services
Hazard Type:	Multi-Hazard
Date of Origin:	2007
Estimated Timeframe:	Ongoing

***Objective 2.2: Provide protection for future development to the extent possible***

**Action 2.2.1:** Strictly enforce building and related codes to insure design and construction of new structures (buildings/infrastructure) will provide maximum protection against all hazards

Background: -The City adopted the 2006 IBC in 2009 and in January 2013, adopted the 2012 IBC.

Responsible Agency:	City of Biloxi Community Development, Public Works
Supporting Agency:	Mayor, City Council
Priority:	High
Potential Funding:	Existing Budget
Mitigation Group:	Prevention
Hazard Type:	Multi-Hazard
Date of Origin:	2007
Estimated Timeframe:	Ongoing

**Action 2.2.2:** Continue to integrate mitigation strategies into the City's planning initiatives including their Comprehensive Plan, Ordinances, Capital Improvement Plans, etc. for all hazards

Background: The hazard mitigation and floodplain management plans should be incorporated into plan and ordinance updates ensuring strategies for future development are consistent with the City's mitigation goals. A copy of this approved plan will be distributed to each City department and made available to any consultants contracted to assist the City with the development or update of future plans and studies.

Responsible Agency:	City of Biloxi Community Development, Public Works
Supporting Agency:	Mayor, City Council, County Supervisors,
Priority:	High

Potential Funding:	Existing Budget
Mitigation Group:	Prevention
Hazard Type:	Multi-Hazard
Date of Origin:	2007
Estimated Timeframe:	Ongoing

***Objective 2.3: Minimize flood loss to existing and new facilities (building/infrastructure)***

**Action 2.3.1:** Encourage home/business owners affected by flooding to protect existing and new properties with mitigation strategies such as flood insurance, elevation, flood proofing, structural protection etc.

Background: Discussions about flood protection measures are ongoing due to potential changes in the programs and development. Information is provided on the City and C-HOST web pages, the Community Development Department and disseminated at public meetings when flood protection information is presented.

Responsible Agency:	City of Biloxi Community Development, Floodplain Manager
Supporting Agency:	FEMA
Priority:	Medium
Potential Funding:	Existing Budget
Mitigation Group:	Property Protection
Hazard Type:	Flood
Date of Origin:	2007
Estimated Timeframe:	Ongoing

**Action 2.3.2:** Reduce the number of repetitive losses and severity of flooding for residents of Biloxi with a corresponding reduction in costs to federal, state and local governments.

Background: As of the May 31, 2011 NFIP report, the City of Biloxi has 109 RFC/SRL properties (97 RFC and 12 SRL). Since the 2007 plan, 32 properties have been mitigated. The City continues to seek opportunities to apply for FMA assistance encouraging homeowners to do the same for acquisition, demolition, elevation and flood proofing properties designated as RFC/SRL.

Responsible Agency:	City of Biloxi Community Development
Supporting Agency:	Mayor, City Council
Priority:	High
Potential Funding:	HMGP
Mitigation Group:	Property Protection
Hazard Type:	Flood
Date of Origin:	2007
Estimated Timeframe:	Ongoing

Action 2.3.3: Continue to improve and upgrade drainage to reduce flooding

Background: Drainage projects have been ongoing since the 2007 plan and will be ongoing as the city continues to develop and explore areas for aging drainage systems. Sound engineering principles and modeling will be utilized to insure new development and growth areas have adequate drainage facilities preventing unwarranted flooding issues.

Responsible Agency: Biloxi Department of Public Works  
 Supporting Agency: Mayor, City Council  
 Priority: High  
 Potential Funding: HMGP, Existing Budget  
 Mitigation Group: Structural Projects  
 Hazard Type: Flood  
 Date of Origin: 2007  
 Estimated Timeframe: Ongoing

Action 2.3.4: To maintain or improve the status of the City of Biloxi in the Community Rating System and the National Flood Insurance Program

Background: The City continues to participate in the NFIP and seeks opportunities to reduce their CRS rating through various activities.

Responsible Agency: Community Development, Floodplain Manager  
 Supporting Agency: Mayor, City Council  
 Priority: High  
 Potential Funding: HMGP, Existing Budget  
 Mitigation Group: Property Protection  
 Hazard Type: Flood  
 Date of Origin: 2007  
 Estimated Timeframe: Ongoing

Action 2.3.5: Prevent unprotected and improper development in flood hazard areas through the improvement of existing regulations governing building and land development in Biloxi

Background: The City will continue to monitor development and update ordinances as appropriate.

Responsible Agency: Community Development, Floodplain Manager  
 Supporting Agency: Mayor, City Council, Planning Commission  
 Priority: High  
 Potential Funding: Existing Budget  
 Mitigation Group: Prevention  
 Hazard Type: Flood  
 Date of Origin: 2007  
 Estimated Timeframe: Ongoing

***Objective 2.4: Explore potential impacts for all hazards prone to Biloxi******Action 2.4.1: Research the potential effects of sea-level rise, coastal erosion, and salt water intrusion***

Background: These hazards were added to the 2012 plan and should be further explored identifying base line data tracking future changes in the environment. The City should research other coastal areas having conducted studies on these impacts to learn more about preparing for potential impacts and/or implementing studies/plans to guide the City in preparedness and response activities as appropriate. The City is currently conducting a Climate Change Study under a grant with NOAA.

Responsible Agency:	To be determined
Supporting Agency:	To be determined
Priority:	Low
Potential Funding:	To be determined
Mitigation Group:	Prevention
Hazard Type:	Tropical Storm/Hurricane
Date of Origin:	2012
Estimated Timeframe:	Ongoing

***Action 2.4.2: Explore road materials/signage for areas prone to limited visibility caused by fog***

Background: Fog is a new hazard added to the 2012 plan. There are areas within the City experiencing low visibility during fog events. The City will work with MDOT, FHWA, and other contractors/consultants to identify practical pavement marking materials, reflective signage and other measures to assist in improving visibility in these areas. This could include increasing the width of roadway stripe, application of additional reflective glass beads and retro reflective ceramic elements into pavement markings, installation of raised pavement markers, placement of highly-reflective signs and traffic signal enhancements such as advance warning flashers.

Responsible Agency:	Public Works
Supporting Agency:	MDOT, FHWA
Priority:	Medium
Potential Funding:	Existing Budget
Mitigation Group:	Structural Project
Hazard Type:	Fog
Date of Origin:	2012
Estimated Timeframe:	Ongoing

***Action 2.4.3: Develop regulation and educational materials for water preservation addressing potential issues that could be caused by drought conditions.***

Background: Drought is a new hazard added to the 2012 plan. As our climate continues to change, the potential for increased drought conditions is probable. The City should explore suitable language for a regulations on water use during these times and also begin to educate the public on potential impacts.

Responsible Agency:	Public Works
Supporting Agency:	To be determined
Priority:	Medium
Potential Funding:	Existing Budget

Mitigation Group:	Prevention
Hazard Type:	Drought
Date of Origin:	2012
Estimated Timeframe:	Ongoing

***Objective 2.5: Improve City-owned facilities that support economic development and are vulnerable to natural hazards***

***Action 2.5.1: Retrofit public piers with improved building materials***

**Background:** Since Katrina, the City has been rebuilding many of its damaged piers with concrete pilings and screws. This mitigation effort has proven effective with tropical storms/hurricanes having impacted Biloxi since then. Eliminating debris from piers will reduce the amount of damage to neighboring homes and businesses. The City's piers are important to tourism as well as local residents.

Responsible Agency:	
Supporting Agency:	
Priority:	High
Potential Funding:	HMGP, Existing Budget
Mitigation Group:	Structural Project
Hazard Type:	Tropical Storm/Hurricane
Date of Origin:	2012
Estimated Timeframe:	Ongoing

***Goal 3: Maintain and Enhance the City's Emergency Management Capabilities***

***Objective 3.1: Enhance early warning and advisory procedures to inform the public of threatening weather systems and evacuation orders.***

***Action 3.1.1: Evaluate the effectiveness of the outdoor siren system and track maintenance/performance issues.***

**Background:** The City completed mitigation Action 3.1.1 from the 2007 plan to install outdoor siren systems but found maintaining the sirens is proving to be an expensive venture. They are vulnerable to lightning strikes and require frequent maintenance. The City will log maintenance costs and issues to explore alternate notification devices/systems.

Responsible Agency:	Biloxi Emergency Management
Supporting Agency:	Harrison County Emergency Management Agency
Priority:	High
Potential Funding:	Existing Budget
Mitigation Group:	Technical Assistance Project
Hazard Type:	Multi-Hazard
Date of Origin:	2012
Estimated Timeframe:	Ongoing

**Action 3.1.2:** Enhance evacuation routes throughout the City including appropriate signage designating evacuation corridors.

Background: The Transportation Section of the 2009 Comprehensive Plan identifies key issues and needs for effective evacuation planning. The placement of signage on designated evacuation routes should be implemented as changes to the transportation routes are completed.

Responsible Agency: Biloxi Public Works  
 Supporting Agency: MDOT, FHWA  
 Priority: Medium  
 Potential Funding: HMGP  
 Mitigation Group: Structural Project  
 Hazard Type: Hurricane/Coastal Storm  
 Date of Origin: 2012  
 Estimated Timeframe: Ongoing

**Action 3.1.3:** Continue to implement the Reverse 911 notification system and research new technology to improve notification procedures.

Background: Since the 2007 plan, the City acquired and implemented the Reverse 911 notification system. This is a pay-per-use system and could prove to be costly for large notification events. New technology has been developed such as IPAW and Web EOC and may prove to be more effective by providing enhanced outreach by using multiple platform messaging from weather alerts, search and rescue, road closures, boil water notices, etc.

Responsible Agency: Biloxi Emergency Management  
 Supporting Agency: Public Safety  
 Priority: High  
 Potential Funding: HMGP  
 Mitigation Group: Technical Assistance Project  
 Hazard Type: Multi-Hazard  
 Date of Origin: 2012  
 Estimated Timeframe: Ongoing

**Action 3.1.4:** Retrofit/Improve bridges

Background: The Transportation Section of the 2009 Comprehensive Plan identifies key issues and needs for effective evacuation planning. An evaluation of bridges for vulnerability to storm surge damage should be completed. Retrofit existing bridges reducing potential damage or destruction. These countermeasures could include deck vents, cap shear keys and open railings as practical.

Responsible Agency: Biloxi Public Works  
 Supporting Agency: MDOT, FHWA  
 Priority: Medium  
 Potential Funding: HMGP  
 Mitigation Group: Structural Project  
 Hazard Type: Hurricane/Coastal Storm  
 Date of Origin: 2012  
 Estimated Timeframe: Ongoing

***Objective 3.2: Enhance communication system for emergency service providers to insure communications are not interrupted during a disaster.***

**Action: 3.2.1:** Research and pursue alternative communication devices improving communication before, during and after a disaster.

Background: Technology is constantly changing and the City should continually explore options for improving communication procedures.

Responsible Agency: Biloxi Emergency Management  
 Supporting Agency: Biloxi Public Safety  
 Priority: High  
 Potential Funding: HMGP  
 Mitigation Group: Technical Assistance Project  
 Hazard Type: Multi-Hazard  
 Date of Origin: 2012  
 Estimated Timeframe: Ongoing

***Objective 3.3: Increase Disaster Preparedness of city staff, elected officials and appropriate private and public entities.***

**Action 3.3.1:** Continue annual National Incident Management System training for first responders, city officials and critical employees.

Background: NIMS is essential for coordinating efforts from a federal, state and local agency level.

Responsible Agency: Biloxi Emergency Management  
 Supporting Agency: Biloxi Fire and Police Departments  
 Priority: High  
 Potential Funding: Existing Budget  
 Mitigation Group: Emergency Services  
 Hazard Type: Multi-Hazard  
 Date of Origin: 2012  
 Estimated Timeframe: Ongoing

**Action 3.3.2:** Continue to maintain and update the City's Comprehensive Emergency Management Plan (CEMP) and Standard Operating Procedures (SOP) for applicable departments. Provide overview for new employees and inform existing employees of changes.

Background: The City needs to update the CEMP insuring all hazards to which the City is prone are identified and SOPs are developed addressing specific response procedures. As hazards impact the City, the CEMP and SOPs should be reviewed to determine if appropriate procedures are in place. New employees should be made aware of their role in these procedures and any updates should be available to all personnel.

Responsible Agency: Biloxi Fire and Police Departments  
 Supporting Agency: Applicable Departments  
 Priority: High  
 Potential Funding: Existing Budget  
 Mitigation Group: Prevention  
 Hazard Type: Multi-Hazard

Date of Origin:	2012
Estimated Timeframe:	Ongoing

**Action 3.3.3:** Encourage private and public entities to develop and share Emergency Response Plans/Procedures with the City to improve preparedness and recovery procedures

Background: Large public/private entities should have procedures in place on preparing for and recovering from all hazards. Coordinating these plans with the City could improve their ability to get back on line quicker and return economic stability to pre-disaster conditions.

Responsible Agency:	Community Development
Supporting Agency:	Biloxi Emergency Management
Priority:	High
Potential Funding:	Existing Budget
Mitigation Group:	Prevention
Hazard Type:	Multi-Hazard
Date of Origin:	2012
Estimated Timeframe:	Ongoing

***Objective 3.4: Improve and enhance access for first responders, essential personnel and supplies for rescue/recovery operations.***

**Action: 3.4.1:** Purchase a 5-ton truck

Background: Currently the City "acquires" a 5-ton truck from the military to use for rescue operations and/or transporting personnel and supplies to impacted areas. Sharing a resource like this can create response issues if other agencies are in need. Residential sections of Biloxi prone to flooding frequently require responders to patrol areas not accessible by City vehicles or boats.

Responsible Agency:	Biloxi Emergency Management
Supporting Agency:	Biloxi Fire and Police Departments
Priority:	High
Potential Funding:	To be determined
Mitigation Group:	Emergency Services
Hazard Type:	Multi-Hazard
Date of Origin:	2012
Estimated Timeframe:	2013

**Goal 4:** Reduce economic loss and minimize social disruption often caused by natural hazards.

***Objective 4.1:*** Encourage local businesses to develop and implement a contingency plan to ensure the return to normal operations following a disaster.

**Action 4.1.1:** Work with the Chamber of Commerce and local civic groups to establish continuity in training workshops and distribute educational information to new and existing businesses.

Background: The Coast Chamber developed a Hurricane Preparation Plan for Business Security and Recovery to assist business owners with disaster planning. The City should continue to support the Chamber on disseminating this guide and assist with future workshops to continue this action.

Responsible Agency:	Coast Chamber of Commerce, Biloxi Bay Chamber
Supporting Agency:	City of Biloxi, Public Affairs
Priority:	High
Potential Funding:	Existing Budget
Mitigation Group:	Public Education and Awareness
Hazard Type:	Multi-Hazard
Date of Origin:	2012
Estimated Timeframe:	Ongoing

***Objective 4.2:*** Provide back-up power for existing and new critical facilities and infrastructure.

**Action 4.2.1:** Secure generators ensuring continuous operation for existing and new critical facilities and infrastructure

Background: The loss of power is common during a coastal storm and can take weeks before service is completely restored. Generators should be purchased for critical City facilities to help maintain services and daily operations.

Responsible Agency:	Biloxi Public Works
Supporting Agency:	MEMA
Priority:	High
Potential Funding:	HMGP
Mitigation Group:	Property Protection
Hazard Type:	Multi-Hazard
Date of Origin:	2012
Estimated Timeframe:	Ongoing

**Table 6.9**  
**2012 Manmade/Health-Related Hazard Mitigation Actions**

**Goal A:** Increase Public Education and Awareness of Manmade and Health-Related Hazards

**Objective A.1:** *Expand the City's current Public Outreach Campaign to include information about potential health, technological, civil and terrorism hazards for residents, business owners and vulnerable populations*

**Action A.1.1:** Work with appropriate agencies to identify high risk areas and distribute educational information to residents and business owners.

Background: Since the 2007 plan, the City of Biloxi was impacted by the Deepwater Horizon (BP) oil spill in 2010. This event crippled the fishing industry, tourism and ultimately businesses benefitting from these industries. Educational/informational materials should be explored for oil-related incidents.

Responsible Agency: Biloxi Public Affairs  
Supporting Agency: Biloxi Emergency Management, Public Safety  
Priority: High  
Potential Funding: Existing Budget  
Date of Origin: 2012  
Estimated Timeframe: Ongoing

**Action A.1.2:** Promote a mosquito control and West Nile Virus Prevention program

Background: Mississippi continues to have reported cases of the WNV. Harrison County provides vector control to the City for mosquitoes and conducts frequent sweeps in mosquito-prone areas. The City will continue to work with health officials to educate residents about mosquito breeding locations, how to eliminate breeding locations, how to avoid being bitten, and how to report infestations.

Responsible Agency: City of Biloxi, Public Affairs  
Supporting Agency: MS Dept of Health, Harrison County Mosquito Control  
Priority: High  
Potential Funding: Current Budget  
Date of Origin: 2007  
Estimated Timeframe: Ongoing

**Goal B:** Enhance the City's Emergency Management Capabilities for Manmade and Health-Related Hazards.

**Objective B.1:** *Continue to conduct training exercises and improve preparedness with agencies crucial during the response to a manmade disaster*

**Action B.1.1:** Conduct annual training exercises for potential manmade hazards

Background: Continuous training exercises for manmade hazards (i.e. active shooter, hi-jacking, aircraft incidents, chemical spills, chemical releases, etc.) will improve the City's ability in responding to events. The exercises will be coordinated with applicable local, state and federal agencies and private entities.

Responsible Agency: Biloxi Fire, Police and Emergency Management  
Supporting Agency: Harrison County Emergency Management, CSX, Biloxi Schools, Casinos, Biloxi Public Works, US Coast Guard, AMR, KAFB, MEMA, MSDH, MDEQ, MDMR  
Priority: High

Potential Funding:	Existing Budget
Date of Origin:	2012
Estimated Timeframe:	Ongoing

**Action B.1.2:** Continue to explore ways to enhance and improve training and equipment needs for the Biloxi Fire, Police and Emergency Management Departments.

Background: Procedures and equipment should be evaluated annually to determine if acquisitions are needed to insure the City can properly respond to various manmade incidents. An evaluation of the annual training exercises should present shortfalls so measures can be taken to address needs in these areas..

Responsible Agency:	Biloxi Fire and Police
Supporting Agency:	Biloxi Emergency Management
Priority:	High
Potential Funding:	Homeland Security, Existing Budget
Date of Origin:	2007
Estimated Timeframe:	Ongoing

***Objective B.2: Develop Plans and Procedures for Health and Manmade Incidents***

**Action B.2.1:** Develop Continuity of Operation Plans for City Departments to address health and manmade-related incidents

Background: Essential personnel could be impacted by a pandemic influenza outbreak, chemical release, and/or other manmade impacts, causing injury to a population of the workforce needed to conduct essential services for residents and business owners.

Responsible Agency:	All departments
Supporting Agency:	Mayor and City Council
Priority:	High
Potential Funding:	EMPG, Homeland Security, Existing Budget
Date of Origin:	2012
Estimated Timeframe:	2015

**Action B.2.2:** Conduct a Commodity Flow Study to identify hazards transported into and around the City or stored at fixed site locations.

Background: Hazardous materials are transported by rail, air and roadways. Biloxi is accessible to all these modes of transportation and must be fully aware of the types of materials being transported to insure they can respond should a spill/accident occur.

Responsible Agency:	Biloxi Fire Department
Supporting Agency:	Biloxi Emergency Management and Police Department
Priority:	Medium
Potential Funding:	EMPG
Date of Origin:	2012
Estimated Timeframe:	2015

**Action B.2.3:** Update and/or develop SOPs for preparedness and response procedures for applicable health and man-made incidents.

Background: Insure procedures covering preparation and response to various health and manmade incidents are in place by department/agency responsibility. .

Responsible Agency: Biloxi Fire, Police, Public Works, Emergency Management  
 Supporting Agency: City Administration  
 Priority: High  
 Potential Funding: General Budget  
 Date of Origin: 2012  
 Estimated Timeframe: 2015

**Goal C:** Enhance and improve the City's ability to mitigate manmade hazards

**Objective C.1:** *Enhance the City's regulatory framework to reduce the risk of manmade hazards*

**Action C.1.1:** Continue to enforce building codes, fire prevention codes and other codes and ordinances that help reduce risks to the health, safety and welfare of citizens and visitors

Background: Enforcement is an ongoing activity for the City.

Responsible Agency: Biloxi Fire Department, Biloxi Community Development  
 Supporting Agency: Mayor and City Council  
 Priority: High  
 Potential Funding: General Budget  
 Date of Origin: 2007  
 Estimated Timeframe: Ongoing

## 6.5 Implementation of Mitigation Actions

**Requirement §201.6(c)(3)(iii): [The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.**

As funding is identified and justification is determined, the mitigation actions will be developed into projects. For those projects eligible for mitigation funding, cost-benefit analyses will be used. The costs of the proposed projects (money, time, etc.) will be weighed against the potential benefits (reduced losses, improved safety, etc.) in order for the City to determine the appropriate action required. Special priorities will be given to initiatives addressing critical facilities and infrastructure required to carry out their mission and provide safety to the population served.

While cost-benefit analyses are fundamental to the decision-making process for Biloxi, project cost is an overriding factor when determining which projects should be pursued. The City operates under tight budget conditions and must use prudence in the allocation of funds. They will seek to justify implementation based on long-term financial implications regarding potential mitigation projects.

Once mitigation actions are identified and resources are secured, Biloxi will implement and administer their projects. Some projects may be coordinated with a support agency such as the Mississippi Emergency Management Agency (MEMA) through the Unified Hazard Mitigation Assistance program. Biloxi will coordinate with MEMA and refer to the FEMA Hazard Mitigation Assistance Unified Guidance (June 2010) for development of applications for identified mitigation actions eligible under the program in this plan.

### Administration

The City of Biloxi is responsible for the administration of mitigation actions when implemented. Administration will include completion of grant applications and applicable quarterly progress reports. MEMA established a web site to document grants under the HMGP at [www.mitigationms.org](http://www.mitigationms.org). Provided in Appendix 8.6E is a sample Notice of Intent commonly used by MEMA to identify actions communities are interested in implementing

## 6.6 Grant Sources

### ***Federal Hazard Mitigation Assistance Grants***

The Federal Emergency Management Agency (FEMA) provides funding for five Hazard Mitigation Assistance Grant Programs. These programs, described in detail in FEMA's *Hazard Mitigation Assistance Unified Guidance, June 1, 2010*, are summarized for future reference when mitigation activities are implemented. The grant programs are administered within the State of Mississippi by the Mississippi Emergency Management Agency, Office of Mitigation. A brief description of each program follows:

**Hazard Mitigation Grant Program (HMGP)** is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The key purpose of HMGP is to ensure critical mitigation measures reducing loss of life and property from future disasters is not lost during the reconstruction process following a disaster. *(HMGP funds are available when authorized under a Presidential disaster declaration in the areas of the State requested by the Governor.)*

**Pre-Disaster Mitigation Program (PDM)** is authorized by Section 203 of the Stafford Act to assist States, Indian Tribal Governments, and local communities in implementing a sustained pre-disaster natural hazard mitigation program reducing risk to the population and structures from future hazard events and to reduce reliance on Federal funding from future disasters. *(Funds provided annually subject to the availability of appropriation funding)*

**Flood Mitigation Assistance (FMA)** is authorized by Section 1366 of the National Flood Insurance Act of 1968 (NFIA) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). *(Funds provided annually subject to the availability of appropriation funding)*

**Repetitive Flood Claims Program (RFC)** is authorized by Section 1323 of the NFIA with the goal of reducing flood damages to individual properties with one or more claim payments for losses made under flood insurance coverage, and resulting in the greatest savings to the National Flood Insurance Fund (NFIF) in the shortest period of time. *(Funds provided annually subject to the availability of appropriation funding)*

**Severe Repetitive Loss Pilot Program (SRL)** is authorized by Section 1361 of the NFIA with the goal of reducing flood damage to residential properties having experienced severe repetitive losses under flood insurance coverage and resulting in the greatest savings to the NFIF in the shortest period of time. *(Funds provided annually subject to the availability of appropriation funding.)*

**Eligibility**

The Table 6.10 lists activities eligible in each Program listed above.

**Table No. 6.10**  
**Eligible Activities by Program**

<b>Eligible Activities</b>	<b>HMGF</b>	<b>PDM</b>	<b>FMA</b>	<b>RFC</b>	<b>SRL</b>
<b>1. Mitigation Projects</b>	X	X	X	X	X
Property Acquisition and Structure Demolition	X	X	X	X	X
Property Acquisition and Structure Relocation	X	X	X	X	X
Structure Evaluation	X	X	X	X	X
Mitigation Reconstruction					X
Dry Floodproofing of Historic Residential Structures	X	X	X	X	X
Dry Floodproofing of Non-Residential Structures	X	X	X	X	
Minor Localized Flood Reduction Projects	X	X	X	X	X
Structural Retrofitting of Existing Buildings	X	X			
Non-Structural Retrofitting of Existing Buildings and Facilities	X	X			
Safe Room Construction	X				
Infrastructure Retrofit	X	X			
Soil Stabilization	X	X			
Wildfire Mitigation	X	X			
Post-Disaster Code Enforcement	X				
5% Initiative Projects	X				
<b>2. Hazard Mitigation Planning</b>	X	X	X		
<b>3. Management Costs</b>	X	X	X	X	X
<i>Source: FEMA Hazard Mitigation Assistance Unified Guidance, June 1, 2010</i>					

**Examples of Eligible Mitigation Projects:**

**Property Acquisition and Structure Demolition** – Voluntary acquisition of an existing at-risk structure and conversion of the land to open space through demolition of the structure.

**Property Acquisition and Structure Relocation** – Voluntary physical relocation of an existing structure to an area outside of a hazard-prone area.

**Structure Elevation** – Physically raising an existing structure to the Base Flood Elevation (BFE) or higher if required by FEMA or local ordinance.

**Mitigation Reconstruction** – Construction of an improved elevated building on the same site where an existing building and/or foundation has been partially or completely demolished or destroyed.

**Dry Floodproofing** – Techniques applied to keep structures dry by sealing the structure to keep floodwaters out.

**Dry Floodproofing of Historic Residential Structures** – Permissible only when other techniques that would mitigate to the BFE causing the structure to lose its status as a Historic Structure.

**Dry Floodproofing of Non-residential Structures** – must be performed in accordance with NFIP Technical Bulletin (TB) 3-93, *Non-Residential Floodproofing—Requirements and Certification*, and the requirements pertaining to dry floodproofing of non-residential structures found in 44 CFR Sections 60.3(b)(5) and (c)(4).

**Minor Localized Flood Reduction Projects** – Projects to lessen the frequency or severity of flooding and decrease predicted flood damages, such as the installation or modification of culverts and storm water management activities like creating retention and detention basins.

**Structural Retrofitting of Existing Buildings** – Modifications to the structural elements of a building to reduce or eliminate the risk of future damage and to protect inhabitants.

**Non-structural Retrofitting of Existing Buildings and Facilities** – Modifications to the non-structural elements of a building or facility to reduce or eliminate the risk of future damage and to protect inhabitants.

**Safe Room Construction** – Safe room construction projects are designed to provide immediate life-safety protection for people in public and private structures from tornado and severe wind events, including hurricanes.

**Infrastructure Retrofit** – Measures to reduce risk to existing utility systems, roads, and bridges.

**Soil Stabilization** – Projects to reduce risk to structures or infrastructure from erosion and landslides, including installing geo-textiles, stabilizing sod, installing vegetative buffer strips,

preserving mature vegetation, decreasing slope angles, and stabilizing with rip rap and other means of slope anchoring.

**Wildfire Mitigation** – Projects to mitigate the vulnerability of at-risk structures and associated loss of life from the threat of future wildfire.

**Post-Disaster Code Enforcement** – Projects designed to support the post-disaster rebuilding effort by ensuring sufficient expertise is on hand ensuring appropriate codes and standards, including NFIP local ordinance requirements, are utilized and enforced.

**5% Initiative Projects** – Provide an opportunity to fund mitigation actions consistent with the goals and objectives of the State or Tribal (Standard or Enhanced), local mitigation plans and meets all HMGP program requirements, but may be difficult to conduct a standard benefit/cost analysis to prove cost effectiveness.

### **Hazard Mitigation Planning**

Mitigation plans are the foundation for effective hazard mitigation. A mitigation plan is a demonstration of the commitment to reduce risks from natural hazards and serves as a strategic guide for decision makers as they commit resources. The mitigation planning process includes hazard identification and risk assessment leading to the development of a comprehensive mitigation strategy reducing risks to life and property. The mitigation strategy section of the plan identifies a range of specific mitigation actions and projects being considered to reduce risks to new and existing buildings and infrastructure.

### **Management Costs**

Management costs are any indirect costs and administrative expenses that are reasonably incurred by a Grantee or Sub grantee in administering a grant or sub grant award.

For more information concerning applications for FEMA Hazard Mitigation Assistance Grants, contact:

*Mississippi Emergency Management Agency  
Office of Mitigation  
601-933-6362*

**Other Grant Sources:**

Listed below are agencies providing programs to support communities developing and implementing various projects. The City of Biloxi will utilize these agencies and other sources, when possible, to further their mitigation goals.

<i>Mississippi Development Authority</i> 601-359-3179
<i>Mississippi Emergency Management Agency</i> 601-933-6362
<i>Mississippi Department of Environmental Quality</i> 601- 961-5171
<i>Mississippi Office of Homeland Security</i> 601-346-1500
<i>Mississippi State Department of Health</i> 601-576-7400
<i>USDA Rural Development</i> 601- 965-4316
<i>Mississippi Department of Marine Resources</i> 228-374-5000
<i>Mississippi Department of Transportation</i> 601-359-7025
<i>Mississippi Department of Wildlife, Fisheries and Parks</i> 601-432-2400
<i>US Army Corps of Engineers</i> Mobile District 334-690-2495
<i>Mississippi Forestry Commission</i> 601-359-1386
<i>USDA Natural Resources Conservation Service</i> National NRCS Office – 202-720-8851 State NRCS Conservationist – 601-965-5196

## 7.0 Plan Maintenance

This section outlines an efficient and effective process to guide the Biloxi Hazard Mitigation Committee in tracking progress made on mitigation strategies, document events that may occur, and integrate concepts identified with existing and new planning/ordinance documents. The desire of this process is to use this plan as a tool for lessening vulnerabilities and improving strategies identified during the plan update.

### 7.1 Monitoring, Evaluating and Updating the Plan

*Requirement §:201.6(c)(4)(i) The plan maintenance process shall include a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.*

#### Monitoring the Plan

The Biloxi Emergency Management Director, who serves as Chairman of the Biloxi Hazard Mitigation Committee, is responsible for ensuring the Plan is monitored for effectiveness and when necessary will collect information from other city departments to provide updates to the plan.. The Chairman is responsible for the general upkeep and oversight of the plan as it relates to compliance with the hazard mitigation grant program requirements, all files and necessary documentation pertaining to the plan, as well as conducting routine plan reviews. The Chairman is supported by the Directors of Administration and Community Development Department who will be responsible for administrative decisions and coordination of plan integration with future planning initiatives'.

The role of the Chairman includes the following tasks:

- Develop meeting agendas
- Invitations to other agencies/departments to participate in meetings
- Schedule at minimum an annual meeting with the Biloxi Hazard Mitigation Committee (February)
- Schedule post-disaster event meetings with the Biloxi Hazard Mitigation Committee for declared disasters if significant damage was sustained or the hazard identified vulnerabilities to city facilities/infrastructure that need to be addressed
- Coordinate updates to the public with the Public Affairs Manager when applicable (this may include but is not limited to plan amendments, completion of mitigation actions, notification of programs available to the public for mitigation, etc.). Examples of communication updates may include *Bmail*, city council meetings, facebook, etc.
- Coordinate plan updates every five years or more frequently if a need is determined by the Biloxi Hazard Mitigation Committee

During the annual meetings, the Committee will address any issues that may have arisen since the last plan update, assess events that impacted the Gulf Coast to determine if changes in the plan are required, and complete the evaluation and project implementation worksheets for inclusion in Appendix 8.7.A (as described in the next section). If significant changes, updates, or amendments to the plan are suggested by the Hazard Mitigation Committee, they will communicate with MEMA's Bureau of Mitigation Planning to determine the appropriate action the City should take.

### **Evaluating the Plan**

On an annual basis, the Chairman will lead the Biloxi Hazard Mitigation Committee in an exercise to complete an evaluation checklist to assist in documenting the status of mitigation strategies undertaken during the past year. The checklist is provided in Appendix 8.7-B and includes the following components:

- Evaluate the goals and objectives to ensure they address current and expected conditions
- Determine if the nature or magnitude of risks identified in the plan changed
- Evaluate if the current resources are adequate to implement the plan
- Document any implementation problems such as technical, political, legal or coordination issues encountered with other agencies
- Evaluate the effectiveness of the Biloxi Hazard Mitigation Committee
- Evaluate the effectiveness of the City's capabilities

To further support the evaluation checklist, two worksheets were developed and are provided in Appendix 8.7-B.

- Project Implementation Worksheet (listing of mitigation actions identified in Chapter 5)
- Evaluation of the Planning Team (FEMA's 386-4 "Bringing the Plan to Life")

The Evaluation Checklist and Project Implementation Worksheet will be completed annually (at minimum) and stored in Appendix 8.7-A. The Evaluation of the Planning Team is completed only if a change is recommended by the Chairman and/or the Committee.

## Updating the Plan

***Requirement 201.6(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within five years in order to continue to be eligible for mitigation project grant funding.***

In accordance with federal regulations, the Biloxi Hazard Mitigation/Floodplain Management Plan is updated every five years. In the event of a significant disaster or any substantial changes in land use planning or regulations impacting the mitigation goals and actions identified within this plan, more frequent updates will be made.

The Biloxi Emergency Management Director will complete a yearly progress report as described in the Evaluation Section above to improve the documentation of the progress made by the City on the strategies defined in this plan. In doing so, the plan will become more of a “living document” that is proactive and integrates with the City’s future initiatives.

If a significant event should warrant an update within the plan life, the Biloxi Emergency Management Director will follow the same procedures used in developing the original plan and will incorporate opportunities for the public to have input and provide comments.

Any amendments made to the plan during the planning cycle will be coordinated through the Director of Administration. Appendix 8.7-C will contain any documentation of amendments, if developed, and will be given to MEMA and FEMA for review during the life of the plan. Amendments will include, but not limited to, additional mitigation goals, objectives and actions.

### Documentation of Future Impacts

The Mississippi Emergency Management Agency utilizes damage assessment forms to assist with collecting data for damages incurred from an event. Guidelines and samples of these reports are provided in Appendix 8.7-D. Any completed damage assessment forms will be used as a tool to track potential mitigation projects and will be evaluated by the Biloxi Hazard Mitigation Council against the mitigation strategies that are included in this plan.

In addition, the Public Works Department utilizes a work order system that includes documenting the costs for labor and materials when maintenance/repairs are made to the City’s infrastructure (roads, sirens, drainage, lift stations, wells, etc.). This information will be reviewed providing the City with a history of maintenance/repair work completed on a specific system to determine if permanent actions should be developed. The Public Works Director should present an annual summary of work orders to the Biloxi Hazard Mitigation Committee to determine if mitigation funding should be applied for actions listed in the plan as it relates to the City’s infrastructure. The Chairman will coordinate the notice of intent and application with MEMA and the appropriate City Officials.

## 7.2 Incorporation into Existing Planning Mechanisms

*Requirement §:201.6(c)(4)(iii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.*

As outlined in Table 5.1 found in Chapter 5, the City of Biloxi has a number of regulatory policies in place that guide development. Examples of these planning mechanisms include the Comprehensive Plan, Zoning Ordinances, Building Codes, Fire Prevention Codes and the Flood Damage Prevention Ordinance. As these mechanisms are updated, the City, using a traditional planning approach, will continue to incorporate mitigation practices into these documents through implementation. The Director of Community Development will ensure all revisions made to governing documents are consistent with the elements outlined in the 2012 Biloxi Hazard Mitigation/Floodplain Management Plan by reviewing, and where applicable, incorporating hazard mitigation strategies into the updated documents.

The City of Biloxi will incorporate the requirements of this Plan into other programs, plans and regulations insuring consistency for implementation. For example, each time the City reviews and makes changes to their Floodplain Management Ordinance, staff with the City Planning Division will consider the modification of the zoning requirements and subdivisions requirements reflecting these changes to insure consistency in implementation.

The CRS Coordinator must maintain specific information on structures within the City's floodplain, maintain records on education and outreach efforts, and document proactive efforts the City takes in reducing the risk from flooding which could occur within the City of Biloxi. This information will be presented to the Biloxi Hazard Mitigation Committee at their yearly review meeting. The Committee will hear about updates to city plans, regulations and policies as a standard agenda item. The Hazard Mitigation Planning Committee may recommend elements of the Biloxi Hazard Mitigation/Floodplain Management Plan be included within proposed planning mechanisms under development or review by the City.

The Floodplain Manager will be tasked with assuring the building codes and floodplain ordinances are enforced in accordance with this Plan. Recognizing the importance of proper building techniques, as outlined in the current building codes, safe structures play an integral role in life and safety matters. The Building Official and Floodplain Manager will attend available workshops insuring City codes remain up to date and there is a full understanding of the codes they are authorized to enforce. This will result in a reduction in losses of property, injuries, and/or deaths resulting from identified hazards.

Biloxi will continue to evaluate and review items detailed in this Plan for consideration of the other local planning mechanisms. On an annual basis, components of the Hazard Mitigation/Floodplain Management Plan may be added or omitted as deemed necessary by the Biloxi Hazard Mitigation Committee and respective City officials. This process will cover a five-year period allowing prioritizing of long-term goals and more accurate tracking and forecasting of needs.

When a new plan is being developed, the Chairman of the Biloxi Hazard Mitigation Committee will provide a copy of the hazard mitigation plan to the agency/consultant responsible for its development.

### 7.3 Continued Public Involvement

***Requirement §:201.6(c)(4)(iii): The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.***

Biloxi appreciates the importance of continued public involvement in the evolution of this plan. Opportunities will be presented to the community for public involvement and encouragement to participate in ongoing activities ensuring the health and wellbeing of their community is addressed by the City.

If significant changes are required of the plan by MEMA/FEMA, the Biloxi Hazard Mitigation Committee will notify the public and encourage their participation in meetings to review any changes. The Committee may also send notifications to the public on plan amendments, completion of mitigation actions, and notification of programs available to the public for mitigation, etc. These meetings/notifications will be advertised on the City's web page, posted at City Hall, *Bmail* notifications and newspaper advertisements as appropriate.

A copy of the Hazard Mitigation/Floodplain Management Plan will be available to the public at the Community Development Department.

During the next five years, the Biloxi Hazard Mitigation Committee will meet with various local and state agencies/organizations to strengthen relationships, identify partnering opportunities to address identified mitigation actions and increase awareness of the capabilities these groups can provide.

Another opportunity for meeting with agencies and surrounding communities (including neighboring state agencies) and learn more about emergency preparedness, response and recovery operations is to attend conferences, workshops, and seminars sponsored by various agencies. These conferences are typically held each year within the month specified by the 2013 calendar presented below:

- National Hurricane Conference – New Orleans, LA, March 25-28 2013
- Mississippi Preparedness Summit “Partners in Preparedness” April 17-19, 2013
- Gulf States Hurricane Conference (MS, LA, TX, AL) - June 10-14, 2013
- Mississippi Civil Defense Emergency Management Association – November

A meeting/workshop documentation form was developed to assist the Biloxi Hazard Mitigation Committee in documenting public/agency involvement activities for this plan cycle, as well as provide valuable information needed in future plan updates. This form is provided in Appendix 8.7-E.